# **PARSONS**

150 Federal Street • Boston, Massachusetts 02110 • (617) 946-9400 • Fax: (617) 946-9777 • www.parsons.com

May 1, 2006

Mr. Julio Vazquez USEPA Region II Superfund Federal Facilities Section 290 Broadway, 18<sup>th</sup> Floor New York, NY 10007-1866

Mr. Kuldeep K. Gupta, P.E. New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Remedial Bureau A, Section C 625 Broadway Albany, NY 12233-7015

Ms. Charlotte Bethoney
Public Health Specialist
Bureau of Environmental Exposure Investigation
Flanigan Square, Room 300
547 River Street
Troy, NY 12180

Subject:

Submittal of Response to Regulatory Agency Comments and Insert/Replacement Pages for Final Remedial Investigation Report for two EBS Sites in the Proposed Industrial Development Area (SEADs 121C and 121I), Seneca Army Depot Activity, EPA Site ID# NY0213820830, NY Site ID# 8-50-006.

Dear Mr. Vazquez/Mr. Gupta/Ms. Bethoney:

Parsons Infrastructure & Technology Group Inc. (Parsons) is pleased to submit copies of the U.S. Army's responses to USEPA and NYSDEC comments on the Draft Final Remedial Investigation Report for two EBS Sites in the Proposed Industrial Development Area (SEADs 121C and 121I) at the Seneca Army Depot Activity in Romulus, New York. Additionally, based on the responses to regulatory comments, Parsons is pleased to provide copies of insert/replacement pages that we believe are needed to convert the previously submitted Draft Final Report to the Final Remedial Investigation Report for the identified sites. Furthermore, Parsons is pleased to provide instructions for inserting and replacing pages in the Draft Final Report to affect its change to the Final Report. Finally, Parsons is pleased to provide each of you with electronic copies in Adobe® Acrobat® format of the Final Remedial Investigation Report in its entirety for the aforementioned sites.

Should you have any questions, please do not hesitate to call me at (617) 449-1570 to discuss them.

Sincerely,

Jeffrey Adams Project Manager

#### **Enclosures**

cc:

S. Absolom, SEDA

R. Battaglia, USACE

J. Fellinger (TechLaw)

C. Boes, AEC

K. Hoddinott, USACHPPM

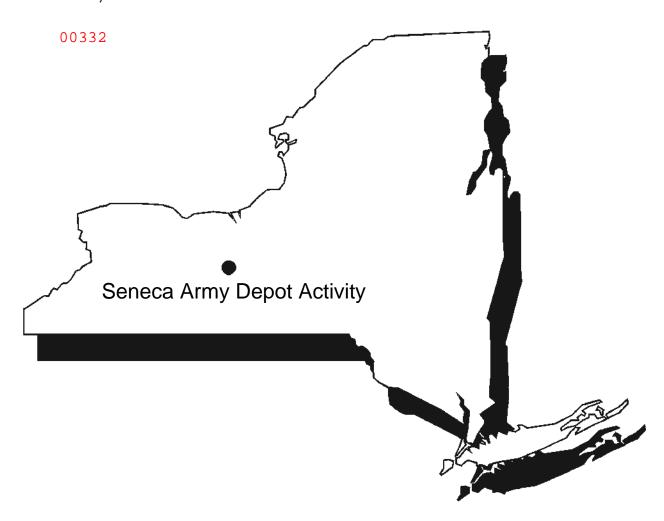
S. Nohrstedt, USACE



# US Army, Engineering & Support Center Huntsville, AL



# Seneca Army Depot Activity Romulus, NY



# FINAL REMEDIAL INVESTIGATION REPORT

TWO EBS SITES IN PLANNED INDUSTRIAL DEVELOPMENT AREA (SEAD-121C AND SEAD121I)

EPA Site ID# NY0213820830 NY Site ID# 8-50-006 CONTRACT NO. DACA87-95-D-0031 DELIVERY ORDER NO. 0030

**APRIL 2006** 

#### **FINAL**

## REMEDIAL INVESTIGATION REPORT FOR TWO EBS SITES IN THE PLANNED INDUSTRIAL DEVELOPMENT AREA, SENECA ARMY DEPOT ACTIVITY ROMULUS, NEW YORK

#### **Prepared For:**

Seneca Army Depot Activity and U.S. Army Corps of Engineers Huntsville Center

**Prepared By:** 

#### **PARSONS**

150 Federal Street Boston, Massachusetts

Contract No. DACA87-95-D-0031 Delivery Order No. 30 USEPA Site ID: NY0213820830 NY Site ID: 8-50-006

| <u>Section</u> | <u>on</u>   |   |   | <u>Page</u> |  |  |
|----------------|---|---|---|-------------|--|--|
| Table          | of Conte  | nts   |   | i           |  |  |
| List o         | f Tables.   |   |   | ix          |  |  |
| List o         | f Figures   |   |   | xiv         |  |  |
| List o         | f Append  | lices   |   | xvi         |  |  |
| List o         | f Acrony  | ms  |   | xvii        |  |  |
| List o         | f Referen   | ices  |   | xxii        |  |  |
| EXE            | CUTIVE  | SUMM  | IARY  | F-1         |  |  |
| E.1            |   |   | YARD (SEAD-121C)  |             |  |  |
| 2.1            | E.1.1   |   | e and Extent of Impacts                                     |             |  |  |
|                | E.1.2   |   | ne Human Health Risk Assessment                             |             |  |  |
|                | E.1.3   |   | ning-Level Ecological Risk Assessment                       |             |  |  |
| E.2            | RUMORED COSMOLINE OIL DISPOSAL AREA (SEAD-1211) E |   |   |             |  |  |
|                | E.2.1   | Nature and Extent of Impacts E-4              |   |             |  |  |
|                | E.2.2   | Baseline Human Health Risk Assessment E-:     |   |             |  |  |
|                | E.2.3   | Screening-Level Ecological Risk Assessment E- |   |             |  |  |
| 1.0            | INTR  | ODUCI   | ΓΙΟΝ  | 1-1         |  |  |
|                | 1.1   | PURPOSE OF REPORT1-                           |   |             |  |  |
|                | 1.2   | GENE  | ERAL DESCRIPTION OF SEDA                                    | 1-1         |  |  |
|                | 1.3   | SITE  | BACKGROUND  | 1-2         |  |  |
|                |   | 1.3.1   | The Defense Reutilization and Marketing Office (DRMO) – SEA | D-121C1-2   |  |  |
|                |   | 1.3.2   | The Rumored Cosmoline Oil Disposal Area – SEAD-121I         | 1-3         |  |  |
|                | 1.4   | ENVI  | RONMENTAL SETTING   | 1-3         |  |  |
|                |   | 1.4.1   | Geology   | 1-3         |  |  |
|                |   | 1.4.2   | Hydrogeology  | 1-4         |  |  |
|                |   | 1.4.2   | Regional/Local Land Use                                     | 1-5         |  |  |
|                |   | 1.4.3   | Regional Topography   | 1-6         |  |  |
|                |   | 1.4.4   | Regional Climate  | 1-6         |  |  |
|                | 1.5   | OFF-S   | SITE WELL INVENTORY   | 1-8         |  |  |
|                | 1.6   | REPO  | RT ORGANIZATION   | 1-8         |  |  |

| Section | <u>on</u> |         |   | P <u>age</u> |
|---------|-----------|---------|---|--------------|
| 2.0     | STUI      | OY ARE  | A INVESTIGATION                                       | 2-1          |
|         | 2.1       | INTRO   | ODUCTION  | 2-1          |
|         | 2.2       | METH    | HODS AND MATERIALS                                    | 2-3          |
|         |           | 2.2.1   | Site Survey Program                                   | 2-3          |
|         |           | 2.2.2   | Soil Investigation                                    | 2-4          |
|         |           |         | 2.2.2.1 Soil Borings (Surface and Subsurface)         | 2-4          |
|         |           |         | 2.2.2.2 Ditch Soils                                   | 2-6          |
|         |           | 2.2.3   | Surface Water Investigations                          | 2-7          |
|         |           | 2.2.4   | Groundwater Investigation                             | 2-8          |
|         |           |         | 2.2.4.1 Monitoring Well Installation                  | 2-8          |
|         |           |         | 2.2.4.2 Monitoring Well Development                   | 2-9          |
|         |           |         | 2.2.4.3 Groundwater Sampling                          | 2-10         |
|         |           | 2.2.5   | Sample Analyses                                       | 2-11         |
|         |           |         | 2.2.5.1 Soil Samples                                  | 2-11         |
|         |           |         | 2.2.5.2 Surface Water Samples                         | 2-11         |
|         |           |         | 2.2.5.3 Ditch Soil Samples                            | 2-12         |
|         |           |         | 2.2.5.4 Groundwater Samples                           | 2-12         |
| 3.0     | DETA      | AILED S | SITE INVESTIGATION                                    | 3-1          |
|         | 3.1       | SEAD    | D-121C: DEFENSE REUTILIZATION AND MARKING OFFICE YA   | RD           |
|         |           | (DRM    | 10)   | 3-1          |
|         |           | 3.1.1   | Previous Investigations                               | 3-1          |
|         |           | 3.1.2   | Components of EBS and RI at the DRMO Yard – SEAD-121C | 3-1          |
|         |           | 3.1.3   | Site Survey   |              |
|         |           | 3.1.4   | Soil Investigation                                    | 3-1          |
|         |           |         | 3.1.4.1 Soil Borings                                  | 3-2          |
|         |           |         | 3.1.4.2 Surface Soils                                 | 3-3          |
|         |           | 3.1.5   | Ditch Soil  | 3-4          |
|         |           | 3.1.6   | Surface Water   | 3-4          |
|         |           | 3.1.7   | Groundwater Investigation                             | 3-5          |
|         |           |         | 3.1.7.1 Monitoring Well Installation                  | 3-5          |
|         |           |         | 3.1.7.2 Monitoring Well Development                   | 3-6          |
|         |           |         | 3.1.7.3 Groundwater Sampling                          | 3-6          |
|         |           | 3.1.8   | Aquifer Testing                                       | 3-6          |

| <u>Section</u> |     |        |   |      |  |
|----------------|-----|--------|---|------|--|
|                | 3.2 | SEAD   | 0-121I: RUMORED COSMOLINE OIL DISPOSAL AREA | 3-7  |  |
|                |     | 3.2.1  | Results of Previous Investigations          | 3-7  |  |
|                |     | 3.2.2  | Components of the EBS and RI at SEAD-121I   |      |  |
|                |     | 3.2.3  | Site Survey                                 | 3-7  |  |
|                |     | 3.2.4  | Soil Investigation                          |      |  |
|                |     |        | 3.2.4.1 Introduction                        | 3-7  |  |
|                |     |        | 3.2.4.2 Subsurface Soils                    | 3-8  |  |
|                |     |        | 3.2.4.3 Surface Soils                       | 3-8  |  |
|                |     |        | 3.2.4.4 Ditch Soils                         | 3-8  |  |
|                |     | 3.2.5  | Surface Water                               | 3-9  |  |
|                |     | 3.2.6  | Groundwater Investigation                   | 3-10 |  |
| 4.0            | NAT | URE AN | ID EXTENT OF IMPACTS                        | 4-1  |  |
|                | 4.1 | INTR   | ODUCTION                                    | 4-2  |  |
|                | 4.2 | QUAI   | LITY CONROL                                 | 4-3  |  |
|                |     | 4.2.1  | Discussion of RPD Results                   | 4-4  |  |
|                |     | 4.2.2  | Summary of RPD Results by Site and Media    | 4-5  |  |
|                |     |        | 4.2.2.1 SEAD-121C                           | 4-5  |  |
|                |     |        | 4.2.2.2 SEAD-121I                           | 4-8  |  |
|                | 4.3 | DRM    | O YARD (SEAD-121C)                          | 4-9  |  |
|                |     | 4.3.1  | Surface Soils                               | 4-9  |  |
|                |     |        | 4.3.1.1 Volatile Organic Compounds          | 4-10 |  |
|                |     |        | 4.3.1.2 Semivolatile Organic Compounds      | 4-11 |  |
|                |     |        | 4.3.1.3 Pesticides and PCBs                 | 4-14 |  |
|                |     |        | 4.3.1.4 Metals                              | 4-14 |  |
|                |     |        | 4.3.1.5 Other Constituents                  | 4-19 |  |
|                |     | 4.3.2  | Subsurface Soil                             | 4-19 |  |
|                |     |        | 4.3.2.1 Volatile Organic Compounds          | 4-20 |  |
|                |     |        | 4.3.2.2 Semivolatile Organic Compounds      |      |  |
|                |     |        | 4.3.2.3 Pesticides and PCBs                 |      |  |
|                |     |        | 4.3.2.4 Metals                              | 4-22 |  |
|                |     |        | 4 3 2 5 Other Constituents                  | 4-23 |  |

| <u>Secti</u> | <u>on</u> |       |  | P <u>age</u> |
|--------------|-----------|-------|--|--------------|
|              |           | 4.3.3 | Groundwater                                    | 4-23         |
|              |           |       | 4.3.3.1 Volatile Organic Compounds             | 4-24         |
|              |           |       | 4.3.3.2 Semivolatile Organic Compounds (SVOCs) | 4-24         |
|              |           |       | 4.3.3.3 Pesticides and PCBs                    | 4-25         |
|              |           |       | 4.3.3.4 Metals                                 | 4-25         |
|              |           |       | 4.3.3.5 Other Constituents                     | 4-27         |
|              |           |       | 4.3.3.6 Building 360 (SEAD-27)                 | 4-27         |
|              |           | 4.3.4 | Surface Water                                  | 4-29         |
|              |           |       | 4.3.4.1 Volatile Organic Compounds             | 4-29         |
|              |           |       | 4.3.4.2 Semivolatile Organic Compounds         | 4-29         |
|              |           |       | 4.3.4.3 Pesticides and PCBs                    | 4-30         |
|              |           |       | 4.3.4.4 Metals                                 | 4-30         |
|              |           |       | 4.3.4.5 Other Constituents                     | 4-31         |
|              | 4.4       | SEAD  | 0-1211 – RUMORED COSMOLINE OIL DISPOSAL FIELD  | 4-31         |
|              |           | 4.4.1 | Surface Soil and Ditch Soil                    | 4-32         |
|              |           |       | 4.4.1.1 Volatile Organic Compounds             | 4-32         |
|              |           |       | 4.4.1.2 Semivolatile Organic Compounds         | 4-33         |
|              |           |       | 4.4.1.3 Pesticides and PCBs                    | 4-34         |
|              |           |       | 4.4.1.4 Metals                                 | 4-35         |
|              |           |       | 4.4.1.5 Other Constituents                     | 4-38         |
|              |           | 4.4.2 | Surface Water                                  | 4-38         |
|              |           |       | 4.4.2.1 Volatile Organic Compounds             | 4-38         |
|              |           |       | 4.4.2.2 Semivolatile Organic Compounds         | 4-38         |
|              |           |       | 4.4.2.3 Pesticides and PCBs                    | 4-39         |
|              |           |       | 4.4.2.4 Metals                                 | 4-39         |
|              |           |       | 4.4.2.5 Other Constituents                     | 4-40         |
| 5.0          | CON       | TAMIN | ANT FATE AND TRANSPORT                         | 5-1          |
|              | 5.1       | CONC  | CEPTUAL SITE MODEL OF SEAD-121C                | 5-1          |
|              |           | 5.1.1 | Summary of Physical Site Characteristics       | 5-1          |
|              |           | 5.1.2 | Summary of Chemical Impacts at SEAD-121C       | 5-3          |
|              |           | 5.1.3 | Conceptual Model Summary                       | 5-7          |
|              | 5.2       | CONC  | CEPTUAL SITE MODEL OF SEAD-121I                | 5-7          |
|              |           | 5.2.1 | Summary of Physical Site Characteristics       | 5-8          |
|              |           | 5.2.2 | Summary of Chemical Impacts at SEAD-121I       | 5-8          |
|              |           | 5.2.3 | Conceptual Model Summary                       | 5-11         |

| Secti | <u>on</u> |         |   | P <u>age</u> |
|-------|-----------|---------|---|--------------|
|       | 5.3       | SEAD    | -121C AND SEAD-121I CONTAMINANT FATE AND TRANSPOR         | RT5-11       |
|       |           | 5.3.1   | Overview of Compound Fate                                 | 5-12         |
|       |           |         | 5.3.1.1 Fate of Inorganic Compounds (Metals)              | 5-12         |
|       |           |         | 5.3.1.2 Fate of Organic Compounds                         | 5-15         |
|       |           | 5.3.2   | Fate and Transport of Specific Compounds at SEAD-121C and |              |
|       |           |         | SEAD-121I   | 5-17         |
|       |           |         | 5.3.2.1 Metals  | 5-18         |
|       |           |         | 5.3.2.2 Volatile Organic Compounds                        | 5-26         |
|       |           |         | 5.3.2.3 Semivolatile Organic Compounds                    | 5-28         |
|       |           |         | 5.3.2.4 Pesticides/PCBs                                   | 5-31         |
| 6.0   | BASI      | ELINE H | IUMAN HEALTH RISK ASSESSMENT                              | 6-1          |
|       | 6.1       | SECT    | ION ORGANIZATION  | 6-1          |
|       | 6.2       | CONC    | CEPTUAL SITE MODEL  | 6-3          |
|       |           | 6.2.1   | Sources, Release Mechanism, and Affected Media            | 6-3          |
|       |           | 6.2.2   | Fate and Transport  | 6-4          |
|       |           | 6.2.3   | Physical Setting and Characteristics                      | 6-6          |
|       |           | 6.2.4   | Land Use and Potentially Exposed Populations              | 6-7          |
|       |           |         | 6.2.4.1 Current Land Use                                  | 6-7          |
|       |           |         | 6.2.4.2 Potential Future Land Use                         | 6-8          |
|       |           |         | 6.2.4.3 Potentially Exposed Populations                   | 6-9          |
|       |           | 6.2.5   | Identification of Exposure Pathways                       | 6-10         |
|       | 6.3       | DATA    | A EVALUATION  | 6-12         |
|       |           | 6.3.1   | Data Used in Risk Assessment                              | 6-12         |
|       |           | 6.3.2   | Background Data   | 6-13         |
|       |           | 6.3.3   | Data Useability Evaluation                                | 6-14         |
|       |           | 6.3.4   | Precision   | 6-15         |
|       |           | 6.3.5   | Accuracy  | 6-16         |
|       |           | 6.3.6   | Representativeness  | 6-17         |
|       |           |         | 6.3.6.1 Sample Preservation and Technical Holding Time    | 6-18         |
|       |           |         | 6.3.6.2 Other QA/QC Results                               | 6-18         |
|       |           | 6.3.7   | Protocol for Using Field Duplicate Results                | 6-18         |
|       | 6.4       | IDEN    | TIFICATION OF CHEMICALS OF POTENTIAL CONCERN              | 6-19         |

| Section_ |       |  | P <u>age</u> |
|----------|-------|--|--------------|
| 6.5      | EXPO  | SURE ASSESSMENT  | 6-20         |
|          | 6.5.1 | Derivation of Exposure Point Concentrations              | 6-21         |
|          |       | 6.5.1.1 Soil and Ditch Soil EPC                          | 6-21         |
|          |       | 6.5.1.2 Groundwater EPC                                  | 6-22         |
|          |       | 6.5.1.3 Surface Water EPC                                | 6-22         |
|          |       | 6.5.1.4 Ambient Air EPC from Soil Dust                   | 6-23         |
|          |       | 6.5.1.5 Ambient Air EPC from Ditch Soil Dust             | 6-23         |
|          | 6.5.2 | Exposure Factor Assumptions                              | 6-23         |
|          | 6.5.3 | Quantification of Exposure                               | 6-25         |
|          |       | 6.5.3.1 Inhalation of Particulate Matter in Ambient Air  | 6-26         |
|          |       | 6.5.3.2 Incidental Ingestion of Soil                     | 6-32         |
|          |       | 6.5.3.3 Dermal Contact with Soils                        | 6-32         |
|          |       | 6.5.3.4 Groundwater Intake                               | 6-33         |
|          |       | 6.5.3.5 Dermal Contact with Groundwater                  | 6-33         |
|          |       | 6.5.3.6 Dermal Contact with Surface Water                | 6-35         |
|          |       | 6.5.3.7 Evaluation of Lead Exposure                      | 6-36         |
| 6.6      | TOXI  | CITY ASSESSMENT  | 6-37         |
| 6.7      | RISK  | CHARACTERIZATION   | 6-39         |
|          | 6.7.1 | Non-carcinogenic Effects                                 | 6-39         |
|          | 6.7.2 | Carcinogenic Effects                                     | 6-40         |
|          | 6.7.3 | Risk Characterization for Lead Exposure                  | 6-41         |
|          | 6.7.4 | Risk Summary   | 6-41         |
|          |       | 6.7.4.1 SEAD-121C  | 6-42         |
|          |       | 6.7.4.2 SEAD-121I  | 6-43         |
|          |       | 6.7.4.3 Lead Risk Characterization Results               | 6-44         |
| 6.8      | UNCE  | ERTAINTY ANALYSIS  | 6-46         |
|          | 6.8.1 | Uncertainty in Site Characterization and Data Evaluation | 6-46         |
|          | 6.8.2 | Uncertainty in Exposure Assessment                       | 6-47         |
|          | 6.8.3 | Uncertainty in Toxicity Assessment                       | 6-49         |
|          | 6.8.4 | Uncertainty in Risk Characterization                     | 6-50         |
| 6.9      | COC   | DENTIFICATION  | 6-51         |
|          | 6.9.1 | SEAD-121C Soil, Groundwater, and Surface Water           | 6-51         |
|          | 6.9.2 | SEAD-121I Soil and Surface Water                         | 6-53         |
| 6.10     | COMI  | PARISON OF CHEMICALS DETECTED IN SITE SAMPLES TO         |              |
|          | ARAF  | RS   | 6-53         |

| Section | <u>on</u> |        |   | P <u>age</u> |
|---------|-----------|--------|---|--------------|
|         | 6.11      | SUMM   | IARY AND CONCLUSION   | 6-54         |
|         |           | 6.11.1 | SEAD-121C Soil and Surface Water Exposure                             | 6-54         |
|         |           | 6.11.2 | SEAD-121I Soil and Surface Water Exposure                             |              |
|         |           |        | Conclusion  |              |
| 7.0     | SCRE      | ENING- | -LEVEL ECOLOGICAL RISK ASSESSMENT                                     | 7-1          |
|         | 7.1       | INTRO  | DDUCTION  | 7-1          |
|         | 7.2       | STEP   | 1A: SCREENING-LEVEL PROBLEM FORMULATION                               | 7-2          |
|         |           | 7.2.1  | Environmental Setting   | 7-2          |
|         |           |        | 7.2.1.1 SEAD-121C - The DRMO Yard                                     | 7-3          |
|         |           |        | 7.2.1.2 SEAD-121I - The Rumored Cosmoline Oil Disposal Area           | 7-4          |
|         |           |        | 7.2.1.3 Habitat and Ecological Community Characterization             | 7-4          |
|         |           | 7.2.2  | Preliminary Ecological Conceptual Site Model                          | 7-6          |
|         |           | 7.2.3  | Identification of Ecological COPCs                                    | 7-7          |
|         |           | 7.2.4  | Selection of Assessment Endpoints                                     | 7-10         |
|         |           | 7.2.5  | Selection of Receptor Species   | 7-10         |
|         |           | 7.2.6  | Characterization of Exposure Pathways                                 | 7-13         |
|         | 7.3       | STEP   | 1B: SCREENING-LEVEL EFFECTS EVALUATION                                | 7-13         |
|         | 7.4       | STEP 2 | 2A: SCREENING-LEVEL EXPOSURE ESTIMATE                                 | 7-14         |
|         | 7.5       | STEP 2 | 2B: SCREENING-LEVEL RISK CALCULATION                                  | 7-17         |
|         |           | 7.5.1  | Summary of Risk Results and Preliminary COC Identification            | 7-18         |
|         |           |        | 7.5.1.1 SEAD-121C Surface Water                                       | 7-18         |
|         |           |        | 7.5.1.2 SEAD-121C Soil  | 7-19         |
|         |           |        | 7.5.1.3 SEAD-121C Ditch Soil  | 7-20         |
|         |           |        | 7.5.1.4 SEAD-121I Surface Water                                       | 7-21         |
|         |           |        | 7.5.1.5 SEAD-121I Soil  | 7-21         |
|         |           |        | 7.5.1.6 SEAD-121I Ditch Soil  | 7-22         |
|         |           | 7.5.2  | Uncertainties for ERA Steps 1 and 2                                   | 7-24         |
|         |           |        | 7.5.2.1 Uncertainty in Screening-Level Problem Formulation            | 7-24         |
|         |           |        | 7.5.2.2 Uncertainty in Screening-Level Ecological Effect Evaluation . | 7-24         |
|         |           |        | 7.5.2.3 Uncertainty in Screening-Level Exposure Assessment            | 7-25         |
|         |           |        | 7.5.2.4 Uncertainty in Screening-Level Risk Characterization          | 7-27         |

| <u>Sectio</u> | <u>on</u> |        |  | P <u>age</u> |
|---------------|-----------|--------|--|--------------|
|               | 7.6       | FURT   | HER REFINEMENT OF CHEMICALS OF CONCERN                             | 7-27         |
|               |           | 7.6.1  | Overall Conservative Evaluation of Ecological Risks in Steps 1 and | 27-28        |
|               |           | 7.6.2  | Identification of COCs in SEAD-121C Surface Water                  | 7-31         |
|               |           | 7.6.3  | Identification of COCs in SEAD-121C Soil                           | 7-31         |
|               |           | 7.6.4  | Identification of COCs in SEAD-121C Ditch Soil                     | 7-37         |
|               |           | 7.6.5  | Identification of COCs in SEAD-121I Surface Water                  | 7-39         |
|               |           | 7.6.6  | Identification of COCs in SEAD-121I Soil                           | 7-39         |
|               |           | 7.6.7  | Identification of COCs in SEAD-121I Ditch Soil                     | 7-45         |
|               | 7.7       | RISK   | MANAGEMENT   | 7-49         |
|               |           | 7.7.1  | Impact to Habitat Based on Future Site Use                         | 7-49         |
|               |           | 7.7.2  | Comparison of Site Data with Background Data                       | 7-49         |
|               |           | 7.7.3  | Contaminant Source Management                                      |              |
|               | 7.8       | SUMN   | MARY   |              |
| 8.0           | CONO      | CLUSIO | NS AND RECOMMENDATIONS   | 8-1          |
|               | 8.1       | CONC   | LUSIONS  | 8-1          |
|               |           | 8.1.1  | SEAD-121C: The Defense Reutilization and Marketing Office Yard     | 8-1          |
|               |           |        | SEAD-121I: Rumored Cosmoline Oil Disposal Area                     |              |
|               | 8.2       |        | MMENDATIONS  | Ջ_1          |

| Table         |  |
|---------------|--|
| <u>Number</u> | <u>Title</u>   |
| 1-1           | Climatological Data for Seneca Army Depot Activity                             |
| 2-1           | Summary of Well Development Criteria   |
| 2-2           | Summary of Soil Sample Analyses  |
| 2-3           | Summary of Surface Water Sample Analyses                                       |
| 2-4           | Summary of Ditch Soil Sample Analyses  |
| 2-5           | Summary of Groundwater Sample Analyses   |
| 3-1           | Summary of Survey Data: SEAD-121C  |
| 3-2           | Summary of Soil Sample Analyses: SEAD-121C                                     |
| 3-3           | Summary of Ditch Soil Sample Analyses: SEAD-121C                               |
| 3-4           | Summary of Ditch Soil Sample Characteristics: SEAD-121C                        |
| 3-5           | Summary of Surface Water Sample Analyses: SEAD-121C                            |
| 3-6           | SEAD-121C – Summary of Temporary Well Installations and Water Level Elevations |
| 3-7           | SEAD-121C – Monitoring Well Construction Details                               |
| 3-8           | SEAD-121C – Monitoring Well Development Information                            |
| 3-9           | Summary of Groundwater Sample Analyses: SEAD-121C                              |
| 3-10          | Monitoring Well Field Sampling Information: SEAD-121C                          |
| 3-11          | Summary of Groundwater Elevation Data: SEAD-121C                               |
| 3-12          | Summary of Survey Data: SEAD-121I  |
| 3-13          | Summary of Surface Soil Sample Analyses: SEAD-121I                             |
| 3-14          | Summary of Ditch Soil Sample Analyses: SEAD-121I                               |
| 3-15          | Summary of Ditch Soil Sample Characteristics: SEAD-121I                        |
| 3-16          | Summary of Surface Water Sample Analyses: SEAD-121I                            |
| 4-1A          | Summary of RPD Values Greater Than 50%   |
| 4-1B          | Quality Control of Field Duplicates – Surface Soil at SEAD-121C                |
| 4-1C          | Quality Control of Field Duplicates - Ditch Soil at SEAD-121C                  |
| 4-1D          | Quality Control of Field Duplicates – Groundwater at SEAD-121C                 |
| 4-1E          | Quality Control of Field Duplicates – Surface Water at SEAD-121C               |
| 4-1F          | Quality Control of Field Duplicates – Groundwater at Building 360              |
| 4-1G          | Quality Control of Field Duplicates – Surface Soil at SEAD-121I                |
| 4-1H          | Quality Control of Field Duplicates - Ditch Soil at SEAD-121I                  |
| 4-1I          | Quality Control of Field Duplicates – Surface Water at SEAD-121I               |
| 4-2           | Summary Statistics for Surface Soil: SEAD-121C                                 |
| 4-3           | Summary Statistics for Ditch Soil: SEAD-121C                                   |

April 2006
P:\PIT\Projects\SENECA\PID Area\Report\Final\text\TOC.doc

| Table         |   |
|---------------|---|
| <u>Number</u> | <u>Title</u>  |
| 4-4           | Summary Statistics for Subsurface Soil: SEAD-121C                                 |
| 4-5A          | Summary Statistics for Groundwater from EBS: SEAD-121C                            |
| 4-5B          | Summary Statistics for Groundwater from RI: SEAD-121C                             |
| 4-6           | Summary Statistics for Groundwater at Building 360 (SEAD-27)                      |
| 4-7           | Summary Statistics for Surface Water: SEAD-121C                                   |
| 4-8           | Summary Statistics for All Soils (Surface and Ditch): SEAD-121I                   |
| 4-9           | Summary Statistics for Surface Water: SEAD-121I                                   |
| 5-1           | Relative Relationship between $K_{\text{oc}}$ and mobility                        |
| 6-1           | Selection of Exposure Pathways  |
| 6-2A          | SEAD-121C Total Soil - Occurrence, Distribution, and Selection of Chemicals of    |
|               | Potential Concern   |
| 6-2B          | SEAD-121C Surface Soil - Occurrence, Distribution, and Selection of Chemicals of  |
|               | Potential Concern   |
| 6-2C          | SEAD-121C Ditch Soil - Occurrence, Distribution, and Selection of Chemicals of    |
|               | Potential Concern   |
| 6-2D          | SEAD-121C Groundwater - Occurrence, Distribution, and Selection of Chemicals of   |
|               | Potential Concern   |
| 6-2E          | SEAD-121C Surface Water - Occurrence, Distribution, and Selection of Chemicals of |
|               | Potential Concern   |
| 6-3A          | SEAD-121I Surface Soil - Occurrence, Distribution, and Selection of Chemicals of  |
|               | Potential Concern   |
| 6-3B          | SEAD-121I Ditch Soil - Occurrence, Distribution, and Selection of Chemicals of    |
|               | Potential Concern   |
| 6-3C          | SEAD-121I Surface Water - Occurrence, Distribution, and Selection of Chemicals of |
|               | Potential Concern   |
| 6-4A          | SEAD-121C Total Soil – Soil Exposure Point Concentration Summary                  |
| 6-4B          | SEAD-121C Surface Soil – Soil Exposure Point Concentration Summary                |
| 6-4C          | SEAD-121C Ditch Soil - Soil Exposure Point Concentration Summary                  |
| 6-4D          | SEAD-121C Groundwater - Groundwater Exposure Point Concentration Summary          |
| 6-4E          | SEAD-121C Surface Water –Exposure Point Concentration Summary                     |
| 6-5A          | SEAD-121I Surface Soil – Soil Exposure Point Concentration Summary                |
| 6-5B          | SEAD-121I Ditch Soil – Soil Exposure Point Concentration Summary                  |
| 6-5C          | SEAD-121I Surface Warer – Surface Water Exposure Point Concentration Summary      |

| Table         |  |
|---------------|--|
| <u>Number</u> | <u>Title</u>   |
| 6-6A          | SEAD-121C Surface Soil – Ambient Air Exposure Point Concentrations for Industrial    |
|               | Workers and Adolescent Trespasser  |
| 6-6B          | SEAD-121I Surface Soil – Ambient Air Exposure Point Concentrations for Industrial    |
|               | Workers and Adolescent Trespasser  |
| 6-6C          | SEAD-121I Surface Soil – Ambient Air Exposure Point Concentrations for               |
|               | Construction Worker  |
| 6-7           | SEAD-121C Total Soil – Ambient Air Exposure Point Concentrations for Construction    |
|               | Worker   |
| 6-8A          | SEAD-121C Ditch Soil – Ambient Air Exposure Point Concentrations for Industrial      |
|               | Workers and Adolescent Trespasser  |
| 6-8B          | SEAD-121I Ditch Soil – Ambient Air Exposure Point Concentrations for Industrial      |
|               | Workers and Adolescent Trespasser  |
| 6-8C          | SEAD-121C Ditch Soil – Ambient Air Exposure Point Concentrations for Construction    |
|               | Worker   |
| 6-8D          | SEAD-121I Ditch Soil – Ambient Air Exposure Point Concentrations for Construction    |
|               | Worker   |
| 6-9A          | Exposure Factors Assumptions for Construction Worker                                 |
| 6-9B          | Exposure Factors Assumptions for Industrial Worker                                   |
| 6-9C          | Exposure Factors Assumptions for Adolescent Trespasser                               |
| 6-10          | Suspended Particulate Concentrations Measured at SEDA                                |
| 6-11A         | Non-Cancer Toxicity Data – Oral/Dermal   |
| 6-11B         | Non-Cancer Toxicity Data – Inhalation  |
| 6-11C         | Cancer Toxicity Data – Oral/Dermal   |
| 6-11D         | Cancer Toxicity Data – Inhalation  |
| 6-12A         | SEAD-121C – Calculation of Total Non-Carcinogenic and Carcinogenic Risk – RME and CT |
| 6-12B         | SEAD-121I – Calculation of Total Non-Carcinogenic and Carcinogenic Risk – RME and CT |
| 6-13          | Contributing COPCs to Human Health Risk at SEAD-121I                                 |
| 6-14A         | Calculation of Intake and Risk from the Intake of Groundwater – SEAD-121C &          |
|               | SEAD-27 – RME  |
| 6-14B         | Calculation of Intake and Risk from Dermal Contact to Groundwater – SEAD-121C &      |
|               | SEAD-27 – RME  |
| 6-15          | Comparison of Risk Due to Dermal Contact to Wet vs. Dry Ditch Soil (RME)             |
| 7-1A          | SEAD-121C Soil - Occurrence, Distribution, and Selection of Ecological Chemicals     |
|               | of Potential Concern   |
|               |  |

| Table         |   |
|---------------|---|
| <u>Number</u> | <u>Title</u>  |
| 7-1B          | SEAD-121C Ditch Soil - Occurrence, Distribution, and Selection of Ecological      |
|               | Chemicals of Potential Concern  |
| 7-1C          | SEAD-121C Surface Water - Occurrence, Distribution, and Selection of Ecological   |
|               | Chemicals of Potential Concern  |
| 7-2A          | SEAD-121I Surface Soil - Occurrence, Distribution, and Selection of Ecological    |
|               | Chemicals of Potential Concern  |
| 7-2B          | SEAD-121I Ditch Soil - Occurrence, Distribution, and Selection of Ecological      |
|               | Chemicals of Potential Concern  |
| 7-2C          | SEAD-121I Surface Water - Occurrence, Distribution, and Selection of Ecological   |
|               | Chemicals of Potential Concern  |
| 7-3           | Policy Goals, Ecological Assessment and Measurement Endpoints, and Decision Rules |
| 7-4           | Conversion Factors  |
| 7-5A          | NOAEL Screening Ecotoxicity Values – Deer Mouse                                   |
| 7-5B          | NOAEL Screening Ecotoxicity Values – Short-Tailed Shrew                           |
| 7-5C          | NOAEL Screening Ecotoxicity Values - American Robin and Great Blue Heron          |
| 7-5D          | NOAEL Screening Ecotoxicity Values – Meadow Vole                                  |
| 7-5E          | NOAEL Screening Ecotoxicity Values – Red Fox                                      |
| 7-6A          | LOAEL Screening Ecotoxicity Values – Deer Mouse                                   |
| 7-6B          | LOAEL Screening Ecotoxicity Values – Short-Tailed Shrew                           |
| 7-6C          | LOAEL Screening Ecotoxicity Values – American Robin and Great Blue Heron          |
| 7-6D          | LOAEL Screening Ecotoxicity Values – Meadow Vole                                  |
| 7-6E          | LOAEL Screening Ecotoxicity Values – Red Fox                                      |
| 7-7A          | Exposure Point Concentrations for SEAD-121C Soil                                  |
| 7-7B          | Exposure Point Concentrations for SEAD-121C Ditch Soil                            |
| 7-7C          | Exposure Point Concentrations for SEAD-121C Surface Water                         |
| 7-8A          | Exposure Point Concentrations for SEAD-121I Soil                                  |
| 7-8B          | Exposure Point Concentrations for SEAD-121I Ditch Soil                            |
| 7-8C          | Exposure Point Concentrations for SEAD-121I Surface Water                         |
| 7-9           | Receptor Intake Rates and Dietary Fractions                                       |
| 7-10A         | SEAD-121C - Receptor NOAEL Hazard Quotients for Soil Exposure                     |
| 7-10B         | SEAD-121C - Receptor NOAEL Hazard Quotients for Ditch Soil Exposure               |
| 7-11A         | SEAD-121I - Receptor NOAEL Hazard Quotients for Soil Exposure                     |
| 7-11B         | SEAD-121I - Receptor NOAEL Hazard Quotients for Ditch Soil Exposure               |
| 7-12A         | Average Concentration for Preliminary COCs in SEAD-121C Soil                      |
| 7-12B         | Average Concentration for Preliminary COCs in SEAD-121C Ditch Soil                |
| 7-13A         | Average Concentration for Preliminary COCs in SEAD-121I Soil                      |
| 7-13B         | Average Concentration for Preliminary COCs in SEAD-121I Ditch Soil                |
|               |   |

Page xiii

## LIST OF TABLES

| Table                  |  |
|------------------------|--|
| <u>Number</u>          | <u>Title</u>   |
| 7-14A                  | SEAD-121C Soil - Receptor LOAEL Hazard Quotients Based on Maximum  |
|                        | Concentration  |
| 7-14B                  | SEAD-121C Soil - Receptor NOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-14C                  | SEAD-121C Soil - Receptor LOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-15A                  | SEAD-121C Ditch Soil - Receptor LOAEL Hazard Quotients Based on Maximum  |
|                        | Concentration  |
| 7-15B                  | SEAD-121C Ditch Soil - Receptor NOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-15C                  | SEAD-121C Ditch Soil – Receptor LOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-16A                  | SEAD-121I Soil – Receptor LOAEL Hazard Quotients Based on Maximum  |
|                        | Concentration  |
| 7-16B                  | SEAD-121I Soil – Receptor NOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-16C                  | SEAD-121I Soil – Receptor LOAEL Hazard Quotients Based on Mean   |
|                        | Concentration  |
| 7-17A                  | SEAD-121I Ditch Soil – Receptor LOAEL Hazard Quotients Based on Maximum  |
| g 150                  | Concentration  |
| 7-17B                  | SEAD-121I Ditch Soil – Receptor NOAEL Hazard Quotients Based on Mean   |
| 7 170                  | Concentration  |
| 7-17C                  | SEAD-121I Ditch Soil – Receptor LOAEL Hazard Quotients Based on Mean   |
| 7-18A                  | Concentration  SEAD 121C Soil Comparison of Site Concentrations with Books and   |
| 7-18B                  | SEAD-121C Soil – Comparison of Site Concentrations with Background<br>SEAD-121C Ditch Soil – Comparison of Site Concentrations with Background |
| 7-18B<br>7-19A         | SEAD-121C Ditch Soil – Comparison of Site Concentrations with Background   |
| 7-19A<br>7-19B         | SEAD-1211 Soil – Comparison of Site Concentrations with Background   |
| / <b>-</b> 13 <b>D</b> | 52AD-1211 Ditch 30th - Companson of Site Concentrations with background  |

## LIST OF FIGURES

| Figure        |  |
|---------------|--|
| <u>Number</u> | <u>Title</u>   |
| 1-1           | Location Map   |
| 1-2           | Seneca Army Depot Map  |
| 1-3           | Site Map, DRMO Yard, SEAD-121C   |
| 1-4           | Site Map, Rumored Cosmoline Oil Disposal Area, SEAD-121I                         |
| 1-5           | Regional Geologic Cross Sections   |
| 1-6           | Regional/Local Land Use Map  |
| 1-7           | Future Land Use Plan   |
| 1-8           | Wind Roses   |
| 1-9           | Wind Rose, Syracuse New York   |
| 1-10          | Average Monthly Precipitation in Proximity of Seneca Army Depot Activity         |
| 1-11          | Distribution of Known Private Wells Near SEAD-121C and SEAD-121I                 |
| 3-1           | SEAD-121C: EBS and RI Sample Locations   |
| 3-2           | SEAD-121I: EBS and RI Sample Locations   |
| 4-1           | DRMO Yard - SEAD-121C - Benzo(a)pyrene Toxicity Equivalence                      |
|               | Concentrations in Surface Soil   |
| 4-2           | BTE in Surface Soil at DRMO Yard   |
| 4-3           | DRMO Yard - SEAD-121C - Benzo(a)pyrene Toxicity Equivalence and                  |
|               | Detected Metal Concentrations in Ditch Soil Samples                              |
| 4-4           | Distribution of Tier 1 Metals in Surface Soil at the DRMO Yard                   |
| 4-5           | DRMO Yard - SEAD-121C - Copper Concentrations in Surface Soil                    |
| 4-6           | DRMO Yard - SEAD-121C - Lead Concentrations in Surface Soil                      |
| 4-7           | DRMO Yard - SEAD-121C - Zinc Concentrations in Surface Soil                      |
| 4-8           | DRMO Yard - SEAD-121C - Chromium Concentrations in Surface Soil                  |
| 4-9           | Distribution of Antimony in Surface Soil at the DRMO Yard                        |
| 4-10          | Distribution of Arsenic in Surface Soil at the DRMO Yard                         |
| 4-11          | DRMO Yard - SEAD-121C - Cadmium Concentrations in Surface Soil                   |
| 4-12          | Distribution of Tier 2 Metals in Surface Soil at the DRMO Yard                   |
| 4-13          | Distribution of Tier 1 Metals in Ditch Soil at the DRMO Yard                     |
| 4-14          | Distribution of Tier 2 Metals in Ditch Soil at the DRMO Yard                     |
| 4-15          | DRMO Yard - SEAD-121C - Elevated Concentrations of BTEX and Metals in Subsurface |
| 1.16          | Soil  Distribution of Metals in Subscriptors Soil at the DRMO York               |
| 4-16          | Distribution of Metals in Subsurface Soil at the DRMO Yard                       |
| 4-17          | DRMO Yard - SEAD-121C - Groundwater Exceedances in Temporary EBS Wells           |

Page xv

## LIST OF FIGURES

| Figure        |  |
|---------------|--|
| <u>Number</u> | <u>Title</u>   |
| 4-18          | DRMO Yard - SEAD-121C - Metals Exceedances in Groundwater at Permanent RI Wells  |
| 4-19          | Summary of Groundwater Results at Building 360 (SEAD-27) and Downgradient Wells  |
| 4-20          | DRMO Yard - SEAD-121C - Exceedances in Surface Water   |
| 4-21          | Metals Concentrations in Surface Water at the DRMO Yard  |
| 4-22          | Rumored Cosmoline Oil Disposal Area – SEAD-121I - Benzo(a)pyrene<br>Toxicity Equivalence Concentrations in Soil and Ditch Soil |
| 4-23          | BTE concentrations in Soils at SEAD-121I   |
| 4-24          | Iron and Manganese in Soils at SEAD-121I   |
| 4-25          | Rumored Cosmoline Oil Disposal Area – SEAD-121I - Distribution of Iron and Manganese in Soil and Ditch Soil                    |
| 4-26          | Distribution of Copper in Soils at SEAD-121I   |
| 4-27          | Rumored Cosmoline Oil Disposal Area – SEAD-121I - Chromium and Zinc in Soil and Ditch Soil                                     |
| 4-28          | Distribution of Chromium in Soils at SEAD-121I   |
| 4-29          | Distribution of Zinc in Soils at SEAD-121I   |
| 4-30          | Distribution of Antimony in Soils at SEAD-121I   |
| 4-31          | Distribution of Cadmium in Soils at SEAD-121I  |
| 4-32          | Rumored Cosmoline Oil Disposal Area – SEAD-121I - Arsenic and Thallium in Soil and Ditch Soil                                  |
| 4-33          | Distribution of Arsenic in Soils at SEAD-121I  |
| 4-34          | Distribution of Thallium in Soils at SEAD-121I   |
| 4-35          | Rumored Cosmoline Oil Disposal Area – SEAD-121I - Metal Exceedances in Surface Water   |
| 6-1A          | Conceptual Site Model for SEAD-121C  |
| 6-1B          | Conceptual Site Model for SEAD-121I  |
| 7-1           | Screening Level Ecological Risk Assessment Process   |
| 7-2           | Conceptual Site Model for SEAD-121C and SEAD-121I  |

## LIST OF APPENDICES

| Appendix A | MSDS for Cosmoline Oil  |
|------------|---|
| Appendix B | Soil Boring Logs  |
| Appendix C | Analytical Results  |
| Appendix D | Seneca Site-Wide Background Data  |
| Appendix E | 121C Human Health Risk Assessment Calculation Tables                        |
| Appendix F | 121I Human Health Risk Assessment Calculation Tables                        |
| Appendix G | Ecological Risk Assessment Calculation Tables                               |
| Appendix H | Response to Comments  |
| Appendix I | Quantitative Uncertainty Analysis for Baseline Human Health Risk Assessment |
|            | SEAD-121C and SEAD-121I   |

April 2006
P:\PIT\Projects\SENECA\PID Area\Report\Final\text\TOC.doc Page xvi

#### ACRONYMS AND ABBREVIATIONS

AQCR Air Quality Control Region

ARAR applicable or relevant and appropriate requirements

ASP Analytical Services Protocol

ASTM American Society for Testing and Materials

AT Averaging Time

AWQS Ambient Water Quality Standard

BAF bioaccumulation factor

bgs below grade surface or below ground surface

BRA Baseline Risk Assessment
BRAC Base Realignment and Closure

BTAG Biological Technical Assistance Group
BTE Benzo(a)pyrene Toxicity Equivalence
BTEX benzene, toluene, ethylbenzene and xylene

BW Bodyweight

CDI Chronic Daily Intake over 70 years

CEC cation exchange capacity

CERCLA Comprehensive Environmental Responsibility, Compensation, and Liability Act

CERFA Community Environmental Response Facilitation Act

CF conversion factor

CFR Code of Federal Regulations
CLP Contract Laboratory Program
cm centimeter or centimeters
COC chemicals of concern

COPC chemicals of potential concern

cPAH carcinogenic polycyclic aromatic hydrocarbon

CSM Conceptual Site Model

CT central tendency

DA Absorbed dose

DFW Division of Fish and Wildlife
DO dissolved oxygen content
DOA Department of the Army
DoD Department of Defense
DOT Department of Transportation
DOO Data Quality Objective

DRMO Defense Reutilization and Marketing Office

dup or DU duplicate sample designator

e.g., for example

EB equipment blank sample designator EBS Environmental Baseline Survey

ED Exposure duration EF Exposure frequency

ECL Environmental Conservation Law EPC exposure point concentration ERA Ecological Risk Assessment

April 2006 Page xvii

ERAGS Ecological Risk Assessment Guidance for Superfund

ESI expanded site investigation et seq and the following one EV Event frequency

FB field blank sample designator
Fe chemical symbol for Iron
FFA Federal Facilities Agreement
FOIL Freedom of Information Law
FPPA Farmland Protection Policy Act
FSAP Field Sampling and Analysis Plan

ft. Feet

GI gastrointestinal

gm gram

gpm gallon per minute or gallons per minute

GPS Global Position System

H Henry's law constant

H Herbicides

HEA Health Effect Assessment

HERD Human and Ecological Risk Division

HHRA human health risk assessment

HI hazard index HQ Hazard Quotient hr hour or hours

HWR Hazardous Waste Remediation

I Intake or Absorbed Dose

I.D. inside diameter

i.e., that is

IAG Interagency Agreement
IC institutional controls
ICP Inductively Coupled Plasma

IEUBK Integrated Exposure Uptake Biokinetic Model for Lead in Children

IR Inhalation rate

IRIS Integrated Risk Information System

Kg/hectare kilogram or kilograms per hectare

lb pound

LC50 median lethal concentration LCS laboratory control sample

LCSD laboratory control sample duplicate

LD50 median lethal dose L/min Liter(s)/minute

LOAEL lowest observed adverse effect level LRA Local Redevelopment Authority

m meter(s)

MCL Maximum Contaminant Level

April 2006 Page xviii

MCLG Maximum Contaminant Level Goal mg/L milligram or milligrams per Liter mL/g milliliter or milligrams per gram

mm Hg millimeters of mercury

mol/m<sup>3</sup>-atm mole or moles per cubic meter-atmosphere

m/s meter(s)/second

MS matrix spike sample designation

MSD matrix spike duplicate sample designation

MSL mean sea level

MSDS material safety data sheet MV millivolt or millivolts

NCEA National Center for Environmental Assessment

NEPA National Environmental Policy Act NGVD National Geodetic Vertical Datum

nm nanometer

NOAEL no observed adverse effect level

NPDES National Pollutant Discharge Elimination System

NPL National Priority List

NTU Nephelometric turbidity units

NYCRR New York State Codes, Rules and Regulations

NYS New York State

NYSDEC New York State Department of Environmental Conservation

OB Open Burn

OCP Organochlorine Pesticides
OPP Organophosphorous Pesticides
ORP oxidation-reduction potential

OSWER Office of Solid Waste and Emergency Response

PAH polycyclic aromatic hydrocarbon

PbB blood lead

PCB Polychlorinated biphenyl

PID Planned Industrial/Office Development

PM particulate matter

POTW Publicly-Owned Treatment Works

ppm part or parts per million

PPRTV Provisional Peer Reviewed Toxicity Value

PR percent recovery

PRG preliminary remediation goal

PVC polyvinyl chloride

QA/QC Quality Assurance/Quality Control
QAMS Quality Assurance Management Staff

%R percent recovery

RCRA Resource Conservation and Recovery Act

RfC reference concentration

RfD reference dose

RFI RCRA Facility Investigation RI Remedial Investigation

April 2006 Page xix

RI/FS Remedial Investigation/Feasibility Study

RL reporting limit

RPD relative percent difference RME reasonable maximum exposure

SA Skin surface area available for contact (cm<sup>2</sup>)

SD Sediment sample designation

SEC Secondary Drinking Water Guidance Value

SEDA Seneca Army Depot Activity SEV screening ecotoxicity value

SF Slope Factor SI Site Investigation

SLERA screening level ecological risk assessment SMDP scientific management decision point

SOP standard operating procedure

SPDES State Pollutant Discharge Elimination System

SSHP Site-specific Safety and Health Plan

STSC Superfund Health Risk Technical Support Center

SVOC Semivolatile organic compound SW Surface Water sample designation SWMU solid waste management unit

TAGM Technical and Administrative Guidance Memorandum

TAL Target Analyte List

TOGS Technical Operating Guidance TB trip blank sample designator

TBC to be considered

TCE trichloroethylene or trichloroethene

TCL Target Compound List
TEF toxicity equivalency factor
TIC Tentatively Identified Compound
TOG Technical Operating Guidance
TPH Total Petroleum Hydrocarbons

TRPH Total Recoverable Petroleum Hydrocarbons

TSCA Toxic Substances Control Act

UCL upper confidence limit

USACE United States Army Corps of Engineers

USC United States Code

USCS Unified Soil Classification System

USEPA United States Environmental Protection Agency

USGS United States Geological Survey

VC Vinyl chloride

VOC Volatile organic compound

W weight

Zn chemical symbol for Zinc

April 2006 Page xx

μg/cm<sup>2</sup> microgram or micrograms per square centimeter

#### REFERENCES

- Alexander, Martin. 2000. Aging, bioavailability, and overestimation of risk from environmental pollutants. *Environmental Science and Technology* 34(20):4259-4265.
- Agency for Toxic Substances and Disease Registry. 2003. Toxicological Profile for Zinc.
- Agency for Toxic Substances and Disease Registry. 2000. Toxicological Profile for Manganese.
- Agency for Toxic Substances and Disease Registry. 1999. Toxicological Profile for Cadmium.
- Agency for Toxic Substances and Disease Registry. 1992. Toxicological Profile for Antimony.
- Army, United States Environmental Protection Agency (USEPA) Region 2, New York State Department of Environmental Conservation (NYSDEC). 1993. Federal Facilities Agreement (FFA).
- Bartlett, R.J. and B. James. 1979. Behavior of chromium in soils: III. oxidation. J. Environ. Qual. 8:31-35.
- Bartlett, R.J. and J.M. Kimble. 1976. Behavior of Chromium in Soils: II. hexavalent forms. J. Environ. Qual. 5:383-386.
- Biomedical and Environmental Information Analysis (BELA). 1989. The Installation Restoration Program Toxicology Guide. Volume 4. BELA Health and Safety Research Division, Oak Ridge National Laboratory. July.
- Bloomfield, C. and G. Pruden. 1980. The behavior of Cr(VI) in soil under aerobic and anaerobic conditions. Environ. Pollut. Ser. A. 103-114.
- Brett, C.E., Dick, V.B, Baird, G.C., 1991, Comparative Taphonamy and Paleoecology of Middle Devoniam Dark Gray and Black Shale Facies from Western New York. in eds., Landing, E.L. and Brett, C.E., Dynamic Stratigraphy and Depositional Environments of the Hamilton Group (Middle Devonian) in New York State, Part II, New York State Museum Bulletin Number 469. pp. 5-36.
- Canadian Council of Ministers of the Environment. 2003. Canadian Environmental Quality Guideline. December.
- Code of Federal Register. Title 40, Chapter 1, Part 143. National Secondary Drinking Water Regulations.
- Cornell University, 1967. Land Use Report.

April 2006 Page xxii

- Crain, L.J. 1974. Groundwater Resources of the Western Oswego River Basin, New York. U.S. Geological Survey and State of New York Basin Planning Report ORB-5.
- Dragun, James. 1988. The Soil Chemistry of Hazardous Materials. The Hazardous Materials Control Research Institute.
- Efroymson, R.A. et al. 1997a. Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision. November.
- Efroymson, R.A. et al. 1997b. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision. November.
- Gas Research Institute. 1988. Management of Manufactured Gas Plant Sites, Volume III, Risk Assessment. GRI-87/0260.3. May.
- Gray, L.M., 1991, Paleoecology, Origin, and Significance of a Shell-Rich Bed in the Lowermost Part of the Ludlowville Formation (Middle Peronian, Central New York). in eds. Landing, E.L. and Brett, C.E., Dynamic Stratigraphy and Depositional Environments of the Hamilton Group (Middle Devonian) in New York State, Part II, New York State Museum Bulletin 469, p.93-105.
- Griffin, R.A. and N.F. Shimp. 1978. Attenuation of pollutants in municipal landfill leachate by clay minerals. EPA-600/2-78-157.
- Hazardous Substance Data Bank (HSDB), Toxnet, National Library of Medicine: Specialized Information Services. 2005 On-line resources available at http://toxnet.nlm.nih.gov.
- Hewitt, Alan D, 1999. "Storage and Preservation of Soil Samples for Volatile Compound Analysis," May 1999.
- Holzworth, George C. 1972. Mixing Heights, Windspeed, and Potential for Urban Air Pollution throughout the Contiguous United States. January.
- Kinniburgh, D.G. and M.L. Jackson. 1978. Adsorption of mercury (II) by iron hydrouse oxide gel. Soil Sci. Soc. Am. J. 42:45-47.
- LaSala, A.M. Jr. 1968. Groundwater Resources of the Erie-Niagara Basin, New York: Basic Planning Report ENB-3, State of New York Conservation Department with Resources Commission.
- Lindsay, W. L. 1979. Chemical equilibria in soils. John Wiley and Sons. New York.
- Loehr, R.C. 1996. The Environmental Impact of Soil Contamination: Bioavailability, Risk Assessment, and Policy Implications. Reason Foundation (Los Angeles, CA) and National Environmental Policy Institute (Washington, D.C.). Policy Study No. 211.

April 2006 Page xxiii

- Magee, B., P. Anderson, and D. Burmaster. 1996. Absorption adjustment factor (AAF) distributions for polycyclic aromatic hydrocarbons (PAHs). *Human Ecol. Risk Assessment* 2(4):841-873.
- McGovern, C.E. undated. Background Concentrations of 20 Elements in Soils with Special Regard for New York State. Wildlife Pathology Unit, Wildlife Resource Center, NYSDEC.
- McLean, J.E., Bledsoe, B.E. 1992. Behavior of Metals in Soils. In: EPA Ground Water Issue EPA/540/S-92/018 pp. 1-20.
- Merin, Ira. S. 1992. Conceptual Model of Ground Water Flow in Fractured Siltstone Based on Analysis of Rock Cores, Borehole Geophysics, and Thin Sections. Ground Water Monitoring Review, Fall, 1992.
- Metcalf & Eddy. 1989. Criteria Development Report for the Closure of Nine Burning Pads Seneca Army Depot, Seneca, New York; Vol. I.
- Mozola, A.J. 1951. The Groundwater Resources of Seneca County, New York, Bulletin GW-26. Water, Power and Control Commission, Department of Conservation, State of New York, Albany, New York.
- Nagy, et al. 1999. Energetics of Free-ranging Mammals, Reptiles, and Birds. *Ann. Rev. Nutr.* 19: 247-277.
- Nakles, D.V., Harju, J.A. 2002. Environmentally Acceptable Endpoints in Soil: Basic Concepts and Assessment Approaches.
- Netherlands Ministry of Housing, Spatial Planning and Environment. 2000 Circular on Target Values and Intervention Values for Soil Remediation.
- New York State Department of Environmental Conservation (NYSDEC). 1998 with 2000 and 2004 Addendum. Ambient Water Quality Standard and Guidance Values and Groundwater Effluent Limitations.
- New York State Department of Environmental Conservation (NYSDEC), 1994a. Technical and Administrative Guidance Memorandum # 4046: Determination of Soil Cleanup Objectives And Cleanup Levels", January 24, 1994.
- New York State Department of Environmental Conservation (NYSDEC), 1994b, Technical and Administrative Guidance Memorandum (TAGM): Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites, October, 1994.

April 2006 Page xxiv

- New York State Department of Environmental Conservation (NYSDEC), 1999. Technical Guidance for Screening Contaminated Sediments. Division of Fish, Wildlife, and Marine Resources.
- Oscarson, D.W., P.M. Huang, U.T. Hammer, and W.K. Liaw. 1983. Oxidation and sorption of arsenite by manganese dioxide as influenced by surface coatings of iron and aluminum oxides and calcium carbonate. Water Air Soil Pollut. 20:233–244.
- Parsons, 2004. Signed Final Record of Decision (ROD) for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas. October.
- Parsons, 2002. Final Work Plan for the Remedial Investigation (RI) at Two EBS Sites in the Planned Industrial Development Area, Seneca Army Depot Activity, September 2002.
- Parsons, 2001. Action Memorandum and Decision Document Removal Actions, Three VOC Sites (SEADS 38, 39, & 40)
- Parsons Engineering Science, Inc, 1999. Final Investigation of Environmental Baseline Survey Non-Evaluated Sites [SEAD-119A, SEAD-122(A,B,C,D,E), SEAD-123(A,B,C,D,E,F), SEAD-46, SEAD-68, SEAD-120(A,B,C,D,E,F,G,H,I,J), and SEAD-121(A,B,C,D,E,F,G,H,I)], May 1999.
- Parsons Engineering Science, Inc., 1995. Generic Installation Remedial Investigation/Feasibility Study (RI/FS) Work Plan, August 1995.
- Parsons Engineering Science, Inc., 1994. SWMU Classification Report, September.
- Reed, P.B., Jr., 1988. National List of Plant Species That Occur in Wetlands: Northeast (Region 1). US Department of the Interior, Fish and Wildlife Service, Research and Development, Biological Report 88(26.1), Washington, DC
- RKG Associates, Inc., 1996 Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity.
- Rogers, R. D. 1976. Methylation of mercury in agricultural soils. J. Environ. Qual. 5:454-458.
- Rogers, R. D. 1977. Abiological methylation of mercury in soil. J. Environ. Qual. 6:463-467
- Ruby, M.V., R. Schoof, W. Brattin, M. Goldade, G. Post, M. Harnois, D.E. Mosby, S.W. Casteel, W. Berti, M. Carpenter, D. Edwards, D. Cragin, and W. Chappell. 1999. Advances in evaluating the oral bioavailability of inorganics in soil for use in human health risk assessment. *Environmental Science & Technology* 33(21): 3697-3705.

April 2006 Page xxv

- Sample et al. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.
- Shacklette, H.T. and Boerngen, J.G. 1984. Element Concentrations in Soils at other Surficial Materials of the Contiguous United States. U.S.G.S. Prof Paper 1270, Washington
- Shuman, L.M. 1991. Chemical Forms of Micronutrients in Soils. In: Mortvedt et al., J.J. (eds) Micronutrients in Agriculture, ASA, CSSA, and SSSA. Madison, WI 1991. pp113-144.
- TAMS Consultants, Inc. 2000. Phase 2 Report Further Characterization and Analysis. Volume 2E Revised Baseline Ecological Risk Assessment. Hudson River PCBs Reassessment. For USEPA Region 2 and USACE Kansas City District. November.
- United States Army Corps of Engineers (USACE). 2001. Shell for Analytical Chemistry Requirements. In EM200-1-3.
- United States Army Corps of Engineers, 1987. Corps of Engineers Wetlands Delineation Manual. Waterways Experiment Station.
- United States Department of Defense (DoD). 2001. Base Closure and Realignment Schedules. On-line resources available at <a href="http://www.oea.gov/OEAWeb.nsf/D6457626D512D16E85256E8300447D2F/\$File/BRAC%20Schedules%20Report2.pdf">http://www.oea.gov/OEAWeb.nsf/D6457626D512D16E85256E8300447D2F/\$File/BRAC%20Schedules%20Report2.pdf</a>
- United States Environmental Protection Agency (USEPA). 2005a. Integrated Risk Information System. On-line database. <a href="http://www.epa.gov/iris/">http://www.epa.gov/iris/</a>
- United States Environmental Protection Agency (USEPA). 2005b. The Ecological Soil Screening Level (Eco-SSL). Interim. Revised in March 2005.
- United States Environmental Protection Agency (USEPA). 2004a. Risk Assessment Guidance for Superfund, Volume I: Human health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim Review Draft. Office of Emergency and Remedial Response. August.
- United States Environmental Protection Agency (USEPA). 2004b. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. July.
- United States Environmental Protection Agency (USEPA). 2004c. ProUCL Version 3.0 User Guide. April.
- United States Environmental Protection Agency (USEPA). 2003a. Human Health Toxicity Values in Superfund Risk Assessment, Memorandum to Superfund National Policy Managers, Region 1-10. Office of Solid Waste and Emergency Response. December.

April 2006 Page xxvi

- United States Environmental Protection Agency (USEPA). 2003c. The Ecological Soil Screening Level (Eco-SSL). Interim. Revised in 2003.
- United States Environmental Protection Agency (USEPA). 2002a. Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- United States Environmental Protection Agency (USEPA). 2002b. Calculating Upper Confidence Limits For Exposure Point Concentrations At Hazardous Waste Sites. OSWER 9285.6-10. December.
- United States Environmental Protection Agency (USEPA). 2002c. National Recommended Water Quality Criteria: 2002. EPA-822-R-02-047. November.
- United States Environmental Protection Agency (USEPA). 2002d. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. Office of Emergency and Remedial Response. September.
- United States Environmental Protection Agency (USEPA). 2002e. List of Drinking Water Contaminants & MCLs. EPA816-F-02-013. July.
- United States Environmental Protection Agency (USEPA). 2001a. Eco Update. The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments. Office of Solid Waste and Emergency Response. June.
- United States Environmental Protection Agency (USEPA). 2001b. Report on the Corrosion of Certain Alloys. EPA 260-R-01-002. July.
- United States Environmental Protection Agency (USEPA). 2000a. Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment, Status and Needs. Office of Water and Office of Solid Waste. February.
- United States Environmental Protection Agency (USEPA). 2000b. The Ecological Soil Screening Level (Eco-SSL). Interim.
- United States Environmental Protection Agency (USEPA). 2000c. Data Quality Objectives Process for Hazardous Waste Site Investigations, Final January 2000
- United States Environmental Protection Agency (USEPA). 1999a. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. October.

April 2006 Page xxvii

- United States Environmental Protection Agency (USEPA). 1999b. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. November.
- United States Environmental Protection Agency (USEPA). 1998a. Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. August.
- United States Environmental Protection Agency (USEPA). 1998b. Guidelines for Ecological Risk Assessment. Final. April.
- United States Environmental Protection Agency (USEPA). 1997a. Exposure Factors Handbook. Office of Research and Development. August.
- United States Environmental Protection Agency (USEPA). 1997b. Health Effects Assessment Summary Tables. Office of Solid Waste and Emergency Response. July
- United States Environmental Protection Agency (USEPA). 1997c. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment. Interim Final. Office of Solid Waste and Emergency Response. June.
- United States Environmental Protection Agency (USEPA). 1996a. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. December.
- United States Environmental Protection Agency (USEPA). 1996b. Soil Screening Guidance: Technical Background Document. Office of Solid Waste and Emergency Response. May.
- United States Environmental Protection Agency (USEPA). 1994. Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children. February.
- United States Environmental Protection Agency (USEPA). 1993a. Environmental Protection Agency (EPA), Office of Research and Development, Washington, DC. Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA/600/R-93/089.
- United States Environmental Protection Agency (USEPA). 1993b. Wildlife Exposure Factors Handbook.
- United States Environmental Protection Agency (USEPA), 1993c. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure. Preliminary Review Draft. Risk Assessment Council, Washington DC. November.
- United States Environmental Protection Agency (USEPA), 1993d Data Quality Objectives Process for Superfund, Interim Final Guidance. September 1993.

April 2006 Page xxviii

- United States Environmental Protection Agency (USEPA). 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors.
- United States Environmental Protection Agency (USEPA). 1989. Risk Assessment Guidance for Superfund. Volume 1 Human Health Evaluation Manual Supplement (Part A). Office of Emergency and Remedial Response. December.
- United States Environmental Protection Agency (USEPA), 1988. "Guidance for Conducting Remedial Investigation and Feasibility Studies Under CERCLA". October 1988.
- United States Environmental Protection Agency (USEPA), 1987. Data Quality Objectives (DQO) for Remedial Response Activities: Development Process. March 1987
- United States Environmental Protection Agency (USEPA), 1985. Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites.
- United States Environmental Protection Agency (USEPA) Region 2. Region 2 RCRA and CERCLA Data Validation Standard Operating Procedures (SOPs). On-line resources at <a href="http://www.epa.gov/region02/desa/hsw/sops.htm">http://www.epa.gov/region02/desa/hsw/sops.htm</a>.
- United States Environmental Protection Agency (USEPA) Region 2. 1998. Ground Water Sampling Procedure Low Stress (Low Flow) Purging And Sampling. March 16.
- United States Environmental Protection Agency (USEPA) Region III. 2004. Risk-Based Concentration (RBC) Table. On-line database last updated October. <a href="http://www.epa.gov/reg3hwmd/risk/index.htm">http://www.epa.gov/reg3hwmd/risk/index.htm</a>
- United States Environmental Protection Agency (USEPA) Region III. 1995. Region III BTAG Screening Levels.
- United States Environmental Protection Agency (USEPA) Region 5. 2003. Ecological Screening Levels.
- United States Environmental Protection Agency (USEPA) Region 9. 2004. Preliminary Remediation Goals. On-line resources available at <a href="http://www.epa.gov/region09/waste/sfund/prg/index.htm">http://www.epa.gov/region09/waste/sfund/prg/index.htm</a>, last updated December.
- Valberg PA, Beck BD, Bowers TS, Keating JL, Bergstrom PD, Board-man PD. 1997. Issues in setting health-based cleanup levels for arsenic in soil. Regul Toxicol Pharmacol 26:219–229.

Water Information Center. 1973 Water Atlas of the United States.

April 2006 Page xxix

- Wester, R.C., H.I. Maibach, D.A. Bucks, L. Sedik, J. Melendres, C. Liao, and S, DiZio. 1990. Percutaneous absorption of [14C]DDT and [14C]Benzo(a)pyrene from soil. *Fundamental and Applied Toxicology* 15:510-516.
- Whitefish Point Bird Observatory. 2005. On-line resources available at <a href="http://www.wpbo.org/featured/robin/">http://www.wpbo.org/featured/robin/</a>
- Woodward-Clyde Federal Services, March 1997, U.S. Army Base Realignment and Closure 95 Program, Environmental Baseline Survey Report.
- Wright, M. 2001. Dietary Reference Intakes. On-line resources available at <a href="http://www.fcs.uga.edu/pubs/PDF/FDNS-E-65.pdf">http://www.fcs.uga.edu/pubs/PDF/FDNS-E-65.pdf</a>.

April 2006 Page xxx

#### **EXECUTIVE SUMMARY**

The Army has conducted site investigations at the DRMO Yard (SEAD-121C) and at the Rumored Cosmoline Oil Disposal Area (SEAD-121I) at the Seneca Army Depot Activity in Romulus, New York to assess whether there is evidence of a release of hazardous substances from historic activities conducted at the sites and if there is a threat to human health or the environment. The investigations conducted included the collection and chemical analysis of soil (surface and subsurface), surface water, groundwater (SEAD-121C only), and ditch soil samples from locations within and outside of the DRMO Yard and the Rumored Cosmoline Oil Disposal Area. Sampling and analyses were completed during two investigations: the Environmental Baseline Survey (EBS) in 1998-1999; and a remedial investigation (RI) during 2002-2003. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, cyanide, total organic carbon (TOC), and total petroleum hydrocarbon (TPH). A baseline human health risk assessment, based on a continuing industrial usage of the sites, and a screening-level ecological risk assessment was completed for each site to evaluate potential risks to human health and the environment.

The results of the completed site investigations and the risk assessments indicate:

#### **SEAD-121C (DRMO Yard)**

There are two discrete areas where materials have been stored in the past, which have impacted the surface soil with metals. There is no indication of a wide-spread release of organic compounds across the site. The media at SEAD-121C do not pose a risk to future industrial receptors at the site. Additionally, the ecological risk assessment indicates that the residual chemicals identified at the site are not expected to significantly impact ecological receptors at the site. Therefore, a risk-based action will not be necessary at the DRMO Yard.

#### SEAD-121I (Rumored Cosmoline Oil Disposal Area)

There is no evidence of a release of hazardous substances or materials at SEAD-121I. The media at SEAD-121I do not pose a risk to future industrial receptors at the site. Additionally, the ecological risk assessment indicates that the residual chemicals identified at the site are not expected to significantly impact ecological receptors at the site. Therefore, a risk-based action will not be necessary at the Rumored Cosmoline Oil Disposal Area.

Institutional controls (ICs) in the form of land use restrictions have been imposed on the greater PID Area in the Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004), signed on September 28, 2004 by USEPA. These restrictions are as follows:

 Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.

April 2006 Page E-1

Prevent access to or use of groundwater until the Class GA Groundwater Standards are met.

The Army recommends that these restrictions remain in effect for SEAD-121C and SEAD-121I until additional data are developed and evaluated to substantiate their removal at either or both of the sites. Additional information substantiating the Army's position is summarized below and presented in additional detail in the balance of this report.

#### E.1 THE DRMO YARD (SEAD-121C)

#### **E.1.1** Nature and Extent of Impacts

Surface and subsurface soil samples were collected inside and outside the DRMO Yard. Surface water and ditch soil were collected along man-made drainage ditches that exist along the border of, and within the site. Groundwater samples were obtained from wells located within, and at locations upgradient of the site.

Heavy metals including copper, lead, and zinc were found in the surface soil at concentrations above the New York State's (NYS's) recommended soil cleanup objectives. The high metal concentrations were generally isolated to two areas in the DRMO Yard: the northeastern corner and the southwestern corner. Metals detected in the other samples at the site were found at significantly lower concentrations.

An isolated elevated concentration of BTEX (~ 160 ppm) was detected in a subsurface sample located along the southern edge of the site. BTEX was not detected in any other subsurface locations at SEAD-121C. BTEX was found at other surface soil locations, but at concentrations lower than NYS's recommended cleanup objectives.

One sample contained concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) at a concentration in excess of NYS's recommended cleanup level [10 mg/Kg, calculated as benzo(a)pyrene toxicity equivalents (BTE)]. This sample was collected from a location midway along the northwestern fence of the site.

Groundwater is not considered a media of concern at SEAD-121C. Several metals including aluminum, antimony, iron, manganese, and sodium were detected in the groundwater; however the highest concentrations were found in samples that had elevated levels of turbidity. Samples collected subsequently, using techniques that minimized turbidity effects, indicated levels of metals that are generally consistent with SEDA background conditions.

Data was produced that indicates that an upgradient source may exist and be responsible for an isolated chlorinated solvent plume that is flowing into the DRMO Yard. However, other SEAD-121C groundwater data indicates that the plume is not wide-spread or migrating beyond the border of the site.

April 2006 Page E-2

One SVOC and several heavy metals were detected in surface water at the DRMO Yard. The single identified SVOC is a common laboratory contaminant, and it was found at an estimated concentration at one location. The identified heavy metals were found in samples collected inside and upgradient of the site, and the data suggest that some constituents are part of the background that exists around the site and are unrelated to historic activities at SEAD-121C.

#### E.1.2 Baseline Human Health Risk Assessment

Available data were incorporated into a human health risk assessment. Exposure was evaluated for a future industrial worker, construction worker, and adolescent trespasser. In accordance with the USEPA's guidance, all chemicals detected at the site were screened as a first step. Screening values were generally based on USEPA Region 9 Preliminary Remediation Goals (PRGs) residential soil values and tap water values updated in December 2004 to identify chemicals of potential concern (COPCs). The potential risks due to the exposure were evaluated via two exposure scenarios: 1) exposure to soil and groundwater, and 2) exposure to ditch soil, surface water, and groundwater.

At the DRMO Yard the total hazard indices calculated are less than 1 for all receptors, and the total cancer risks for all receptors are less than  $10^{-4}$ . Risk due to exposure to groundwater is not expected to be significant, since no COPCs were identified during the screening process.

Lead was identified as a potential COPC in soils, ditch soils, and surface water at SEAD-121C. For the industrial worker, risk associated with lead was evaluated using the Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. The 95<sup>th</sup> percentile blood lead concentration (PbB) among fetuses of adult industrial workers exposed to soil and ditch soil are below the USEPA target PbB level of concern (i.e., 10 µg/dL). Therefore, lead in SEAD-121C soil and ditch soil is not expected to pose potential risks to industrial workers or their fetuses. Construction workers are expected to work at the sites in short-term (i.e., 1 year); therefore, risk associated with lead exposure is expected to be minor.

The IEUBK model results, based on residential child exposure assumptions, were used as a screening tool to evaluate potential risks associated with lead in SEAD-121C soil for adolescent trespassers. The 95<sup>th</sup> percentile PbBs among residential children are below the USEPA target PbB level of concern (i.e.,  $10~\mu g/dL$ ). Therefore, lead in SEAD-121C surface soil and ditch soil does not pose a health risk to the adolescent trespasser receptor.

# E.1.3 Screening-Level Ecological Risk Assessment

A screening level ecological risk assessment (SLERA) was performed to evaluate potential ecological risks associated with exposure to contaminants identified in SEAD-121C soil, ditch soil, and surface water. Exposure to groundwater is considered an incomplete exposure pathway; therefore, groundwater at the sites poses no potential risks to the environment.

NOAEL toxicity values and conservative exposure assumptions were used to calculate screening level HQs. The maximum detected concentrations were compared to screening criteria to identify COPCs. Potential exposures and effects resulting from the maximum detected concentrations of COPCs were then evaluated by estimating potential direct and indirect exposures for wildlife receptors - deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron (for ditch soil only) and comparing exposures to NOAEL toxicity values. Due to the conservative nature of the assumptions identified above, additional evaluation was performed to further characterize potential ecological risks and determine if further evaluation is warranted. COC refinement was performed in accordance with the USEPA ERAGS guidance. The findings are summarized below:

- 1. Although preliminary COCs were identified for SEAD-121C soil, ditch soil, and surface water initially, no final COCs were identified for any medium at SEAD-121C based on the COC refinement;
- 2. The planned future land use for SEAD-121C is industrial development. The site is not expected to support, sustain, or attract ecological receptors and therefore is not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use.
- 3. The concentrations of several metals (e.g., chromium and thallium in SEAD-121C soil and antimony in SEAD-121C ditch soil) are consistent with SEDA background.

As a result, no COCs were identified for SEAD-121C soil, ditch soil, or surface water. It is the Army's position that soil, ditch soil, surface water, and groundwater at SEAD-121C are not expected to significantly impact ecological receptors at the site and no further action is warranted at SEAD-121C based on the ecological risk assessment.

# E.2 RUMORED COSMOLINE OIL DISPOSAL AREA (SEAD-1211)

# **E.2.1** Nature and Extent of Impacts

Surface soil samples, ditch soil samples, and surface water samples were collected inside, and in the immediate vicinity surrounding SEAD-121I. Additional surface water and ditch soil samples were collected at a downgradient location.

Elevated levels of cPAHs were detected in the soils. The concentrations of cPAHs exceeded NYS's 10 mg/Kg BTE guidance level in three samples. The locations where elevated concentrations of cPAHs were detected were outside the boundary of SEAD-121I or close to the edge of the site along the road. Carcinogenic PAHs are not identified constituents of Cosmoline oil; thus, other sources such as vehicular and rail traffic or roofing/reproofing operations at surrounding warehouse buildings are considered the primary sources of these observed contaminants.

Metals including iron, manganese, arsenic, chromium, thallium, and zinc were found at levels greater than the NYS guidance values in soils at SEAD-121I, focused specifically in the areas surrounding the two ferrous-manganese ore piles. The ore piles are strategic stockpile materials that are being stored at the Depot. The analytical results indicate that elevated levels of the other metals (arsenic, chromium, thallium, and zinc) identified in the soils at SEAD-121I are collocated with the elevated iron and manganese concentrations.

Four metals (aluminum, iron, lead, and zinc) were detected in the surface water at SEAD-121I above their NYS Ambient Water Quality Standards (AWQS) Class C standard. The elevated metal concentrations were clustered in two samples, each of which is located in a small drainage ditch to the north of each ore pile.

The metal concentrations found in the ditch soil samples collected from the downgradient location along Avenue A were lower than the metals concentrations found in the surface soils at SEAD-121I.

#### E.2.2 Baseline Human Health Risk Assessment

Available surface soil, ditch soil, and surface water data were incorporated into a human health risk assessment. Exposure was evaluated for a future industrial worker, construction worker, and adolescent trespasser. Like the process employed at SEAD-121C, all chemicals that were detected at the site were screened as a first step to identify COPCs. The potential risks due to the exposure were evaluated via two exposure scenarios: 1) exposure to soil, and 2) exposure to ditch soil and surface water.

At SEAD-121I, the total non-cancer risks for the industrial worker and the construction worker are above the USEPA limit of 1, while the cancer risks for all receptor are less than the USEPA upper limit of 10<sup>-4</sup>.

The hazard indices for the industrial worker exceed 1 due to inhalation of dust in ambient air caused by soil or ditch soil and ingestion of soil. The hazard indices for the construction worker exceed 1 due to inhalation of dust in ambient air caused by soil or ditch soil, ingestion of soil, dermal contact to soil, and ingestion of ditch soil. The total non-cancer risks and total cancer risks for the adolescent trespasser are within the USEPA limits. The significant contributing factor to the non-cancer risk for all receptors and exposure pathways is manganese. Arsenic also contributed to 27% of the non-cancer risk to the construction worker from ingestion of ditch soil.

As previously stated, the location of SEAD-121I is currently being used as a staging site for strategic stockpiles of ferrous-manganese ore. The manganese detected is associated with these ore piles. Any risks associated with the presence of manganese at SEAD-121I do not result from actions or activities that are associated with the ongoing CERCLA investigations.

At SEAD-121I, lead was a COPC in surface water. A quantitative evaluation of dermal exposure to lead in surface water was not conducted as a reliable model is not available at this time. The

exposure to surface water is expected to be infrequent and therefore potential risks are expected to be minor.

# E.2.3 Screening-Level Ecological Risk Assessment

A screening level ecological risk assessment was performed to evaluate potential ecological risks associated with exposure to contaminants in SEAD-121I soil, ditch soil, and surface water. Exposure to groundwater is considered an incomplete exposure pathway; therefore, groundwater at the sites poses no potential risks to the environment. The SLERA was completed in the same manner as employed at SEAD-121C. The findings are summarized below:

- No preliminary COCs were identified for surface water. Although preliminary COCs were identified for soil and ditch soil, no final COCs were identified for any medium based on COC refinement.
- 2. The planned future land use for SEAD-121I is industrial development. The site is not expected to support, sustain, or attract ecological receptors and therefore is not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use.
- 3. The concentrations of several metals (e.g., antimony, cadmium, cyanide, lead, and vanadium in SEAD-121I soil and vanadium level in SEAD-121I ditch soil) are consistent with SEDA background.
- 4. The source of the metal contamination at SEAD-121I is the strategic stockpiles of ferrous-manganese ore stored at the site.

As a result, no COCs were identified for SEAD-121I soil, ditch soil, or surface water. It is the Army's position that soil, ditch soil, and surface water at SEAD-121I are not expected to significantly impact ecological receptors at the site and no further action is warranted at SEAD-121I based on the ecological risk assessment.

#### 1.0 INTRODUCTION

# 1.1 PURPOSE OF REPORT

This report describes the field investigations that have been conducted at SEAD-121C [i.e., the Defense Reutilization and Marketing Office (DRMO) Yard] and SEAD-121I (i.e., the Rumored Cosmoline Oil Disposal Area) at the Seneca Army Depot Activity (SEDA or the Depot) in Romulus, New York. The purpose of this report is to:

- Describe the investigation procedures used;
- Present and discuss the physical characteristics of the two sites;
- Present and interpret the analytical results from the investigation programs completed to date;
- Present and interpret the results of the human health and ecological risk assessment for the two sites; and
- Provide conclusions and recommendations based on the sites' current condition and future uses.

SEDA was proposed for listing as a federal facility on the National Priorities List (NPL) on July 14, 1989; this listing was finalized on August 30, 1990.

Parsons was retained by the United States Army Corps of Engineers (USACE) as part of their remedial response activities under the Comprehensive Environmental Responsibility, Compensation and Liability Act (CERCLA) to perform these activities.

# 1.2 GENERAL DESCRIPTION OF SEDA

SEDA is located approximately 40 miles south of Lake Ontario, near Romulus, New York (**Figure 1-1**). The Depot lies immediately west of the village of Romulus, NY, 12 miles south of the villages of Waterloo and Seneca Falls, and 2.5 miles north of the village of Ovid, NY. The two closest major cities are Rochester, NY, which is located approximately 60 miles northwest, and Syracuse, NY, which is located approximately 60 miles northwest.

SEDA is located in an uplands area, where the elevation ranges from approximately 600 feet (ft.) National Geodetic Vertical Datum (NGVD 1929) along the western boundary of the Depot to nearly 760 ft. (NGVD 1929) in the central portion of the eastern boundary. The uplands area where SEDA is located forms a divide separating two of the New York Finger Lakes; Cayuga Lake on the east and Seneca Lake on the west. Sparsely populated farmland covers most of the surrounding area. New York State Highways 96 and 96A border SEDA to the east and west, respectively. **Figure 1-2** presents a plan view of SEDA.

The 10,587-acre SEDA facility has been owned by the United States Government since 1941 and was operated by the Department of the Army (DOA) until 2000. From its inception in 1941 until 1995, SEDA's primary mission was the receipt, storage, maintenance, and supply of military items, including munitions and equipment. The Depot's mission changed in early 1995 when the Department of Defense (DoD) recommended closure of the SEDA under the Base Realignment and Closure (BRAC) process. This recommendation was approved by Congress on September 28, 1995, and the installation closure date was September 30, 2000.

# 1.3 SITE BACKGROUND

# 1.1.1 The Defense Reutilization and Marketing Office (DRMO) Yard – SEAD-121C

SEAD-121C is comprised of a triangularly-shaped gravel lot located in the east-central portion of the Depot (**Figure 1-3**), roughly 4,000 ft. (0.75 miles) southwest of the Depot's main entrance off of State Route 96. Several buildings (Buildings 360, 316, and 317) are located adjacent and east of the site, and one building (Building T-355) is located within the site boundaries. Building T-355 is located in the central part of the DRMO Yard and is used for storage. The DRMO Yard is surrounded by a chain-linked fence and access into the site is limited by a single gate that is normally locked and that is located south of Building 360. The surface of the DRMO Yard is graded to allow surface water to drain toward the man-made ditches that bound the site on the north and south sides. The major pathway of surface water flow out of SEAD-121C is to these drainage ditches, which then flow to the west towards a wetland area and the headwaters of Kendaia Creek in the former munitions storage area.

In addition to Building T-355, several other man-made features are prominent within the DRMO Yard; these features include: a ladled-shaped, earthen bottomed, storage cell in the southwest corner of the site; a rectangular shaped, earthen bottomed, storage cell immediately adjacent to, and located halfway along the northwest perimeter fence of the site; and a multi-chambered, concrete bottomed, storage cell adjacent to the east perimeter fence, near the northern-most point of the DRMO Yard. Each of the storage cells is bounded horizontally on three sides by concrete (jersey) barriers. Common debris, including scrap metal, wood debris, ordnance components, batteries, tiles, oil filters, auto parts, paint cans, tires, and other miscellanies were found in the concrete bottomed, multi-chambered storage cell. During site visits in 2002, 2003, and 2004, Parsons observed that scrap metal, military items, and old machines were stored in the earthen bottomed storage cell located along the northwest fence, while the ladle-shaped earthen bottomed cell was empty, except for small quantities of metal shavings. Interviews with Depot personnel indicate a history of rapid turnaround of material and vehicles stored in this area, and it was common for vehicles including military trailers, trucks, and heavy equipment to be parked along the south and northwest fences and in the central area. A silo-like structure was also found inside the fence of the DRMO Yard, adjacent to the northern edge of Building 360. Furthermore, a large crane was located in the northern portion of the Yard, north of the silo-like structure and Buildings 360 and 316. East of the DRMO Yard, a dielectric transformer box was observed between Building 317 and 1st

Street. Train tracks were also observed to approach the DRMO Yard from the north, with one spur ending at Building 317, a second ending at Building 316, while a third spur extended to the area between Building 316 and Building 360.

# 1.3.2 The Rumored Cosmoline Oil Disposal Area – SEAD-121I

SEAD-121I, shown in **Figure 1-4**, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). SEAD-68, the Old Pest Shop site, is located north of the northern end of SEAD-121I, across 3<sup>rd</sup> Street. Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots are two rows of buildings that are actively used for warehousing. Buildings 331 and 329 located to the west and across Avenue C receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the site where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines.

Information provided by the Army indicates that the rail spur and sidings were used for delivery of equipment and machinery that was frequently packed in Cosmoline (oil). Cosmoline oil is a substance that prevents corrosion and is commonly used to store materials. During delivery and unpacking of the equipment and machinery, oil from the packing may have been released to the ground. According to a material safety data sheet (MSDS) prepared by Goodson Shop Supplies, Cosmoline is composed of a complex mixture of petroleum hydrocarbons, severely hydrotreated heavy naphthenic distillate, Stoddard solvent, wool grease, and butyl stearate. No adverse chronic health effects have been reported due to exposure to Cosmoline. Acute health effects are generally limited to irritation, depending on the duration of the contact. An MSDS for Cosmoline Oil has been included as **Appendix A**.

# 1.4 ENVIRONMENTAL SETTING

# 1.4.1 Geology

SEDA is located within one distinct unit of glacial till that covers the entire area between the western shore of Lake Cayuga and the eastern shore of Lake Seneca. The till is consistent across the entire Depot although it varies in thickness from less than 2 feet to as much as 15 feet; the average thickness is a few feet. This till is generally characterized by brown to gray-brown silt, clay, and fine sand with few fine to coarse gravel-sized inclusions of weathered shale. Larger diameter weathered shale clasts (as large as 6-inches in diameter) are more prevalent in basal portions of the till and are probably rip-up clasts removed by the active glacier during the late Pleistocene era. The general Unified Soil Classification System (USCS) description of the till on-site is as follows: Clay-silt, brown; slightly plastic, small percentage of fine to medium sand, small percentage of fine to coarse gravel-sized gray

shale clasts, dense and mostly dry in place, till, (ML). Grain size analyses performed by Metcalf & Eddy (1989) on glacial till samples collected during the installation of monitoring wells at SEDA show a wide distribution of grain sizes. The glacial tills in this area have a high percentage of silt and clay with trace amounts of fine gravel. A zone of gray weathered shale of variable thickness is present below the till in almost all locations at SEDA. This zone is characterized by fissile shale with a large amount of brown interstitial silt and clay.

This underlying bedrock below weathered shale is a member of the Ludlowville Formation of the Devonian age Hamilton Group. The Hamilton Group, 600 to 1,500 feet thick, is divided into four formations. They are, from oldest to youngest, the Marcellus, Skaneateles, Ludlowville, and Moscow formations. The western portion of SEDA is generally located in the Ludlowville Formation while the eastern portion is located in the younger Moscow Formation. The Ludlowville and Moscow formations are characterized by gray, calcareous shales, mudstones and thin limestones with numerous zones of abundant invertebrate fossils. The Ludlowville Formation is known to contain brachiopods, bivalves, trilobites, corals, and bryozoans (Gray, 1991). In contrast, the lower two formations (Skaneateles and Marcellus) consist largely of black and dark gray sparsely fossiliferous shales (Brett et al., 1991). Locally, the shale is soft, gray, and fissile. **Figure 1-5** displays the stratigraphic section of Paleozoic rocks of Central New York. Three known predominant joint directions, N60°E, N30°W, and N20°E are present within this unit (Mozola, 1951).

# 1.4.2 Hydrogeology

Available geologic information indicates that the upper portions of the shale formation would be expected to yield small, yet adequate, supplies of water for domestic use. Regionally, four distinct hydrologic water-bearing units have been identified (Mozola, 1951). These include two distinct shale formations, a series of limestone units, and unconsolidated beds of Pleistocene glacial drift.

For mid-Devonian shales such as those of the Hamilton Group, the average yields [which are less than 15 gallons per minute (gpm)] are consistent with what would be expected for shales (LaSala, 1968). The deeper portions of the bedrock (at depths greater than 235 feet) have provided yields of up to 150 gpm. At these depths, the high well yields may be attributed to the effect of solution on the Onondaga limestone that is at the base of the Hamilton Group. Based on well yield data, the degree of solution is affected by the type and thickness of overlying material (Mozola, 1951). Geologic cross-sections from Seneca Lake and Cayuga Lake have been constructed by the State of New York, (Mozola, 1951, and Crain, 1974). This information suggests that a groundwater divide trending north-south exists approximately halfway between the two Finger Lakes. SEDA is located on the western slope of this divide and therefore, regional groundwater flow is expected to be primarily westward towards Seneca Lake.

Surface drainage from SEDA flows to five primary creeks. In the southern portion of the Depot, the surface drainage flows through man-made drainage ditches and streams into Indian and Silver Creeks. These creeks then merge and flow into Seneca Lake just south of the SEDA airfield. The central part

and administration area of the SEDA drain into Kendaia Creek. Kendaia Creek flows in a predominant westerly direction, and discharges into Seneca Lake at a location north of Pontius Point and the SEDA's Lake Shore Housing Area. This is the major pathway of surface water flow out of the areas of SEAD-121C (DRMO Yard) and SEAD-121I (Rumored Cosmoline Oil Disposal Area). SEAD-121C is surrounded by man-made drainage ditches that flow west. Near SEAD-121I, surface water runoff collects in a man-made drainage ditch west of the site, which runs in a northwesterly direction to meet up with the ditches to the west of SEAD-121C. In addition, a portion of the flow from SEAD-121I may move easterly toward Cayuga Lake. The majority of the northwestern and north-central portion of the SEDA drains into Reeder Creek. Reeder Creek flows predominantly northwesterly and leaves the Depot at a point that is north of the Open Detonation Area (i.e., SEAD-45) and west of the former Weapons Storage Area or the "Q" (i.e., SEAD-12) before it turns to the west and flows into Seneca Lake. The northeastern portion of the Depot, which includes a marshy area called the Duck Pond, drains into Kendig Creek and then flows north into the Cayuga-Seneca Canal and to Cayuga Lake. Other minor creeks are also present and drain portions of the Depot.

Data from various SEDA site quarterly groundwater monitoring programs indicate that the saturated thickness of the till/weathered shale overburden aquifer is variable, ranging between 1 and 8.5 feet. However, the aquifer's thickness appears to be influenced by the hydrologic cycle and some monitoring wells dry up completely during portions of the year. Based upon a review of two years of data, the variations of the water table elevations are likely a seasonal phenomenon. The overburden aquifer is thickest during the spring recharge months and thinnest during the summer and early fall. During late fall and early winter, the saturated thickness typically increases. Although rainfall is fairly consistent at SEDA, averaging approximately 3 inches per month, evapo-transpiration is a likely reason for the large fluctuations observed in the saturated thickness of the over-burden aquifer.

# 1.4.3 Regional/Local Land Use

Historically, Varick and Romulus Townships within Seneca County developed as agricultural centers supporting a rural population; however, there was a significant increase in the populations of these two centers in 1941 when SEDA was first opened.

Land use in the region surrounding SEDA is largely agricultural, with some forestry and public land uses (i.e., school, recreation, and state parks) (**Figure 1-6**). Agricultural land uses are categorized as inactive or active use. Inactive agricultural land consists of land committed to eventual forest regeneration, land waiting to be developed, or land presently under construction. Active agricultural land surrounding SEDA consists largely of cropland and cropland pasture. Forested land adjacent to SEDA is primarily under regeneration although there are sporadic occurrences of mature forest. Public and semi-public land use surrounding and within the vicinity of SEDA include Sampson State Park, Willard Psychiatric Center, and Central School (at the Town of Romulus, New York). Sampson State Park encompasses approximately 1,853 acres of land and includes a boat ramp on Seneca Lake.

SEAD-121C and SEAD-121I are both located in the east-central portion of SEDA, on land that is proposed as either classified for use as warehousing or for Planned Industrial/Office Development (PID Area). More detailed descriptions of both of these SEADs are provided below.

In accordance with the requirements of the BRAC process, the Seneca County Board of Supervisors established the Seneca Army Depot Local Redevelopment Authority (LRA) in October 1995. The primary responsibility assigned to the LRA was to plan and oversee the redevelopment of the Depot. The Reuse Plan and Implementation Strategy for Seneca Army Depot was adopted by the LRA and approved by the Seneca County Board of Supervisors on October 22, 1996. Under this plan and subsequent amendment, areas within the Depot were classified as to their most likely future use. These areas included: housing, institutional, industrial, an area for the existing navigational LORAN transmitter, recreational/conservation, and an area designated for a prison. **Figure 1-7** shows the distribution of the planned future land use at SEDA and the location of SEAD-121C and SEAD-121I. These sites are more than 1200 feet from the nearest residential receptor (the housing area east of the PID Area).

# 1.4.4 Regional Topography

SEDA lies on the western side of a series of north-to-south trending rock terraces that separate Cayuga Lake on the east and Seneca Lake on the west. The rock terraces range in elevation from 490 feet above mean sea level (MSL) in northern Seneca County to as much as 1,600 feet above MSL at the southern end of the lakes. Elevations on SEDA range from 450 feet (NGVD 1929) on the western boundary to 760 feet (NGVD 1929) in the southeast corner. The Depot's land surface generally slopes downward to the west and upward to the north.

# 1.4.5 Regional Climate

**Table 1-1** summarizes climatic data for the SEDA area. The data shown in **Table 1-1** have been compiled from numerous sources. The nearest source of climatic data is the Aurora Research Farm in Aurora, New York, which is located approximately ten miles east of SEDA on the east side of Cayuga Lake. The Research Farm is administered by the Northeast Regional Climate Center located at Cornell University in Ithaca, New York. Precipitation and temperature measurement data covering the period from November 1956 to the present day are available from this location. The other data reported in **Table 1-1** were taken either from isopleth drawings from a climatic atlas, or from data collected at Syracuse, New York, which is 40 miles northeast of SEDA. Meteorological data collected at Seneca Army Depot Activity and Ithaca, New York were used to prepare the wind roses presented in **Figure 1-8**.

A cool climate exists at SEDA with temperatures ranging from an average of 23°F in January to 69°F in July. Marked temperature differences are found between daytime highs and nighttime lows during the summer and portions of spring and autumn. Precipitation is unusually well distributed throughout the year, averaging approximately 3 inches per month. This precipitation is derived principally from

cyclonic storms that pass from the interior of the country through the St. Lawrence Valley. Lakes Seneca, Cayuga, and Ontario provide a significant amount of the winter precipitation and moderate the local climate. The annual average snowfall is approximately 100 inches. Wind velocities are moderate, but during the winter months, there are numerous days with sufficient winds to cause blowing and drifting snow. The most frequently occurring wind directions are westerly and west southwesterly (**Figure 1-9**).

Daily precipitation data measured at the Aurora Research Farm in Aurora, New York for the period (1957-1991) were obtained from the Northeast Regional Climate Center at Cornell University. The average monthly precipitation during this 35-year period of record is summarized in **Figure 1-10**. The maximum 24-hour precipitation measured at this station during this period was 3.9 inches on September 26, 1975. Values of 35 inches mean annual pan evaporation and 28 inches for annual lake evaporation were previously reported in **Table 1-1**. An independent value of 27 inches for mean annual evaporation from open water surfaces was estimated from a figure in "Water Atlas of the United States" (Water Information Center, 1973).

In general, climatic conditions that tend to promote good dispersions are high ambient temperatures, high wind speeds, low precipitation amounts, and a preponderance of clear skies. As Table 1-1 shows, temperatures tend to be highest from June through September. Precipitation and relative humidity tend to be rather high throughout the year. The months with the maximum amount of sunshine are June through September. Mixing heights tend to be lowest in the summer and during the morning hours. Wind speeds also tend to be lower during the morning, which suggests that dispersion will often be reduced at those times, particularly during the summer. However, no episode-days are expected to occur with low mixing heights (less than 500 m) and light wind speeds (less than or equal to 2 m/s). Information on the frequency of inversion episodes for a number of National Weather Service stations is summarized in "Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States" (George C. Holzworth, 1972). The closest stations at which inversion information is available are Albany, New York and Buffalo, New York. The Buffalo station is nearer to SEDA but almost certainly exhibits influences from Lake Erie. These influences would not be expected to be as noticeable at SEDA. SEDA is located in the Genesee-Finger Lakes Air Quality Control Region (AQCR). The AQCR is designated as "nonattainment" for ozone and "attainment" or "unclassified" for all other criteria pollutants. Data for existing air quality in the immediate area surrounding the SEAD, however, cannot be obtained since the nearest state air quality stations are 40 to 50 miles away from the Depot (Rochester of Monroe County or Syracuse of Onondaga County). A review of the data for Rochester, which is in the same AQCR as SEDA, indicates that all monitored pollutants (sulfur dioxide, particulates, carbon monoxide, lead, ozone) are below state and federal limits, with the exception of ozone. In 1987, the maximum ozone concentration observed in Rochester was 0.127 ppm. However, this value may not be representative of the SEDA area, which is in a more rural area.

#### 1.5 OFF-SITE WELL INVENTORY

This section identifies private drinking water wells near SEAD-121C and SEAD-121I. Knowledge of off-site wells is required when assessing any potential threats to drinking water supplies from releases at the site being investigated. Three private homes with private drinking water wells were identified within a one-mile radius of both SEAD-121C and SEAD-121I (**Figure 1-11**). Two wells are located on Yerkes Road east of Route 96, and one well is located along Route 414 (Main Street) just north of Bromka Road. These are the only domestic wells within one mile of SEAD-121C and SEAD-121I, and there are no public water supply wells within a one-mile radius of SEAD-121C and SEAD-121I.

#### 1.6 REPORT ORGANIZATION

The remaining sections of this report describe investigation programs conducted, procedures followed, review of the analytical results, discussion of the human health and ecological risk assessment, and recommendations for any further action at SEAD-121C and SEAD-121I. The first part of **Section 2.0** (Study Area Investigation) presents the methodologies used during the field investigations. This is followed by a discussion of the technical approach of the sampling program and the rationale for choosing the locations investigated during the field program. This section relates the investigation programs (i.e., geophysical, surface water, soils, and groundwater) to the important site features and characteristics, and sources of contamination. **Section 3.0** discusses the results of the investigation programs, specifically, surface features, surface water hydrology, geology and hydrogeology. The nature and extent of contamination on and off-site is discussed in **Section 4.0**. The fate and transport properties of contaminants found at SEAD-121C and SEAD-121I are discussed in **Section 5.0**. The human health baseline risk assessment is discussed in **Section 6.0**. The ecological risk assessment is discussed in **Section 7.0**. Conclusions and recommendations are presented in **Section 8.0**.

#### 2.0 STUDY AREA INVESTIGATION

### 2.1 INTRODUCTION

The Seneca Army Depot Activity (SEDA or the Depot) was nominated by the Department of Defense (DoD) for closure under the Base Realignment and Closure (BRAC) process in 1995. Congress approved this nomination, and SEDA was officially listed under BRAC in October of 1995. The mission closure date for SEDA was September 30, 1999, and the installation closure date was September 30, 2000.

In accordance with requirements of the BRAC, Woodward-Clyde Federal Services was retained by the Army to conduct and present the findings of an Environmental Baseline Survey (EBS) for SEDA. As part of this process, Woodward-Clyde was required to assess all property and facilities at the Depot and classify each into one of seven standard environmental condition definitions of property area types consistent with the Community Environmental Response Facilitation Act (CERFA – Public Law 102-426), which amends Section 120 of Comprehensive Environmental Responsibility, Compensation, and Liability Act (CERCLA). Parcels of land that are classified as Level 1 through 4 are suitable for transfer or lease, while parcels that are designated as Level 5 through 7 are not considered suitable for transfer, pending the initiation and completion of necessary remedial actions or the completion of further or additional site evaluations and investigations. The results of Woodward-Clyde's effort were documented in the U.S. Army Base Realignment and Closure 95 Program Report that was issued on October 30, 1996. This report served as part of the basis for subsequent decisions made regarding possible future land use of the areas within the Depot.

Pursuant to another requirement of the BRAC process, the Seneca County Board of Supervisors established the Seneca Army Depot Local Redevelopment Authority (LRA) in October 1995. The primary responsibility assigned to the LRA was to plan and oversee the redevelopment of the Depot. The Reuse Plan and Implementation Strategy for Seneca Army Depot was adopted by the LRA and approved by the Seneca County Board of Supervisors on October 22, 1996. Under this plan and subsequent amendment, areas within the Depot were classified according to their most likely future use. The areas identified by the LRA and approved by the Board of Supervisors include:

- Housing;
- Institutional;
- Industrial/Office development;
- Warehousing;
- Conservation/Recreation land;

- Prison:
- Airfield, special events, institutional, and training; and
- An area to be transferred from one federal entity to another (i.e., the area of the existing navigational LORAN transmitter).

As a result of these two actions, parcels of land located within the Defense Reutilization and Marketing Office Yard (DRMO Yard – SEAD-121C) were designated as category 5 and 6 areas under the EBS, while land within the Rumored Cosmoline Oil Disposal Area (SEAD-121I) was classified as a category 6 area. Furthermore, the land comprising the DRMO Yard were designated as an area for planned industrial/office development, while the area encompassing the Rumored Cosmoline Oil Disposal Area was designated as warehousing space.

As part of its overall response to the Woodward-Clyde EBS Report, the Army commissioned limited site investigations (SIs) at the category 5, 6 and 7 sites, including the DRMO Yard and the Rumored Cosmoline Oil Disposal Area. The purpose of the SIs was to describe and evaluate sites for potential contaminants of concern. Preliminary exploratory information was collected regarding each of the two sites during the EBS. The results of the EBS investigations at the DRMO Yard and the Rumored Cosmoline Oil Disposal Area provided insufficient information to close the sites and allow them to be transferred or leased for redevelopment (Parsons, 1999).

Based on this information, the Army commissioned Remedial Investigations (RIs) at the DRMO Yard and the Rumored Cosmoline Oil Disposal Area to further refine and expand the information and data that are available for each site.

Data and information collected during the EBS and the RI at the DRMO Yard (SEAD-121C) and at the Rumored Cosmoline Oil Disposal Area (SEAD-121I) are presented and summarized in this report. The combination of data and results collected during these investigations provides sufficient data and information to qualify and quantify the environmental conditions found at the two sites.

The first work conducted for both sites was completed as part of the EBS conducted in 1999. These results were previously reported in the document entitled "Final Investigation of Environmental Baseline Survey Non-Evaluated Sites" (Parsons ES, 1999). The next component of the investigation at both sites was the RI, which began in the late fall of 2002 with fieldwork continuing until the spring of 2003. The proposed scope of the field investigations conducted at SEAD-121C and SEAD-121I is defined in the document entitled "Final Work Plan for the Remedial Investigation (RI) at Two EBS sites in the Planned Industrial Development Area" (Parsons, 2002). Both of these plans are supplemented by information provided in the document "Generic Installation Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Parsons ES, 1995)," hereafter referred to as the Generic Work Plan. United States Environmental Protection Agency (USEPA) Region 2 and New

York State Department of Environmental Conservation (NYSDEC) approved the Generic Work Plan at the time of its submission.

As part of the EBS and RI conducted at the two sites, the following tasks were completed to develop information and data to describe the conditions that are present at the sites:

- Surveying;
- Soil sampling and characterization;
- Surface water sampling;
- Ditch soil sampling;
- Installation of monitoring wells;
- Groundwater sampling; and
- Chemical and physical characterization of samples.

#### 2.2 METHODS AND MATERIALS

# 2.2.1 Site Survey Program

Prior to the initiation of field investigations at each site, pre-sampling site field reconnaissance programs were conducted to characterize and locate general (i.e., terrain, drainage swales, creeks, ponds, land cover and/or vegetation, etc.) and significant features (i.e., debris pits, monitoring wells, access roads, etc.) present at each site. Potential sampling locations were marked prior to sampling and documented on site maps.

During the RI sampling event, after completion of the field tasks, the coordinates of the soil, ditch soil, and surface water sample locations were obtained using a Global Position System (GPS). A licensed surveyor surveyed the permanent monitoring wells installed at the DRMO Yard during the RI program in order to acquire the elevation data. This survey procedure was not employed during the EBS sampling program because the wells installed during this investigation were temporary. The location, identification, coordinates, and elevations of all control points and all of the environmental sampling points were plotted on the site base maps to show their location with respect to surface features within the project area. A site plan for SEAD-121C and the vicinity is presented as **Figure 1-4**.

# 2.2.2 Soil Investigation

Soil investigations conducted at the DRMO Yard (SEAD-121C) included the collection of shallow surface soils and deeper subsurface soil samples. Soil investigations at SEAD-121I included collection of shallow surface soils and the collection of ditch soils. Subsurface soil samples were not collected at SEAD-121I since the split spoon sampler encountered the weathered bedrock at depths of between 6 inches and 2 feet (ft.) below ground surface (bgs). The objectives of the soil investigation programs for the site investigations were to:

- Determine the nature and extent of contamination;
- Develop a database for use during potential future risk assessments and feasibility studies at each site; and
- Provide data describing the background soil quality.

Results generated in the soil sampling program were used to define the lateral and vertical extent of potential impacts to the soil in the SEAD-121C and SEAD-121I areas. A summary of the sample analyses completed on collected soil samples is provided in **Section 2.2.5.1**.

# 2.2.2.1 Soil Borings (Surface and Subsurface)

Soil borings at SEAD-121C were performed using either an Acker AD II or CME-75 drilling rig, equipped with 4.25-inch inside diameter (I.D.) hollow stem augers. Borings were advanced to "refusal" which was represented by the depth of the competent bedrock. The determination of auger "refusal" in competent shale is subjective as hollow stem augers can penetrate through the shale at a very slow rate. For the purpose of these investigations, auger "refusal" in "competent" shale was defined as the depth, after penetrating the weathered shale, when augering became significantly more difficult and auger advancement slowed substantially.

During drilling, surface soil samples were collected using decontaminated standard three-inch diameter, two-foot long carbon steel split-spoon samplers. Subsurface soil samples were collected continuously using decontaminated standard two-inch diameter, two-foot long carbon steel split-spoon samplers. Both surface and subsurface samples were collected in accordance with American Society for Testing and Materials (ASTM) Method D: 1586-84. Sampling involved driving the split-spoon sampler two feet in advance of the augers into the undisturbed soil with a rigmounted 140-lb hammer falling 30 inches to advance the spoon. Once the sampler was recovered, the augers were advanced to the top of the next sample interval and the sampling process repeated.

Soil recovered within the split-spoon samplers were classified according to the Unified Soil Classification System (USCS), with lithologic descriptions provided according to the Burmister

Classification System. The description of the recovered soils were recorded and logged on standardized field forms.

During sample collection, recovery and logging operations, soil samples were screened for volatile organic compounds (VOCs) using a calibrated OVM Thermo Model 580B. The OVM was calibrated daily, before drilling operations commenced and the calibration was checked at 15-minute intervals throughout the day.

Typically, two soil samples were collected and submitted for chemical analysis from each soil boring. Deviations in this plan are noted in **Section 3.0** of this report. These samples generally included:

- 0 to 2 ft. below grade.
- 2 to 6 ft. below grade.

Soil samples recovered for analysis of VOCs during the EBS report were collected directly from the split-spoon immediately after it was opened using a stainless steel trowel or scoop and placed into the sample container. The sample container was completely filled and the cover was immediately sealed to minimize volatilization. The additional analysis collected during the EBS investigation were collected and homogenized in a decontaminated stainless steel bowl, and then transferred to the appropriate sample containers.

Soil samples recovered for analysis of VOCs during the RI report were collected using the USEPA sample collection guidance (Method SW846 5035). Three separate sample aliquots were collected for each VOC analysis; one, required for determination of high concentration VOCs, was preserved with methanol; and two, required for determination of low level VOCs, were preserved with sodium bisulfate. For each sample aliquot, approximately 5 grams (gms) of soil were recovered by plunging the open-end of a pre-tared and calibrated syringe barrel and plunger assembly into the undisturbed contents of the split-spoon sampler. The weight of soil in the syringe was determined using a balance. Once the sample soil was packed in the barrel of the syringe and weighed, it was transferred into an open, pre-labeled 40-mL screw-capped vial that contained the specified preservative. The screw-capped vials were then closed and immediately sealed.

The remaining soil from the spoon was then mixed (homogenized) in a decontaminated stainless steel bowl with a decontaminated stainless steel utensil and then divided into the remainder of the sample containers. An additional 4-oz soil jar was recovered and used for percent moisture determinations for the VOC analysis. These remaining non-VOC samples were collected the same way for both the EBS and RI investigations. In several locations, more than one spoon had to be collected and homogenized to provide sufficient sample volume for all analyses.

Upon completion of sampling, soil borings were grouted to the ground surface. Monitoring wells that were installed during the RI were not sampled for soil. Split spoons were collected for boring log

purposes but were not analyzed. Drilling spoils brought to the surface by the augers were recovered and placed into Department of Transportation (DOT) approved, 55-gallon drums, which were labeled with the date, location, and description of wastes. All drums were then moved to a centralized drum storage area for temporary storage pending chemical characterization. All augers and split spoons were steam cleaned between borings at the decontamination pad.

## 2.2.2.2 Ditch Soils

The proposed sediment samples have been reclassified as ditch soil. The ditch soil samples are located in man-made drainage ditches. The material at the bottom of these ditches is competent shale, and any soil in the ditch is the result of erosion due to surface water runoff and is not naturally present in the ditch. The drainage ditches were constructed for drainage purposes when the Depot was first established, and the ditches have not been maintained since the base was decommissioned. It is presumed that a maintenance program would be reinstated by the future user to control stormwater runoff from the site.

Samples of ditch soil were collected at locations in and near the DRMO Yard and within and near the Rumored Cosmoline Oil Disposal Area. The data resulting from the analyses of recovered samples were used to determine the background ditch soil chemical concentrations (i.e., the ditch soil concentrations in areas that have not been impacted by site activities) present in the area of the SEADs, confirm the extent of contamination found at the sites, and identify whether contaminants may have migrated via run-off away from the sites.

In the vicinity of the DRMO Yard, the selected ditch soil sampling locations were outside the site in the open drainage culvert surrounding the study area with the exception of SDDRMO-9, which was located within the DRMO Yard.

Ditch soils were collected at SEAD-121I at depths between zero and two inches bgs (or below the overlying tar, grass, or vegetative covering). At SEAD-121I, the ditch soil samples were collected from drainage basins located in the corners of the four blocks that comprise SEAD-121I. Samples SD121I-1, SD121I-2, and SD121I-3 were collected from a downgradient location along Avenue A. As much vegetative (e.g., roots, leaves, grass, etc.) and animal matter (e.g., worms, insect lava, etc.) as possible was removed from each sample during sample collection operations.

Ditch soil samples collected during the RI investigation were collected with a syringe barrel sampler and a decontaminated stainless steel trowel and bowl, as described above. The VOC samples were taken prior to the collection using the syringe barrel sampler method described in **Section 2.2.2.1**. Once the VOC samples were collected, the bowl was filled with additional ditch soil and thoroughly mixed (homogenized). The remaining analysis bottles were filled and all the field data were recorded on the soil/sediment Sampling Record form. Sampling information such as sample location, number, depth, time, Burmister description, and laboratory Quality Assurance/Quality Control (QA/QC)

sample numbers were recorded on the Sampling Record Form. The sampling hole was then filled with the surrounding soil and the location stake replaced and checked for proper labeling.

# 2.2.3 Surface Water Investigations

During the fall of 2002, samples of surface water were collected at locations in and near the DRMO Yard and within and near the Rumored Cosmoline Oil Disposal Area. The data resulting from the analysis of recovered samples were used to determine the background surface water chemical concentrations (i.e., the surface water concentrations in areas that have not been impacted by site activities) present in the area of the SEADs, confirm the extent of contamination found at the sites, and identify whether contaminants may have migrated via run-off away from the sites. Surface water sampling occurred during or immediately after rainstorms/snowstorms to maximize the probability that there would be surface water present for sampling.

The ten surface water locations selected for sampling at SEAD-121I during the RI sampling program included three locations in the open drainage culvert along the west side of the study area, two blocks away. These locations are downgradient from SEAD-121I, SEAD-26, SEAD-64A, and other industrial portions of the Depot.

In the vicinity of the DRMO Yard, the selected surface water sampling locations were outside the site in the open drainage culvert surrounding the study area with the exception of SWDRMO-9, which was located within the DRMO Yard.

If standing water was not present at the time of sampling, only ditch soil samples were collected from that designated location. Standing water was not present at four of the designated surface water sample locations at the Rumored Cosmoline Oil Disposal Area. All the sample locations at the DRMO Yard had surface water present at the time of sampling.

Samples of surface water, if it was present, were collected first at each location. Prior to sampling, measurements of the breathing zone air were taken to establish the concentration of VOCs directly above the surface of the water body with an OVM Model 580B. Once a sampling location was deemed safe, samples were collected from the surface water body.

Typically, the water depth found at each location was relatively shallow; therefore, sample containers were generally inserted into the water body at a 45-degree angle with the opening of the bottle pointed in an upstream direction to allow the bottle to fill without the collection of surface debris. For parameters not requiring chemical preservatives, clean sample containers were submerged directly into the standing water to collect the sample. For parameters requiring chemical preservatives, the preserved sample containers were filled by decanting water collected first in a clean, decontaminated glass beaker or a clean, un-preserved sample bottle. Sample aliquots for VOC determinations were collected first. Each of these bottles was filled so that no headspace or bubbles

remained in the sample bottle once it was filled and sealed. The remaining analysis bottles were filled and all the field data was recorded on the surface water Sampling Record form.

A summary listing of all the sample analyses completed on surface water samples is provided in **Section 2.2.5.2**.

# 2.2.4 Groundwater Investigation

Groundwater investigations were conducted as part of the EBS and RI programs at the DRMO Yard. The monitoring wells installed as part of the EBS program were temporary, while the wells installed during the RI program were permanent. Investigations conducted included the installation, development, and sampling of monitoring wells. Monitoring wells were installed through the till/weathered shale aquifer that allowed for the collection of representative samples of groundwater at the DRMO Yard. Groundwater samples collected from monitoring wells were used to obtain water quality data within the DRMO Yard, determine the groundwater flow direction, and evaluate the vertical and lateral extent of contaminant migration within the groundwater near the SEAD-121C. A summary listing of groundwater sample analyses completed is provided in **Section 2.2.5.4**.

# 2.2.4.1 Monitoring Well Installation

The two wells sampled during the EBS program were temporary wells. During well installation, weathered bedrock was encountered at a depth of approximately 2.9 ft. bgs at temporary well location MW121C-1. The boring was then advanced to a final depth of 10.1 ft. bgs, and a temporary well was installed. The temporary well was screened over the interval of 2.1 to 9.7 ft. bgs. At temporary well location MW121C-2, weathered bedrock was encountered at a depth of 4 ft. bgs. The boring was then advanced to a final depth of 7.2 ft. bgs, and a temporary well was installed. The temporary well was screened over the interval of 1.6 to 5.9 ft. bgs. Once installed, each well was developed, allowed to stabilize, sampled, and then the temporary well was removed and the boring was grouted closed.

Proper design, construction, and installation of the monitoring wells were essential for accurate interpretation of the groundwater data. The installation procedures for the permanent wells installed during the RI program were consistent with the USEPA Region 2 CERCLA QA Manual and the NYSDEC Technical Administrative Guidance Memorandum (TAGM) #HWR-88-4015 regarding design, installation, development and collection of groundwater samples. Further, the RI program was in compliance with all requirements described in the NYSDEC, 6 New York State Codes, Rules and Regulations (NYCRR) Part 360, Solid Waste Management Facilities Regulations, Section 360-2.11, which details groundwater monitoring well requirements.

The overburden monitoring wells were installed using 4.25-inch I.D. hollow stem augers. The borings were advanced to auger refusal, which for the purposes of these investigations is defined as the contact between weathered shale and competent shale. During drilling, split spoon samples were collected continuously until spoon refusal was encountered. Monitoring wells were constructed of

ASTM-approved Schedule 40 polyvinyl chloride (PVC) casing and a 5-foot PVC well screen with a slot size of 0.010-inch, with threaded, flush joints that contained a rubber gasket. A silt sump "point" was installed at the bottom of each well. No solvents or other adhesives were used to connect the PVC casing. Prior to installation, well components were inspected to ensure that a proper working condition would exist upon completion. All monitoring well components were inspected prior to use to ensure that they were clean, uncontaminated, and free of any defects in workmanship.

A sand pack was placed by pouring sand from the surface into the annular space between the well screen and the hollow stem auger. The sand pack was not extended more than two feet (but not less than six inches) above the top, or six inches below the bottom of the screen. A layer of bentonite chips measuring between one and two feet thick was poured within the annular space and extended from the top of the sand pack to the ground surface.

Wells were screened from 3 ft. above the water table (if space allowed) to the top of the competent shale. Water table variations, site stratigraphy, and expected contaminant flow and behavior were also considered in determining the screen length and position. The overburden monitoring wells installed had a maximum screen length of five feet and were screened through the till/weathered shale aquifer.

For the permanent wells installed during the RI program, wells were protected with a steel casing, four inches in diameter and 5 ft. in length. This protective steel casing extended 2.5 ft. bgs to prevent heaving by frost. The protective casing had a locking cap with a weather-resistant padlock. A weep hole was drilled at the base of the protective steel casing above the cement collar to allow drainage of water. A locking expandable cap was also placed in the top of the PVC well casing. A cement collar was placed around each well and a permanent well identification number was marked on the steel protective casing.

# 2.2.4.2 Monitoring Well Development

Following well installation, each monitoring well was developed to assure that a proper hydraulic connection existed between the well and the surrounding aquifer. The development of monitoring wells was performed two to seven days after well installation and at least seven days prior to well sampling. During development, every effort was made to attain the lowest turbidity, preferably less than 50 Nephelometric Turbidity Units (NTUs).

Well development consisted of light purging with a bailer until two to four gallons of water were removed. After purging, the water in the well was removed using a peristaltic pump set to maintain a flow rate between 1.5 and 3 liters per minute (L/min). Near the end of the development process, the flow rate was lowered to a minimal level of 0.1 L/min. This low flow allowed the well and the surrounding formation to be developed while not creating a large influx of silt and clay, which are major constituents of the surrounding till.

The criteria used to determine if the well had been properly developed were based upon the guidance provided by NYSDEC TAGM #HWR-88-4015. Measurements of temperature, specific conductivity and pH were collected and recorded for each well volume using field instrumentation (i.e., a Hydac Model 910 field meter for the RI sampling program). A Hach® portable field turbidimeter with full-scale ranges of 1.0, 10, and 100 NTUs was used to measure turbidity during RI development activities, while an Engineered Systems Model 800 (full scale ranges of 20 and 200 NTUs) was used during the EBS at the DRMO Yard. Development operations continued until three consecutive readings of water quality indicator parameters met the criteria listed in **Table 2-1**.

In addition to meeting the primary conditions, at least three well volumes of water were removed from each well during development whenever it was possible. If less than three well volumes were removed due to low groundwater recharge rates, sufficient water was removed to ensure that the primary conditions were achieved prior to sampling. In all instances, at least one well volume was removed from each well prior to sampling.

## 2.2.4.3 Groundwater Sampling

Groundwater sampling completed during the EBS in March 1998 was conducted using bailers.

Groundwater sampling completed during the RI was conducted in accordance with procedures specified in the EPA standard operating procedure (SOP) titled *Groundwater Sampling Procedure*, *Low Flow Pump Purging and Sampling* (USEPA, 1998).

Prior to sampling the permanent wells, the static level of water present in the well was measured. Then, the bladder pump was installed in the well and the water level was measured again. Permanent wells were purged prior to sampling using a Marschalk bladder pump constructed of stainless steel and containing a Teflon® bladder. The purging process began with the inlet of the pump being set at the bottom of the well screen (or at least six inches from the bottom of the well). A flow rate of between 0.5 and 1.0 L/min was then established and the standing water contained in the well was purged and captured in a graduated five-gallon bucket. During the purging process, the water level in the well was continuously monitored with an electronic water level meter and the level was periodically recorded. Water quality indicator parameters including turbidity, temperature, specific conductivity, pH, dissolved oxygen content (DO), and oxidation-reduction potential (ORP) were monitored and recorded every two to four minutes using a YSI 600 XL Water Quality Meter. Well purging and monitoring continued until the quality of the sampled groundwater indicated that the well had stabilized. The well was considered stabilized and ready for sample collection once the indicator parameter values remained within the criteria listed in Table 2-1 for three consecutive readings.

Groundwater sampling commenced once the well had stabilized, or once the water level in the well had recovered sufficiently to permit collection of samples. In some very low-yielding formations, it was not possible to sample with minimal drawdown even using the lowest pumping rates.

Once the indicator parameters had stabilized, samples were collected at flow rates between 100 to 250 milliliters per minute to minimize the amount of water level drawdown found in the well (less than 0.3 ft. with the water level stabilized). The water level was monitored every three to five minutes (or as appropriate) during pumping. Pumping rates were reduced as needed to the minimum capabilities of the pump to avoid pumping the well dry. If the well's recharge rate was very low, purging and sampling was interrupted to ensure that the well's static water level did not drop below the level of the pump. A steady purge/sample flow rate was maintained to the maximum extent practicable.

Samples were collected by allowing the discharge flow from the sampling pump to flow slowly down the inside of the container. The order used for sample collection was: 1) VOCs, 2) semivolatile organic compounds (SVOCs), 3) Metals, 4) Pesticides/polychlorinated biphenyls (PCBs), 5) Cyanide, and 6) Total Recoverable Petroleum Hydrocarbons (TRPH). The collection of metals samples was placed early in the collection sequence to minimize the amount of turbidity degradation that could occur.

Gauging, purging, sampling, and monitoring equipment were decontaminated by standard procedures listed in the Generic Work Plan prior to being used at each well. Water level indicators and pumps were placed into polyethylene bags to prevent contamination during storage or transit.

# 2.2.5 Sample Analyses

Chemical analyses were completed by contract laboratories certified in the state of New York and by the US Army Corp of Engineers (USACE), Omaha District (formerly Missouri River District).

# **2.2.5.1 Soil Samples**

Soil sample analyses completed as part of the EBS and the RI were submitted for the physical and chemical analyses listed in **Table 2-2**.

# 2.2.5.2 Surface Water Samples

Surface water sample analyses completed as part of the EBS (SEAD-121I) and RI were submitted for the physical and chemical analyses listed in **Table 2-3**.

# 2.2.5.3 Ditch Soil Samples

Ditch soil sample analyses completed as part of the EBS (SEAD-121I) and RI were submitted for the physical and chemical analyses listed in **Table 2-4**.

# 2.2.5.4 Groundwater Samples

Groundwater sample analyses completed at the DRMO Yard as part of the EBS and the RI were submitted for the physical and chemical analyses listed in **Table 2-5**.

#### 3.0 DETAILED SITE INVESTIGATION

# 3.1 SEAD-121C: DEFENSE REUTILIZATION AND MARKETING OFFICE YARD (DRMO)

# 3.1.1 Previous Investigations

Results obtained from the 1998 Environmental Baseline Survey (EBS) at the DRMO Yard, otherwise known as SEAD-121C, have been combined with the results of the 2002 Remedial Investigation (RI) conducted at this site to yield a single, cohesive and comprehensive discussion of the site's conditions. This discussion is provided in the following text and in **Section 4.0**.

# 3.1.2 Components of the EBS and RI at the DRMO Yard - SEAD-121C

The following field investigations were performed to complete the EBS and RI characterization of the DRMO Yard:

- Site Survey;
- Soil Investigation;
- Ditch Soil Investigation;
- Surface Water Investigation; and
- Groundwater Investigation.

# 3.1.3 Site Survey

All sampling locations established during the RI at SEAD-121C were surveyed. Monitoring well and survey monuments were surveyed by a New York State licensed surveyor. All other sampling locations were surveyed using a Global Position System (GPS) system. Coordinates for all sampling locations are summarized in **Table 3-1**.

# 3.1.4 Soil Investigation

As the exact operating practices used at the DRMO Yard are unknown, the soil investigation was designed to cover the entire site and to extend beyond the defined site to identify areas of impacted soil. Therefore, soil samples were collected from locations inside the DRMO Yard, as well as from locations exterior to the site. The entire area within the fence at the DRMO Yard was utilized as a storage yard.

In accordance with the work plan, a comprehensive soils investigation program was completed at SEAD-121C. The objectives of this soil investigation program were to determine the nature and extent of contamination at and in the vicinity of SEAD-121C, and establish the extent of impacts to soils. In addition, soil samples were collected for analysis of grain size and moisture content to provide data to be used in determining remedial alternatives for the site.

During the EBS, a total of four surface soil samples and four subsurface soil samples were collected. During the RI, 56 soil samples were collected from 40 sample locations. These samples consisted of 20 surface soil samples and 36 subsurface soil samples collected from 20 locations. Sample locations for the EBS and RI are shown on **Figure 3-1.** All sampling was conducted in accordance with the procedures outlined in **Section 2.2.2**. A listing of all soil samples collected and submitted for analyses is provided in **Table 3-2**.

## 3.1.4.1 Soil Borings

# **EBS Program**

Four soil borings were advanced and sampled for physical characterizations to a depth of approximately 8 feet (ft.) during the EBS. These sampling locations are shown in blue labels on **Figure 3-1**. One soil boring was placed within the fenceline of the DRMO Yard along the northwest fence, at a location where evidence suggests that site runoff from the Yard flows into an adjacent drainage ditch, which forms the headwaters of Kendaia Creek. The second soil boring was placed near the storage cells that are located in the northeast portion of the SEAD, approximately 200 ft. north of Buildings T-355 and 360. The third soil boring was placed southwest of the corner of Building T-355, where historic spills were suspected to have occurred. The fourth soil boring was placed downgradient of the storage area that is located in the extreme southwestern corner of the SEAD. At each soil boring location, two samples were collected. One sample was collected from the top 2 inches of soil, and the second sample was collected in the depth range of 2 to 3 ft. Each of the soil borings was advanced to a depth of auger refusal, which varied from 4.3 ft. below ground surface (bgs) at location SB121C-1 to 7.7 ft. bgs at location SB121C-3. Weathered bedrock was typically encountered at a depth of 4 to 5 ft. bgs at each soil boring location.

#### **RI Program**

Sixteen soil borings were advanced and sampled for physical characterizations to a depth of 8 ft. during the RI. These sampling locations are shown in black labels on **Figure 3-1**. Four soil borings (SBDRMO-16, SBDRMO-21, SBDRMO-22, and SBDRMO-23) are located exterior to the DRMO Yard. The remaining twelve soil borings were advanced within the boundary of the site. Each boring location was sampled at a depth of approximately 0 to 2 ft. bgs and 2 to 6 ft. bgs. The sample collected from the 0 to 2 ft. bgs interval of the split spoon was collected from the top 2 inches of the spoon, where vegetative root material, asphalt, or cover materials were not found. The sample interval from 6 to 8 ft. was generally classified as fractured bedrock and could not be collected and

sampled. During the RI, four soil borings (SB121C-2, 8, 15, and 19) had large amounts of rock and rock fragments. At these four soil borings, a substantial sample could not be collected from the deeper sampling interval; thus the interval from 0 to 2 ft. was the only one collected for analysis. At the other twelve soil borings, the sampling interval from 2-4 ft. bgs and 4-6 ft. bgs were composited at each location as a result of the high rock content and collected as one sample for all analysis except for VOCs. Both intervals were sampled together in order to compile a more comprehensive sample. Samples collected for VOC analysis were collected first, directly from the spoons from the 0 to 2 ft. interval. Multiple spoons were needed to fill each VOC jar to the proper weight. The remaining soil from all spoons was homogenized into the stainless steel bowl.

Samples from these locations were analyzed for grain size determinations, density, and moisture content. A listing of the sample analyses performed on subsurface soil samples collected from the soil boring locations is provided in **Table 3-2**. The individual boring logs are included in **Appendix B**.

#### 3.1.4.2 Surface Soils

# EBS Program

A total of 4 surface soil samples were collected from the top of the 2 inches (i.e., 0-2 inches bgs) of the soil borings described in the previous section from the DRMO Yard during the EBS. These soil samples were collected at locations downgradient of the storage areas and near the storage cells.

# RI Program

A total of 20 surface soil samples were collected at a depth range of 0 to 2 inches at the DRMO Yard during the RI (**Figure 3-1**). Eight samples were located outside the fence bounding the Yard, and twelve sample locations were located inside the site. All sampling inside the fence was conducted using a split spoon sampler pounded with a hollow stem auger rig according to the procedures listed in **Section 2.2.2.1** and analyzed for the parameters listed in **Section 2.2.5**. The surface soil samples collected outside the fence, in the area of the ditches, were collected with a 2-foot long stainless steel split spoon sampler using a sledge hammer and analyzed for the same parameters as those samples collected inside the fence. The hollow stem auger rig could not fit in the areas outside the fence near the ditches and was not utilized during the collection. A listing of the sample analyses performed on surface soil samples collected from the DRMO Yard is provided in **Table 3-2**.

These surface soil samples (collected 0 to 2 inches bgs) were combined with the soils samples from the top interval of the soil borings (collected 0 to 2 ft. bgs).

#### 3.1.5 Ditch Soil

The proposed sediment samples have been reclassified as ditch soil. The ditch soil samples are located in man-made drainage ditches. The material at the bottom of these ditches is competent shale, and any soil in the ditch is the result of erosion due to surface water runoff and is not naturally

present in the ditch. The drainage ditches were constructed for drainage purposes when the Depot was first established, and the ditches have not been maintained since the base was decommissioned. It is presumed that a maintenance program would be reinstated by the future user to control stormwater runoff from the site.

## **EBS Program**

No ditch soil samples were collected from the DRMO Yard during the EBS field program.

## **RI Program**

Ditch soil samples were collected in and around the DRMO Yard from ten sampling locations. The data resulting from the analysis of recovered samples were used to determine the background ditch soil chemical concentrations present in the area of SEAD-121C, confirm the extent of contamination found at the sites, and identify whether contaminates may have migrated via run-off away from the sites.

Ditch soil samples were collected from nine locations outside the perimeter of the fence in the drainage ditches that surround the DRMO Yard. A ditch soil sample was collected from a drainage ditch northeast of the site, identified as Drainage Ditch #1 for the purposes of this discussion. Three ditch soil locations are situated south of the site along a drainage ditch, identified as Drainage Ditch #2. Four collection locations for ditch soil samples were collected outside the northwest boundary of the site in a ditch identified in this discussion as Drainage Ditch #3. One ditch sample location is located southwest of the site where Drainage Ditch #3 and Drainage Ditch #2 converge. SDDRMO-9 was the only location not collected in the drainage ditches surrounding the DRMO Yard. This ditch soil location was sampled within the DRMO Yard near a standing body of water. There was no obvious drainage route from the standing body of water to the drainage ditches surrounding the site. The approximate locations of these ditch soil samples are shown in Figure 3-1. All samples were collected according to the procedures described in Section 2.2.2.2. A listing of the analyses completed on ditch soil samples is provided in Table 3-3. Data defining ditch soil sample characteristics at the time of sample collection are provided in Table 3-4.

## 3.1.6 Surface Water

# **EBS Program**

There were no surface water samples collected from the DRMO Yard during the EBS field program.

#### RI Program

Surface water samples were collected in and around the DRMO Yard from ten sampling locations. The data resulting from the analysis of recovered samples were used to determine the background surface water chemical concentrations present in the area of SEAD-121C, confirm the extent of

contamination found at the site, and identify whether contaminates may have migrated via run-off away from the site.

Surface water samples were collected from nine locations outside the perimeter of the fence in the drainage ditches that surround the DRMO Yard. A surface water sample was collected from a drainage ditch northeast of the site, identified as Drainage Ditch #1 for the purposes of this discussion. Three surface water locations are situated south of the site along a drainage ditch, identified as Drainage Ditch #2. Four collection locations for surface water samples were collected outside the northwest boundary of the site in a ditch identified in this discussion as Drainage Ditch #3. One surface water sample location is located southwest of the site where Drainage Ditch #3 and Drainage Ditch #2 converge. SWDRMO-9 was the only location not collected in the drainage ditches surrounding the DRMO Yard. This surface water location was sampled within the DRMO Yard in a standing body of water. There was no obvious drainage route from the standing body of water to the drainage ditches surrounding the site. The approximate locations of these surface water samples are shown in Figure 3-1. All samples were collected according to the procedures described in Section 2.2.2.2. A listing of the analyses completed on surface water samples is provided in Table 3-5.

# 3.1.7 Groundwater Investigation

The purpose of the groundwater monitoring program at the DRMO Yard was to determine whether past use of the site has impacted the groundwater underlying and migrating away from the site.

# 3.1.7.1 Monitoring Well Installation

Two temporary monitoring wells were installed at SEAD-121C during the EBS and an additional four monitoring wells were installed during the RI. The locations of the wells are shown on **Figure 3-1**.

#### **EBS Program**

One of the temporary monitoring wells, MW121C-2, was located upgradient of the drainage ditches along the northwestern and southern borders and downgradient of the concrete storage area that is located in the southwestern corner of the SEAD. The other temporary monitoring well, MW121C-1, was placed south of Building T-355. At temporary well location MW121C-1, weathered bedrock was encountered at a depth of approximately 2.9 ft. bgs. The boring was then advanced to a final depth of 10.1 ft. bgs, and a temporary well was installed. The temporary well was screened over the interval of 2.1 to 9.7 ft. bgs.

At temporary well location MW121C-2, weathered bedrock was encountered at a depth of 4 ft. bgs. The boring was then advanced to a final depth of 7.2 ft. bgs, and a temporary well was installed. The temporary well was screened over the interval of 1.6 to 5.9 ft. bgs. Once installed, each well was developed, allowed to stabilize, sampled, and then the temporary well was removed and the boring was grouted closed. Temporary well construction and available groundwater elevation data for both

of the temporary wells are summarized in **Table 3-6**. It should be noted that the temporary wells installed during the EBS investigation were not present during the RI.

#### RI Program

Monitoring wells MW121C-3, MW121C-4, and MW121C-5 were installed at the approximate location of each of the three corners inside the triangular-shaped DRMO Yard. The fourth well, MW121C-6, was installed towards the center of the rumored location of the former concrete storage pad. The locations of the wells were selected to monitor the migration of possible contamination out of the DRMO Yard and into the surrounding drainage ditches. All wells were screened in the saturated overburden overlying the shale bedrock as described in **Section 2.2.4.1**.

Monitoring well construction details for the permanent wells at SEAD-121C are presented in **Table 3-7**. All construction details were completed in accordance with the procedure outlined in **Section 2.2.4.1**.

# 3.1.7.2 Monitoring Well Development

Following the well installation, each monitoring well was developed to insure that a proper hydraulic connection existed between the well and the surrounding aquifer. The development details for the EBS and the RI are summarized in **Section 2.2.4.2**. Monitoring well development data for the DRMO Yard wells are summarized in **Table 3-8**.

# 3.1.7.3 Groundwater Sampling

Groundwater from five monitoring wells (MW121C-1, MW121C-2, MW121C-3, MW121C-4, and MW121C-6) at SEAD-121C was sampled and analyzed for the parameters listed in **Section 2.2.4.3**. MWDRMO-5 was dry and was not sampled. The first round of sampling for the EBS was completed at wells MW121C-1 and MW121C-2 in March 1998. The first round of groundwater sampling for the RI was conducted February 2003, and the second round of groundwater sampling for the RI was completed in May 2003. Sampling during the RI was completed in accordance with the latest version of the EPA groundwater sampling guidance as is discussed in **Section 2.2.4.3**. A summary of groundwater samples collected during the two rounds of sampling during the RI field program is provided in **Table 3-9**. A listing of groundwater quality indicator parameter data at the time of sample collection is provided in **Table 3-10**.

# 3.1.8 Aquifer Testing

Three rounds of water levels were collected at each of the permanent monitoring wells at the DRMO Yard to determine groundwater elevation and to define the groundwater flow direction at the site. The first round of elevation data was collected on the day of well development, October 29, 2002. The second round of measurements was taken on February 2, 2003, immediately before the first round of

groundwater sampling. The final round of elevation measurements was obtained on May 7, 2003 before the last sampling round. All of the collected groundwater elevation data is presented in **Table 3-11**.

#### 3.2 SEAD 121I: RUMORED COSMOLINE OIL DISPOSAL AREA

# 3.2.1 Results of Previous Investigations

Results obtained during the EBS at the Rumored Cosmoline Oil Disposal Area, otherwise known as SEAD-121I, have been combined with the results of the RI conducted at this SEAD to yield a single, cohesive and comprehensive discussion of the site's conditions. This discussion is provided in the following text and in **Section 4.0**.

# 3.2.2 Components of the EBS and RI at SEAD-121I

The following field investigations were performed to complete the EBS and RI characterization of SEAD-121I:

- Surveying;
- Soil Investigation; and
- Surface Water Investigations.

# 3.2.3 Site Survey

All sampling locations established during the RI at SEAD-121I were surveyed using a GPS system. Coordinates for all sampling locations are summarized in **Table 3-12**.

# 3.2.4 Soil Investigation

#### 3.2.4.1 Introduction

The objectives of the soil investigation program conducted at SEAD-121I were to determine the nature and extent of contamination present at or in the vicinity of the site and to establish the extent of impacts to soils. In addition, soil samples were collected for analysis of grain size and moisture content to provide data to be used in determining remedial alternatives for the site. All sampling was conducted in accordance with the procedure outlined in **Section 2.2.2**.

#### 3.2.4.2 Subsurface Soils

# RI Program

During the RI, five soil borings were advanced using a hollow stem auger at SEAD-121I. These soil borings were advanced at specific locations described in the Final Work Plan for the Remedial Investigation (RI) at Two EBS Sites in the Planned Industrial Development Area (Parsons, 2002) and are shown in black labels on **Figure 3-2**. All five borings had boring refusal at 2 to 4 ft. bgs. Fractured bedrock was encountered in all five locations, which resulted in auger refusal. In most cases, fractured bedrock could be seen at the surface when sampling was being conducted at the site. A soil sample was collected from each of the five borings at a depth interval of 0 to 2 ft. Because these 5 samples did not seem to vary in character from the surface soil samples (collected from 0 to 2 inches), these 5 samples (collected from the top interval of the boring) were grouped as surface soil for the purpose of discussion.

#### 3.2.4.3 Surface Soils

# **EBS Program**

During the EBS, four surface soil samples were collected at a depth range of 0 to 2 inches at SEAD-121I. Each surface soil sample was collected from a depressed area found within each of the four rectangles (formed from the intersection of roadways and locations of warehouses at the site).

# RI Program

During the RI, 30 surface soil samples were collected at a depth range of 0 to 2 inches. As stated, SEAD-121I is comprised of four grassy rectangular areas between Avenue C and D. Twenty samples were collected within the four blocks that comprise SEAD-121I. Sample locations were placed on each of the four corners of each rectangle, as well as roughly one in the center of each block. The remaining ten surface soil samples were collected outside the boundary of SEAD-121I: five surface soil samples were collected from the four blocks to the west of SEAD-121I, across Avenue C; and five surface soil samples were collected from the four blocks east of the site, across Avenue D. All sampling locations are shown in black labels on **Figure 3-2**.

Surface soil samples (collected 0 to 2 inches bgs) were collected at all 30 sample locations (SS121I-5 to SS121I-34), as presented in **Table 3-13**. Sampling was conducted in accordance with the procedure outlined in **Section 2.2.2.1**.

#### 3.2.4.4 Ditch Soils

The proposed sediment samples have been reclassified as ditch soil. Nine of the ditch soil samples located inside SEAD-121I or upgradient of the site are located in small drainage culverts, and these locations are not considered to be sediment since they are not perennially wet and do not support

benthic organisms or normal wetland vegetation. The three ditch soil samples located downgradient of the site are located in man-made drainage ditches. The material at the bottom of these ditches is competent shale, and any soil in the ditch is the result of erosion due to surface water runoff and is not naturally present in the ditch. The drainage ditches were constructed for drainage purposes when the Depot was first established, and the ditches have not been maintained since the base was decommissioned. It is presumed that a maintenance program would be reinstated by the future user to control stormwater runoff from the site.

# **EBS Program**

Two ditch soil samples were collected during the EBS program. One sample was collected from a drainage culvert downgradient of the materials staging area between Building 343 and Building 331. The second ditch soil sample was collected from a drainage culvert downgradient of the staging area between Buildings 341 and 329. Locations are shown in blue labels on **Figure 3-2**.

## **RI Program**

Ten ditch soil samples were collected at SEAD-121I during the RI program. The ditch soil samples were collected in the drainage basins, culverts, channels, and swales surrounding the site, which run parallel to the streets, in order to catch possible site migration. Four ditch soil samples were collected within the boundary of SEAD-121I. Three ditch soil sample locations were located across Avenue D, east of the site, and three ditch soil samples were collected downgradient of the site, to the west. The location of the ditch soil samples is shown in black labels on **Figure 3-2**.

The three ditch soil samples located downgradient of the site were collected in the main drainage ditch running parallel to Avenue A, located downgradient of SEAD-121I, SEAD-26, SEAD-64A, and other industrial portions of the Depot and acting as a point of conversion of all the catch basins located throughout the site in a series of three outlet pipes. The area immediately next to the discharge point of the outlet pipes was the site of collection of the ditch soil samples. Ditch soil samples SD121I-3 and SD121I-2 were collected directly from the discharge pipes, prior to converging with existing water in the ditch. Ditch soil sample SD121I-1 was collected downgradient of the outlet pipe and is classified as the furthest downgradient ditch soil sample collected for the site.

All sampling was conducted in accordance with the procedure outlined in **Section 2.2.2.2**. **Table 3-14** summarizes the sampling program for SEAD-121I. Data defining ditch soil sample characteristics at the time of sample collection are provided in **Table 3-15**.

#### 3.2.5 Surface Water

The objectives of the surface water sampling proposed at SEAD-121I were to determine the background surface water chemical concentrations (i.e., the surface water concentrations in areas that have not been impacted by site activities) present in the area of the site, to delineate the extent of

contamination on site, and to establish the potential exposure pathways for offsite transport in the drainage basins. However, no continuous source of surface water exits within the bounds of SEAD-121I. All surface water located at this site is temporal, generally associated with either storm or snowmelt events.

## **EBS Program**

No surface water was collected as part of the EBS program.

## **RI Program**

The work plan for the investigation at the Rumored Cosmoline Oil Disposal Area specified that ten surface water samples were to be collected at the study area. Three designated locations (SW121I-4, SW121I-8 and SW121I-9) did not contain surface water at the time of collection, even following periods of rain and snow, thus they were not collected. Four surface water samples were collected from standing water locations around SEAD-121I, typically near the catch basins along the side of the streets. These samples were collected following a precipitation event to ensure sufficient water was available for collection. Standing water does not accumulate at these locations during dry periods. It is assumed that the standing water either drains into the nearby catch basins or is slowly absorbed and infiltrated into the soil.

The remaining three surface water samples were collected in the main drainage ditch running parallel to Avenue A, located downgradient of SEAD-121I, SEAD-26, SEAD-64A, and other industrial portions of the Depot and acting as a point of conversion of all the catch basins located throughout the site in a series of three outlet pipes. Surface water samples SW121I-3 and SW121I-2 were collected directly from the discharge pipes, prior to converging with existing water in the ditch. Sample SW121I-1 was collected downgradient of the outlet pipe and was the furthest downgradient surface water sample collected for the site. The locations of surface water samples are shown in black labels on **Figure 3-2**. All sampling was conducted in accordance with the procedure outlined in **Section 2.2.3**. **Table 3-16** summarizes the sampling program for SEAD-121I.

# 3.2.6 Groundwater Investigation

The purpose of the groundwater monitoring program at SEAD-121I was to define the horizontal and vertical extent of impacted groundwater, determine the direction of groundwater flow in the area of the site, determine the hydrogeologic properties of the aquifer to assess contaminant migration and potential remedial actions, and determine the background groundwater quality.

The monitoring wells were originally to be located and installed within the soil borings (SB121I-1 to SB121I-5). Upon drilling the soil borings to a refusal point of 4 ft., the holes were left open to monitor the potential collection of groundwater. Water did not collect at any of the five holes, and

therefore it was concluded that if wells were installed in the borings, the wells would not produce noticeable groundwater. Consequently, the wells were not installed.

SEAD-121I (as well as the neighboring Solid Waste Management Unit (SWMU), SEAD-68) is located on the top of the apparent groundwater divide. Therefore, there are no groundwater results that are applicable to SEAD-121I. There are wells at downgradient locations at SEAD-121C, SEAD-26, SEAD-50/54, and SEAD-25. All of these wells are managed as part of investigations for different SWMUs at SEDA.

#### 4.0 NATURE AND EXTENT OF IMPACTS

Data quality objectives for this investigation follow the guidance described in Data Quality Objectives (DOO) for Remedial Response Activities: Development Process (USEPA, 1987) that is described in the approved Generic Installation RI/FS Work Plan for SEDA. This DOO document has been replaced by the Data Quality Objectives Process for Hazardous Waste Site Investigations, Final (USEPA, 2000c). Although the work plans for this site referenced the earlier DQO document (USEPA, 1987), a review of the Interim Final Guidance (USEPA, 1993d) indicates that the development of the field investigation program for SEAD-121C and SEAD-121I essentially followed the steps outlined in the Interim Final Guidance. These steps include development of a conceptual site model, defining the exposure scenarios, determining the regulatory objectives, defining the boundaries of the operable units, and developing a judgmental sampling plan for the field investigation program. The non-probabilistic approach to developing a sampling program was used because the objective of the program was to establish that a threat exists in a complete exposure pathway by confirming the presence of a hazardous chemical substance associated with the sites, based on visual and historical information on the chemical sources. The specific locations of chemical impacts were identified during the Investigation of Environmental Baseline Survey (EBS) Non-Evaluated Sites (Parsons, 1999) and from historical information about activities conducted at the sites. In order to maintain consistency between the Generic Installation RI/FS Work Plan, the Planned Industrial/Office Development (PID) Work Plan, and the reports prepared for SEDA, this report will continue to reference the earlier DQO document.

Validation of analytical data resulting from analytical determinations in soil, ditch soil, surface water, and groundwater will be performed in a manner that is generally consistent with procedures defined in the United States Environmental Protection Agency's (USEPA) "National Functional Guidelines for Organic Data Review" and consistent with USEPA Region 2's Standard Operating Procedures (SOP). Specific data validation procedures that will be followed include:

- Training Course For CLP Organic Data Validation 2001, Revision 2;
- HW-24, Validating Volatile Organic Compounds by SW-846 Method 8260B, Revision 1, June 1999;
- HW-29, Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry (GC/MS): Capillary Column, Acquired Using Method 524.2 (Revision 4.1, 1995), Revision 1, October 2001;
- HW-22, Validating Semivolatile Organic Compounds by SW-846 Method 8270, Revision 2, June 2001;
- HW-23B, Validating Pesticides/PCB Compounds by SW-846 Method 8082, Revision 1.0, May 2002; and

• HW-2, Evaluation of Metals Data for the CLP Program, Revision 11, January 1992.

# 4.1 INTRODUCTION

This section presents the analytical results for all media sampled at and surrounding SEAD-121C and SEAD-121I. Data from the EBS Investigation collected in 1998 and data collected during the 2002 Remedial Investigation (RI) field sampling events have been merged individually for each site to yield a single data set for the site, and the combined data set for each site is discussed separately for each area in this report.

The investigation activities performed for the EBS and RI generated Level I and Level IV analytical data. These data categories are described in the earlier DQO document (USEPA, 1987). The Interim Final Guidance (USEPA, 1993d) describes two data categories, screening data with definitive confirmation, and definitive data. These two categories are associated with specific quality assurance and quality control elements. The Level I and IV data meet the applicable QA/QC requirements for screening and definitive data, which are presented in the Interim Final Guidance. To maintain consistency between the work plans and reports prepared for SEDA, the data categories will continue to be referred to using "Level" terminology.

The types of media investigated at SEAD-121C and SEAD-121I are as follows:

- Surface Soil (both SEADs);
- Subsurface Soil (SEAD-121C only);
- Groundwater (SEAD-121C only);
- Surface Water (both SEADs); and
- Ditch Soil (both SEADs).

Classes of parameters analyzed for media during the two site investigations (i.e., the EBS and RI) are summarized in **Tables 2-2** through **2-5** for soil, groundwater, surface water, and ditch soil, respectively. Detailed chemical analyses performed include determinations of:

- Volatile organic compounds (VOCs);
- Semivolatile organic compounds (SVOCs);
- Chlorinated pesticides (Pesticides);
- Polychlorinated biphenyls (PCBs);
- Metals and cyanide;

- Total organic carbon (TOC); and
- Total Petroleum Hydrocarbons (TPH).

The VOC and SVOC analyses also included the identification and quantification of tentatively identified compounds (TICs). The analytical results are discussed first by media and then by constituent group. The analytical results are summarized on data tables and, where appropriate, maps are used to show the horizontal and vertical distribution of constituents of concern found at the sites. Complete analytical data tables are provided in **Appendix C**.

Field duplicates were collected for each media during the EBS and the RI field investigations. In the data presentation in this report, the analytical results of each pair of sample and field duplicate samples were averaged to produce a single result used to represent the sample location during a specific sampling event. The following procedures were used to average the results of a sample and its field duplicate:

- If an analyte was detected in both the sample and duplicate sample, then the detected values were averaged.
- If an analyte was not detected in the sample and the duplicate sample, then the reporting limits (RLs) were averaged.
- If an analyte was detected in only one member of a sample/duplicate pair; then the analyte was considered present at a level equal to the average of the detected value and one-half of the RL for the non-detect member.

**Table C-1A** in **Appendix C** presents the method used for selecting qualifiers assigned to averaged sample/duplicate paired results. The sample and its field duplicate were treated as one entry and the average concentration was used to represent the result detected at the sampling location. This protocol is reflected in all the summary statistics (i.e., number of detections or exceedances and the maximum concentration) presented in this report and in the risk assessment. For completeness, the raw data presented in tables in **Appendix C** include all samples results (i.e., results for the sample and its field duplicate); however, the statistics on the left side of the tables were calculated by counting the sample and its duplicate as one sample and evaluating its average value. It should be noted that a maximum reported value could be generated from the average of a sample/duplicate pair.

### 4.2 QUALITY CONTROL

This section presents and summarizes quality control results computed sample and sample duplicate pairs collected during the investigation of SEAD-121C (DRMO Yard) and SEAD-121I (Rumored Cosmoline Oil Disposal Area). Sample and sample duplicates were collected at a frequency of no

less than one pair per every 18 field samples. The number of sample and sample duplicate pairs collected during the PID site investigation is summarized below.

| Site                   | Media         | Number of Sample/Duplicate Pairs |
|------------------------|---------------|----------------------------------|
| SEAD-121C              | Surface Soil  | 5                                |
| SEAD-121C              | Ditch Soil    | 1                                |
| SEAD-121C              | Groundwater   | 2                                |
| SEAD-121C              | Surface Water | 1                                |
| Building 360 (SEAD-27) | Groundwater   | 2                                |
| SEAD-121I              | Surface Soil  | 3                                |
| SEAD-121I              | Ditch Soil    | 1                                |
| SEAD-121I              | Surface Water | 1                                |

The level of agreement between sample and sample duplicate results is determined and documented by calculating the Relative Percent Difference (RPD) that exists between a parameter reported in the sample and in its duplicate. Generally, RPD values of 50% or less suggest that sampling and analyses processes are in control; RPD values above 50% warrant additional evaluation and consideration, before the results are accepted or rejected. Such consideration should include review of all data reported for the sample/duplicate pair to determine if the noted variability is limited to a single analyte or is wide-spread across the sample or across a group of analytes. Factors also considered include evaluation of the data to assess whether that particular analyte is detected at a concentration near, or below the detection limit (i.e., estimated or "J" flagged), in one member of the sample/duplicate pair while the analyte was not detected at all in the second member of the pair.

### 4.2.1 Discussion of RPD Results

Comparisons of reported sample and sample duplicate results were done for sample/duplicate pairs collected from SEAD-121C and SEAD-121I for each media sampled (i.e., soil, ditch soil, surface water, and groundwater). **Table 4-1A** presents a summary of the analytes found with RPDs greater than 50% in each of the sampled media. In general, the RPD results were acceptable and did not identify any significant errors in the dataset as a whole. Matrix influences are believed to be a contributing factor, mainly influencing the results of SVOCs and more specifically the Polycyclic Aromatic Hydrocarbons (PAHs). Matrix interference is believed to affect SEAD-121C surface soil.

The other major factors affecting the RPD results were laboratory contamination and laboratory instrument performance. SEAD-121I ditch soil and surface soil both reported SVOCs with Percent Difference greater than 20% and data validation noted Matrix Spike (MS) /Matrix Spike Duplicate (MSD) recovery problems for several PAHs in the ditch soil. VOCs such as acetone, carbon disulfide, chloroform, methyl ethyl ketone, and methylene chloride were reported by the laboratory, however based on a Parsons' review of the dataset, data validation, and professional judgment, these

results are "false positives" and may result from contamination in the laboratory or sample preservation process.

Another factor that affects RPD results was turbidity found in groundwater sample/duplicate pairs collected from temporary wells. Groundwater samples from SEAD-121C temporary wells detected several pesticides at concentrations just above or below (i.e., estimated) the detection limits for the specific analyte. This problem was limited to the sample/duplicate groundwater pair (EB153/EB023) collected during the EBS in 1998, where bailers and temporary wells were used. Additionally, turbidity in groundwater samples also impacted the results reported for antimony, arsenic, cadmium, chromium, cobalt, copper, iron, nickel, and vanadium in one of the two sample/duplicate pairs from SEAD-121C. These detections were general below or slightly above the detection limit of the individual metal.

# 4.2.2 Summary of RPD Results by Site and Media

### 4.2.2.1 SEAD-121C

## **Surface Soil**

Five sample/duplicate pairs were collected during the EBS (1998) and the RI (2003). **Table 4-1B** summarized analytes that have a RPD greater than 50% and presents the results for the samples, its corresponding duplicate, and the calculated RPD value. **Table C-1B** presents the complete results of the samples, its duplicate, and RPD value. **Table 4-1B** identifies PAHs as the chemical group with most frequently having RPDs greater than 50%. Three sample/duplicate pairs (EB231/EB014, DRMO-1074/DRMO-1080, and DRMO-1002/DRMO-1003) had at least seven of the sixteen PAHs with RPDs greater than 50%.

Sample/duplicate pair EB231/EB014 was collected during the EBS; what is significant about this pair is that the duplicate (EB014) shows that a majority of the SVOCs are present at the site, while the sample (EB231) shows non-detects for all the SVOCs except for bis(2-ethylhexyl)phthalate. Looking at results from other samples (i.e., SS121C-4 and SBDRMO-5, in order of proximity) collected in close proximity to sample/duplicate pair EB231/EB014, indicates that at least 11 of the 16 PAHs are present in the area and they typically exist at concentration greater than found in EB014. While the two comparison samples were collected 5 years after the EBS sample was, and therefore could be impacted by events not reflected in the 1998 event, the frequent detections of PAHs at elevated concentration in this area suggests that the results posted for EB014 are more reflective of conditions likely to exist in the area. Similar findings are observed for the pesticide, delta-BHC, and metals in these samples. The sample/duplicate pair EB229/EB020 was collected during the EBS. There were no significant RPD issues for this sample/duplicate pair. Common sources for RPD above 50% were: detection below, at, or slightly above the detection limit in one of the members; different detection limits for each member, or detection in both members below the detection limit.

Sample/duplicate pair DRMO-1074/DRMO-1080 was collected during the RI; note that several PAHs were detected at different concentration between the members. The variation in detected concentrations can be attributed to matrix interference, sampling technique (i.e. non-homogenous mixing of soil sample) or laboratory instrument problems, such as failure to clean equipment or laboratory controls outside of limits. Two pesticides and TPH were also potentially impacted by sampling technique. In addition, low concentrations were a significant influence on the RPD values (i.e. differences between low concentrations producer higher RPD values) for the pesticides and TPH.

Sample/duplicate pair DRMO-1043/DRMO-1044 was collected during the RI. There were no significant RPD issues for this sample/duplicate pair. Common sources for RPD above 50% were: detection below, at, or slightly above the detection limit in one of the members; different detection limits for each member, or detection in both members below the detection limit.

The sample/duplicate pair DRMO-1002/DRMO-1003 was collected during the RI; note again that several PAHs were detected at different concentrations between the members. The variation in detected concentrations can be attributed to matrix interference, sampling technique (i.e. non-homogenous mixing of soil sample) or laboratory instrument problems, such as failure to clean equipment or laboratory controls outside of limits. In addition, antimony, magnesium, and TPH also had RPD above 50%, which could potentially be attributed to sample technique.

## **Ditch Soil**

A single sample/duplicate pair DRMO-4005/DRMO-4008 was collected during the RI from sample location SDDRMO-8, see **Table 4-1C**. **Table C-1C** presents the full RPD results for the ditch soil sample and the sample duplicate. The majority of the analytes were not detected, but had RPD above 50% due to different detention limits for the members. The exceptions were acetone, arsenic, barium, cobalt, iron, manganese, and sodium. Acetone is a common laboratory contaminant; and the data validation indicated acetone was detected below the contract required quantitative limit (CRQL) in a method blank. The metals (previously mentioned) variation in detected concentrations was potentially influenced by the sampling technique.

## Groundwater

One sample/duplicate pair of groundwater was collected during the EBS and the RI (EB153/EB023 and 121C-2002/121C-2004, respectively), see **Table 4-1D**. **Table C-1D** presents the full RPD results for the groundwater sample and the sample duplicate.

As mentioned previously, the EBS sample/duplicate pair EB153/EB023 was collected from temporary monitoring wells. Samples from temporary wells generally have elevated turbidity from sediment entering the well; in addition the sampling technique used bailers (a non-low flow method), which increases the turbidity in the water column within the well. These two factors are believed to

be the source of the pesticides detected in the EBS groundwater samples, and the variation in detected concentration of pesticides and metals between the members (EB153/EB023).

Sample/duplicate pair 121C-2002/121C-2004 was collected from permanent monitoring well MW121C-4 during the RI. Metals (aluminum, chromium, cobalt, iron, and zinc) had RPD above 50%; chromium, cobalt, and iron were detected in one member but not the other generating a high RPD value; and aluminum and zinc were detected in both members but at low/high concentrations, once again producing a high RPD value.

# **Surface Water**

Sample/duplicate pair DRMO-3008/DRMO-3005 was collected from sample location SWDRMO-8 during the RI. **Table 4-1E** summarizes the analytes with RPDs greater than 50%; and **Table C-1E** presents the full RPD results for the surface water sample and the sample duplicate. Iron and manganese had RPDs above 50%. The variation in iron and manganese concentrations could be attributed to the surface water sampling technique.

## **Groundwater at Building 360 (SEAD-27)**

Data from groundwater monitoring wells at Building 360 (MW-1 and MW-2) and a sump pump (T-sump), located in a storage tank within Building 360, were included in this report to provide background information on contaminants unrelated to SEAD-121C. One sample/duplicate pair was collected from each sampling round (April 2003 - DRMO-2005/DRMO-2008 and May 2003 - DRMO-2013/121C-2019, respectively). Both sample/duplicate pairs were obtained from MW-1. **Table 4-1F** summarizes the analytes with RPDs greater than 50%; and **Table C-1F** presents the full RPD results for Building 360 (SEAD-27) sample/duplicate pairs.

Sample/duplicate pair DRMO-2005/DRMO-2008 had aluminum with a RPD of 137%, which was attributed to a non-detect in DRMO-2005 and an estimated detection below the detection limit in DRMO-2008. Detection in a single member and low concentrations has significant influences on the RPD values.

Sample/duplicate pair DRMO-2013/121C-2019 had selenium with a RPD of 84%, which was attributed at a non-detect in DRMO-2013 and an estimated detection slightly above the detection limit in 121C-2019. Detection in a single member and low concentrations has significant influences on the RPD values.

### 4.2.2.2 SEAD-121I

# **Surface Soil**

Three sample/duplicate pairs (121I-1043/121I-1044, 121I-1006/121I-1031, and 121I-1025/121I-1030) were collected during the RI. **Table 4-1G** summarizes the analytes with RPDs greater than 50% and **Table C-1G** presents the full RPD results for the sample/duplicate pairs.

Sample/duplicate pair 121I-1043/121I-1044 had RPD above 50% in VOCs, SVOCs, and metals. Acetone was detected in the field blank associated with the sample/duplicate pair, suggesting acetone detection was due to laboratory contamination. Ethyl benzene and ortho xylene were both detected at low concentrations below or slightly above their respective detection limits; small differences at low concentrations can produce a large RPD value. Bis (2-ethylhexyl)phthalate was detected in one member below the detention limit and not detected in the other member. The metals (antimony, arsenic, chromium, cobalt, manganese, selenium, silver, and thallium) were detected at varying concentrations that could be attributed to sampling technique (i.e. non-homogenous mixing of soil sample).

Sample/duplicate pair 121I-1006/121I-1031 reported acetone with a RPD above 50%. The detection of acetone at a low concentration, slightly above the detention limit, in addition, the field blank for the SDG detected acetone, which suggest a 'false positive' due to laboratory contamination.

Sample/duplicate pair 121I-1025/121I-1030 reported several VOCs, SVOCs, metals, and TPH with RPDs above 50%. The holding time for the VOC samples was 11 days, which was slightly beyond the 10 day holding time for VOCs but within the holding time limits for SVOCs, metals, and TPH. Methyl ethyl ketone and SVOCs (anthracene, bis(2-ethylhexyl)phthalate, and carbazole) were detected in one member but not the other, thus producing a higher RPD value. The remaining SVOCs, metals, and TPH were detected in both members but at different concentrations, which could be attributed to sampling technique or laboratory instrument performance.

# **Ditch Soil**

A single sample/duplicate pair 121I-4007/121I-4005 was collected during the RI. **Table 4-1H** summarizes the analytes with RPDs above 50% and **Table C-1H** presents the full results of the RPD calculations for the sample/duplicate pair 121I-4007/121I-4005. Acetone was detected in a field blank suggesting the detection in the sample/duplicate pair was due to laboratory contamination. The SVOCs (2-Methylnapthalene, 3,3'-dichlorobenzidine, and acenaphthylene), 4,4'-DDE, and thallium were detected at or below the detection limit in one member but not the other. The remaining SVOCs (the majority being PAHs) were detected at two different concentrations; the variation in the detected concentrations might be attributed to non-homogenous mixing of soil sample) or laboratory instrument problems, such as failure to clean equipment or laboratory controls outside of limits.

## **Surface Water**

A single sample/ duplicate pair 121I-3007/121I-3005 was collected during the RI. **Table 4-1I** summarizes the analytes with RPDs greater than 50% and **Table C-1I** presents the full RPD results for the sample/duplicate pair. Manganese and selenium had RPDs slightly over 50% due to the low detected concentrations. Low concentrations can cause a larger RPD values.

# 4.3 DRMO YARD (SEAD-121C)

#### 4.3.1 Surface Soils

Soil data have been evaluated relative to recommended New York State (NYS) soil cleanup objectives, listed in NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. However, the discussion in the sections below focuses on the presentation of analytes that the Army believes may have particular significance.

The discussion of soils in this section is divided into surface soils and ditch soil within each chemical class. Surface soil is defined as soil that exists at depths extending from 0 to 2 inches below the ground surface (bgs), beneath the root ball associated with overlying vegetative cover, or beneath the base of any overlying road (shale, asphalt, concrete) surface. Subsurface soil, which occurs at depths greater than 2 inches bgs or overlying material, is discussed on **Section 4.3.2**.

As discussed in Section 3.0, samples collected from drainage ditches adjacent to the DRMO Yard and Rumored Cosmoline Oil Disposal Area previously identified as "sediment" samples have been reclassified and reviewed as "ditch soil." When the SEDA was first constructed, drainage ditches were constructed throughout the Depot to promote storm-water drainage and flow. When first constructed, the ditches were excavated down to competent shale, and during the active life of the Depot, maintenance activities were performed (i.e., re-excavated and graded) to remove accumulated soil, debris, and vegetation that appeared. Since the mission of the Depot terminated, ditch maintenance has ceased and the ditches have again partially filled with soil, debris, and vegetation. However, the historic drainage ditches found in the Administration and Warehouse areas of the Depot still do not support aquatic life, as they are only wet after storm events and continue to provide stormwater runoff infiltration and runoff control. When the Administration and Warehouse area and land turns over to the future user, maintenance of the drainage ditches would resume to control site runoff.

Summary statistics for the surface soil and ditch soil analyses are shown in **Tables 4-2**, and **4-3**. The complete analytical results for surface and ditch soils are presented in **Appendix C-2** and **C-3**, respectively.

# **4.3.1.1 Volatile Organic Compounds**

# **Surface Soils**

Nine VOCs (identified below) were detected in the 48 surface soil samples collected in SEAD-121C. **Table 4-2** presents summary statistics (e.g., frequency of detection, maximum concentration, etc.) developed for the samples.

| VOCs Detected in SEAD-121C Surface Soil |               |              |  |
|---|---------------|--------------|--|
| Acetone Chloroform Methylene chloride   |               |              |  |
| Benzene                                 | Ethyl benzene | Ortho Xylene |  |
| Carbon disulfide Meta/Para Xylene       |               | Toluene      |  |

Each of the nine VOCs was detected in fewer than 28% of the samples collected. Three of the identified VOCs (i.e., acetone, methylene chloride, and toluene) are common laboratory contaminants. Within "Risk Assessment Guidance for Superfund" (RAGS), Volume I (USEPA, 1989), USEPA has indicated that common laboratory contaminants are only to be considered if the concentration of the analyte found in the sample exceeds ten times the level found in the blank. The table below compares the maximum detected concentration for these three VOCs to the maximum blank concentration.

|                    | Max Sample<br>Concentration<br>(μg/Kg) | Max. Blank<br>Concentration<br>(μg/Kg) | 10 Times Blank<br>Concentration<br>(µg/Kg) | Is the sample greater than 10 times blank? |
|--------------------|--|--|--|--|
| Acetone            | 13                                     | 16                                     | 160  | No   |
| Methylene chloride | 2.6                                    | 2.5                                    | 25   | No   |
| Toluene            | 28                                     | 2.5                                    | 25   | Yes  |

Based on this evaluation, sample results for acetone and methylene chloride are consistent or less than blank levels and the data need no longer be considered. Toluene was detected in nine samples, and the maximum concentration found was  $28 \,\mu g/Kg$ , which is slightly greater than ten times half the detection limit found in the blanks ( $25 \,\mu g/Kg$ ). Concentrations measured in the other eight samples are less than ten times the value of half the detection limit.

Carbon disulfide (4.7  $\mu$ g/Kg) and chloroform (4.8  $\mu$ g/Kg) were each detected in two samples at levels just above their respective detection limits. Benzene was detected in a single sample collected from SBDRMO-9 at a level of 41  $\mu$ g/Kg. This same sample also contained elevated concentrations of

ethyl benzene (3,300 J  $\mu$ g/Kg), meta/para xylenes (4,400 J  $\mu$ g/Kg) and ortho xylene (16  $\mu$ g/Kg). The total concentration of benzene, toluene, ethyl benzene, and total xylenes (BTEX) in surface soil sample SBDRMO-9 is 7,762  $\mu$ g/Kg. SBDRMO-9 is located inside the DRMO Yard in the southeastern corner.

Ethyl benzene was also detected at a concentration of 1.0 J  $\mu$ g/Kg in SBDRMO-6. Meta/para xylene was detected in two other samples at estimated values of 2 J  $\mu$ g/Kg at SBDRMO-21, and 2.7 J  $\mu$ g/Kg in SBDRMO-6.

## **Ditch Soil**

Three VOCs (identified below) were detected in the ditch soil at the DRMO Yard (**Table 4-3**).

| VOCs Detected in SEAD-121C Ditch Soil |                  |                     |
|---------------------------------------|------------------|---------------------|
| Acetone                               | Carbon disulfide | Methyl ethyl ketone |

Acetone was detected in seven of ten ditch soil samples collected, with a maximum concentration of 150 J µg/Kg at sample location SDDRMO-3. The ditch soil samples collected for VOC analysis were preserved with sodium bisulfate. According to research conducted by USACE and published in a paper *Storage and Preservation of Soil Samples for Volatile Compound Analysis* (Hewitt, 1999), "greater concentrations of acetone in laboratory soils and its appearance in field soils was found to be associated with both lowering the pH and presence of sodium [bisulfate]."

Carbon disulfide was detected twice, with a maximum concentration of 12 J  $\mu$ g/Kg detected at SDDRMO-6. Methyl ethyl ketone was detected in three samples with a maximum concentration of 130 J  $\mu$ g/Kg found at sample location SDDRMO-4.

### 4.3.1.2 Semivolatile Organic Compounds

#### **Surface Soils**

Twenty-seven SVOCs (listed below), mainly including PAHs, were detected in the surface soil samples collected from the area of SEAD-121C (**Table 4-2**).

| SVOCs Detected in SEAD-121C Surface Soil |                            |                        |  |
|--|----------------------------|------------------------|--|
| 2,4-Dinitrotoluene                       | Benzo(k)fluoranthene       | Diethyl phthalate      |  |
| 2-Methylnaphthalene                      | Bis(2-Ethylhexyl)phthalate | Fluoranthene           |  |
| Acenaphthene                             | Butylbenzylphthalate       | Fluorene               |  |
| Acenaphthylene                           | Carbazole                  | Hexachlorobenzene      |  |
| Anthracene                               | Chrysene                   | Indeno(1,2,3-cd)pyrene |  |
| Benzo(a)anthracene                       | Di-n-butylphthalate        | N-Nitrosodiphenylamine |  |
| Benzo(a)pyrene                           | Di-n-octylphthalate        | Naphthalene            |  |
| Benzo(b)fluoranthene                     | Dibenz(a,h)anthracene      | Phenanthrene           |  |
| Benzo(ghi)perylene                       | Dibenzofuran               | Pyrene                 |  |

2,4-Dinitrotoluene and n-nitrosodiphenylamine were detected in a single sample (SB121C-2) during the EBS. Di-n-butylphthalate, di-n-octylphthalate, and hexachlorobenzene were detected at low frequency (10%, 4%, and 2%, respectively) and at low concentrations.

Seven of the detected PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] are known carcinogenic PAHs (cPAHs). The concentration of cPAHs detected in soils at SEAD-121C computed for each individual sample, and the results were compared to NYSDEC's recommended screening level of 10 mg/Kg benzo(a)pyrene toxicity equivalent (BTE). The BTE value calculation is based on the relative toxicity of the individual cPAHs, as cited by USEPA Integrated Risk Information System (IRIS) Database. The BTE value is calculated by multiplying the concentration of the individual cPAHs in each sample by the following factors (based on IRIS) and summing the results:

| Analyte                | <b>Toxicity Factor</b> |
|------------------------|------------------------|
| Benzo(a)pyrene         | 1                      |
| Dibenz(a,h)anthracene  | 1                      |
| Benzo(a)anthracene     | 0.1                    |
| Benzo(b)fluoranthene   | 0.1                    |
| Indeno(1,2,3-cd)pyrene | 0.1                    |
| Benzo(k)fluoranthene   | 0.01                   |
| Chrysene               | 0.01                   |

A higher multiplier represents a greater carcinogenic health risk.

Only a single concentration of BTE (11.5 mg/Kg at location SSDRMO-12) exceeded NYSDEC's 10 mg/Kg BTE screening value; all of the other BTE values were lower than NYSDEC's screening level, and the site-wide average was 1.1 mg/Kg. The distribution of BTE values found at the DRMO Yard is shown in **Figure 4-1**. The BTE data is also graphically summarized in the bar graph displayed in **Figure 4-2**.

This bar graph shows that elevated levels of benzo(a)pyrene, the greatest contributor to carcinogenic risk based on oral carcinogenic slope factors, are collocated with elevated levels of the other six cPAHs. In addition, **Figure 4-2** further illustrates that benzo(a)pyrene alone never exceeds the 10 ppm benchmark value. The figure illustrates that elevated PAHs are limited to four discrete locations, and are not pervasive across the site or surrounding areas.

Three of the four locations where the highest BTE levels were found are located in the vicinity of Building 316. North of Building 316, BTE were detected at a level of 7.9 mg/Kg at SBDRMO-24, which is within the fenced area identified as the DRMO Yard and situated between two railroad spurs. Two locations on the south side of Building 316, which are both outside of the fenced area comprising the DRMO Yard, measured BTE at levels of 5.0 mg/Kg and 8.4 mg/Kg at SBDRMO-16 and SSDRMO-7, respectively. Both of the southern locations are close to access/egress roadways in the area, and thus, it is possible that grease and grime from vehicular traffic or material from the roadway surface itself has contributed to the levels of contamination found. In addition, a dielectric box and transformer are located immediately south of Building 317, which is next to sample location SSDRMO-7. Benzo(a)pyrene and benzo(b)fluoranthene were the greatest contributors to the BTE values at each of the four locations.

## **Ditch Soil**

Twelve SVOCs, again comprised mainly of PAHs, were detected in the ditch soil, as shown on **Table 4-3** and summarize in the table below.

| SVOCs Detected in SEAD-121C Ditch Soil                |                      |                        |  |
|---|----------------------|------------------------|--|
| 3 or 4-Methylphenol Benzo(b)fluoranthene Fluoranthene |                      |                        |  |
| Anthracene  | Benzo(ghi)perylene   | Indeno(1,2,3-cd)pyrene |  |
| Benzo(a)anthracene                                    | Benzo(k)fluoranthene | Phenanthrene           |  |
| Benzo(a)pyrene  | Chrysene             | Pyrene                 |  |

The compounds 3 or 4-Methylphenol, benzo(ghi)perylene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene were detected in one sample each; however 3 or 4-methylphenol (790 μg/Kg) was a low concentration and a single detect out of 10 ditch soil samples; in addition, surface soil samples did not report any detection. This all suggests 3 or 4-methylphenol was an isolated detection and not a pervasive contaminant at SEAD-121C. Benzo(ghi)perylene (290 μg/Kg), benzo(k)fluoranthene (580 μg/Kg), and indeno(1,2,3-cd)pyrene (270 μg/Kg) were levels were compared to TAGM values, and none were in exceedance of the comparison TAGM values. Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were each detected in two samples. The maximum detection of each of these compounds was found in one sample, SDDRMO-2, shown in **Figure 4-3**, which is upgradient of the DRMO Yard in Drainage Ditch #2. The maximum BTE value for ditch soil, located at SDDRMO-2, was 2.0 mg/Kg.

### 4.3.1.3 Pesticides and PCBs

## **Surface Soil**

Fourteen pesticides and three PCBs (identified below) were detected in the surface soil in or near the DRMO Yard (**Table 4-2**).

| Pesticides/PCBs Detected in SEAD-121C Surface Soil |                 |                    |  |
|--|-----------------|--------------------|--|
| 4,4'-DDD   | Dieldrin        | Heptachlor         |  |
| 4,4'-DDE   | Endosulfan I    | Heptachlor epoxide |  |
| 4,4'-DDT   | Endosulfan II   | Aroclor-1242       |  |
| Aldrin   | Endrin          | Aroclor-1254       |  |
| Alpha-Chlordane                                    | Endrin ketone   | Aroclor-1260       |  |
| Delta-BHC  | Gamma-Chlordane |                    |  |

Each compound was detected in less than 38% of the samples collected. The maximum pesticide concentration detected was 185 J  $\mu$ g/Kg of endosulfan I detected at SSDRMO-7, which is outside the boundary of SEAD-121C, upgradient of the site and along the road near Building 316 and 317. The majority of pesticide detections were detected in the northern corner of the Yard. The highest detection of any PCB was 930  $\mu$ g/Kg of Aroclor-1254 at SBDRMO-18. The detections of PCBs are scattered across the site.

#### Ditch Soil

No pesticides or PCBs were detected in the ditch soil at the DRMO Yard.

## **4.3.1.4** Metals

# **Surface Soils**

Twenty-three metals were detected in one or more of the 48 surface soil samples collected from SEAD-121C (**Table 4-2**). Sixteen metals (aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, vanadium, and zinc) were detected in all samples. The frequency of detection in samples for the remaining eight metals ranged from a low of 21% for thallium and selenium to a high of 92% for mercury. All of the maximum concentrations of metals found in samples collected during this investigation were inside the DRMO Yard. Concentrations of metals detected exterior to the site were notably lower.

To facilitate the discussion of data for metals detected in soils, the detected metals have been grouped into three categories (or tiers), listed below. The four metals that comprise Tier 1 are present in the soils at disproportionately high concentrations, and they are collocated in isolated clusters. As a result, their presence is suggestive of a systemic release. The Tier 2 metals were detected at

SEAD-121C at moderate concentrations, with occasional high values that were collocated with the high concentrations of Tier 1 metals. Tier 3 metals are nutrients commonly found in the soils at SEDA; historically, these metals are not considered to be contaminants of concern (COCs). The three groups, or tiers, are shown below.

| Tier 1   | Tier 2    | Tier 3    |
|----------|-----------|-----------|
| Chromium | Antimony  | Aluminum  |
| Copper   | Arsenic   | Barium    |
| Lead     | Beryllium | Calcium   |
| Zinc     | Cadmium   | Cobalt    |
|          | Mercury   | Iron      |
|          | Thallium  | Magnesium |
|          | Vanadium  | Manganese |
|          |           | Nickel    |
|          |           | Potassium |
|          |           | Selenium  |
|          |           | Silver    |
|          |           | Sodium    |

Each of the Tier 1 metals (chromium, copper, lead, and zinc) was detected in all 48 samples collected, shown in **Table 4-2**.

The distribution of copper, lead, and zinc in surface soil throughout the DRMO Yard is graphed in **Figure 4-4**. This figure suggests that high levels of these three metals are collocated at SEAD-121C. It should be noted that chromium is not included on **Figure 4-4** since the concentration of chromium found is orders of magnitude lower than those reported for copper, lead, and zinc. The chromium data are summarized separately at the end of the discussion of Tier 1 metals.

The concentrations of copper detected in the surface soil are shown on **Figure 4-5**. The two highest hits of copper, 9,750 mg/Kg and 5,050 J mg/Kg, were detected at SB121C-2 and SSDRMO-24, respectively. Both of these locations are near the northern end of the DRMO Yard. The data show that copper was detected at comparatively high concentrations at locations SB121C-1 and SSDRMO-14 at 3,850 J mg/Kg and 1,450 J mg/Kg, respectively. Sample location SSB121C-1 is located at the northern end of the DRMO Yard, in the general vicinity of the two locations where high copper was found, while location SSDRMO-14 is located at the southwestern side of the yard. Further review of **Figure 4-5** shows that all of the elevated levels of copper are generally limited to two areas within the DRMO Yard: one located in the northern corner of the site and the other located in the southwestern corner of the yard. The majority of the southern and central portions of the yard contain relatively low concentrations of copper.

**Figure 4-6** shows the distribution of lead concentrations in the surface soil at the DRMO Yard. Lead was detected in all of the samples, with a maximum concentration of 18,900 mg/Kg found at location

SSDRMO-24. This sample location is at the southern end of the storage cells in the northern corner of the DRMO Yard, in the general area where elevated levels of copper were found, as was previously discussed. Three other locations in close proximity (less than 200 foot distance) to SSDRMO-24 also showed elevated concentrations of lead (SB121C-1 – 2,650 J mg/Kg; SB121C-2 – 5,080 mg/Kg; and, SBDRMO-5 – 2,690 mg/Kg). At present, a concentration of 1,250 mg/Kg is being considered as the lead standard for an industrial site based on work completed at SEAD-16 and SEAD-17, which are located roughly 1,250 feet northwest of the DRMO Yard. At the DRMO Yard, lead was detected above the proposed industrial criteria in four samples.

The maximum concentration of zinc detected was 3,610 mg/Kg, located at SBDRMO-15. As is shown on **Figure 4-7**, this location is at the southwestern end of the DRMO Yard, in one of the two areas where high copper was shown to exist, as is discussed above. The second highest detected level of zinc, 2,910 J mg/Kg, was found at SSDRMO-14, which is also in the same general area of the DRMO Yard.

**Figures 4-5**, **4-6**, and **4-7** confirm the graph in **Figure 4-4**, which suggests that elevated levels of copper, lead, and zinc are collocated.

The maximum detection of chromium, 74.8 mg/Kg, was found at SBDRMO-18. This sample location is located within the copper/lead/zinc cluster at the northern corner of the DRMO Yard, as discussed above. **Figure 4-8** shows that the higher chromium concentrations are also collocated with elevated levels of copper, zinc, and lead.

A statistics summary of detects of Tier 2 metals in the surface soil at SEAD-121C is presented below.

|           | No. of Detections | Maximum Value | Location of Max. Value |
|-----------|-------------------|---------------|------------------------|
| Antimony  | 39                | 236 mg/Kg     | SSDRMO-24              |
| Arsenic   | 48                | 11.6 mg/Kg    | SSDRMO-24              |
| Beryllium | 48                | 1.2 mg/Kg     | SBDRMO-8               |
| Cadmium   | 29                | 29.1 mg/Kg    | SSDRMO-14              |
| Mercury   | 44                | 0.47 mg/Kg    | SBDRMO-18              |
| Thallium  | 10                | 1.1 J mg/Kg   | SBDRMO-24              |
| Vanadium  | 48                | 25.4 mg/Kg    | SBDRMO-8               |

The statistics show that thallium was detected at a low frequency, 21%. Eight of the ten detections of thallium are estimated values and are close to the detection limit of 0.6 mg/Kg.

**Table 4-2** shows that in all but one sample, beryllium was detected at concentrations less than 1 mg/Kg. Vanadium detections did not exceed 26 mg/Kg. Based on these low levels of beryllium and vanadium, these compounds will not be considered further.

Antimony was detected in 39 of the 48 surface soil samples analyzed. The maximum detection of antimony, 236 mg/Kg, was located at SSDRMO-24 in the northern corner of the DRMO Yard, which is collocated with high copper, lead, and zinc levels. The distribution of antimony in the surface soil samples is graphed on **Figure 4-9**. This bar chart shows that most detections are at low levels. In addition, the high peaks on **Figure 4-9** correspond to the high peaks on **Figure 4-4**, which indicates that the higher concentrations of antimony are collocated with the high concentrations of the Tier 1 metals.

The maximum detection of arsenic, 11.6 mg/Kg, was found at SSDRMO-24, which is included in the northern cluster of Tier 1 metals with high concentrations. **Figure 4-10**, which graphs the distribution of arsenic concentrations in the surface soil at SEAD-121C, shows that there is little variance among the detected concentrations of arsenic and shows that most detections of arsenic are between 3 mg/Kg and 6 mg/Kg.

Mercury was detected in 44 of the 48 surface soil samples collected. The maximum detected value of mercury, 0.47 mg/Kg, was found at SBDRMO-18 in the northern corner of the DRMO Yard.

Cadmium was detected in 29 of the 48 samples collected, and its maximum detected concentration, 29.1 mg/Kg, was found at SSDRMO-14 in the southwestern corner of the site. The second highest concentration, 21.1 mg/Kg, was detected at SS121C-1 during the EBS. The concentrations of cadmium in the surface soil at SEAD-121C are shown on **Figure 4-11**. The higher concentrations of cadmium are located in the same two clusters as the Tier 1 metals.

The distribution of most of the Tier 2 metals in surface soil throughout the site is graphed in **Figure 4-12**. A comparison of **Figure 4-12** to **Figure 4-4** shows that the high peaks on both charts occur at the same sample locations. **Figure 4-12** shows that concentrations of Tier 2 metals that are significantly above their respective detection limits were detected at sample locations that are included in the two clusters of elevated Tier 1 metals concentrations, discussed above. A review of **Figures 4-5**, **4-6**, **4-7**, and **4-11** confirms the observation that concentrations outside the northern and southwestern clusters are significantly lower. The data suggests that there was a release of metals in two distinct areas.

Metals in Tier 3 that have been detected at the Depot were related to natural sources and are likely a part of the site background. Historically, these metals have not been considered contaminants of concern by the Army, EPA, or NYSDEC. As a result, Tier 3 metals will not be discussed further.

## **Ditch Soil**

Twenty-two metals, plus cyanide, were detected in the ditch soil at the DRMO Yard (**Table 4-3**). Frequency of detection ranged from a low of 10% for cyanide, to a high of 100% for aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. Cyanide was detected once in ditch soil at

SDDRMO-4 at an estimated concentration of 2.36 J mg/Kg. Some metals (antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc) are shown on **Figure 4-3**. It should be noted that the maximum values for each metal detected in ditch soil is significantly lower than the maximum values for those metals detected in surface and subsurface soils. The table below presents the detected metals based on their respective Tier classification.

| Tier 1   | Tier 2    | Tier 3    |
|----------|-----------|-----------|
| Chromium | Antimony  | Aluminum  |
| Copper   | Arsenic   | Barium    |
| Lead     | Beryllium | Calcium   |
| Zinc     | Cadmium   | Cobalt    |
|          | Mercury   | Iron      |
|          | Thallium  | Magnesium |
|          | Vanadium  | Manganese |
|          |           | Nickel    |
|          |           | Potassium |
|          |           | Selenium  |
|          |           | Silver    |
|          |           | Sodium    |

Only one ditch soil sample location, SDDRMO-9, is located inside the DRMO Yard. This location is situated in the northern area identified in the surface soil discussion in the pervious section, in which heavy metals were found to be pervasive. The remaining samples are located outside of the DRMO Yard, along the southern and northwestern borders. SDDRMO-9 is found in the northern corner of the site. The maximum concentrations of copper (1,190 mg/Kg) and lead (436 mg/Kg) in ditch soil were both detected at SDDRMO-9. The level of copper present is similar to levels found in surface soils in the northern corner of the site. Of the Tier 2 metals, the maximum concentrations of antimony and cadmium (4.9 J mg/Kg and 14.3 mg/Kg) were detected at SDDRMO-9.

The distribution of the Tier 1 metals (copper, chromium, lead, and zinc) is shown in **Figure 4-13**. Copper was detected in all ten samples, with the maximum detection of copper, 1,190 mg/Kg, found at SDDRMO-9, located in the northern corner of the DRMO Yard. The second highest concentration of copper was 133 J mg/Kg at SDDRMO-5 in Drainage Ditch #2.

Chromium was detected in ten samples and the maximum detection of chromium, 29.8 J mg/Kg, was found at SDDRMO-2, shown on **Figure 4-13**, where Drainage Ditch #2 is adjacent to Building 316.

Lead was detected in all ditch soil samples, with a maximum detection of 436 mg/Kg at SDDRMO-9 located inside the DRMO Yard. This value is well below the industrial standard for lead of 1250 mg/Kg, as shown on **Figure 4-13**.

The maximum concentration of zinc detected was 566 mg/Kg at sample location SDDRMO-5 along Drainage Ditch #2. The second highest detection of zinc was 540 mg/Kg at SDDRMO-2, which is upgradient of the DRMO Yard in Drainage Ditch #2.

The distribution of Tier 2 metals in ditch soil at and in the vicinity of the DRMO Yard is shown in **Figure 4-14**. Antimony was detected in five samples, and, as previously stated, the maximum concentration of antimony, 4.9 J mg/Kg, was detected at sample location SDDRMO-9, which is the only ditch soil sample collected inside the DRMO Yard, located in the northern corner of the site. Arsenic, which was detected in all of the ditch soil samples, had a maximum detection at SDDRMO-2 (6.1 J mg/Kg), located upgradient of SEAD-121C in Drainage Ditch #2. Cadmium was detected in five samples, which a maximum concentration of cadmium (14.3 mg/Kg) detected at sample location SDDRMO-9 inside the DRMO Yard. The second highest detection of cadmium, 5.8 J mg/Kg, was found at SDDRMO-5 along Drainage Ditch #2. Mercury was detected in all ditch soil samples, with a maximum detection of 0.3 J mg/Kg at SDDRMO-2.

#### 4.3.1.5 Other Constituents

# **Total Petroleum Hydrocarbons**

## **Surface Soils**

TPH was detected in ten of the 40 surface soil samples collected (**Table 4-2**). The highest detection of TPH (7,600 J mg/Kg) was found at SBDRMO-17, which is located in the southeastern portion of the DRMO Yard. The second highest detection of TPH in the surface soil (4,500 J mg/Kg) was found at SBDRMO-16, which is located upgradient from SEAD-121C, along the road across from Building 316. The second highest BTE value (8.4 mg/Kg) was also detected at SBDRMO-16. In the northern corner of the yard, TPH was recorded at 710 J mg/Kg and 520 J mg/Kg at SBDRMO-18 and SBDRMO-5, respectively.

# **Ditch Soil**

TPH was detected in two ditch soil samples at the DRMO Yard (**Table 4-3**). TPH measured 2,600 J mg/Kg at SDDRMO-2 and 1,000 mg/Kg at SDDRMO-1. Both sample locations are upgradient of the DRMO Yard.

# 4.3.2 Subsurface Soil

Soil data have been evaluated relative to recommended NYS soil cleanup objectives, listed in NYSDEC TAGM #4046. However, the discussion in the sections below focuses on the presentation of analytes that the Army believes may have particular significance.

Subsurface soil occurs at depths greater than 2 inches bgs or overlying material. Summary statistics for the subsurface soil analyses are shown in **Tables 4-4**. The analytical results for subsurface soil are presented in **Appendix C-4**.

# 4.2.2.1 Volatile Organic Compounds

Ten VOCs (identified below) were detected in the 20 subsurface soil samples collected in and around the DRMO Yard during the ESI and the RI programs (**Table 4-4**).

| VOCs Detected in SEAD-121C Subsurface Soil |                     |         |  |
|--|---------------------|---------|--|
| Acetone                                    | Meta/Para Xylene    | Styrene |  |
| Benzene                                    | Methyl ethyl ketone | Toluene |  |
| Chloroform                                 | Methylene chloride  |         |  |
| Ethyl benzene                              | Ortho Xylene        |         |  |

As mentioned in the discussion for surface soil, acetone, methyl ethyl ketone, methylene chloride, and toluene may be common laboratory contaminants and may not be considered further (USEPA, 1989). RAGS specifies that the sample results for these specified VOCs should only be considered if the concentration in the sample exceeds ten times the blank concentration. The maximum concentrations of acetone, methyl ethyl ketone, methylene chloride, and toluene, as well as the maximum concentrations detected (or half the detection limit, as a conservative estimate) in the rinse blanks and trip blanks, are shown below.

|                     | Max. Sample<br>Concentration<br>(μg/Kg) | Max. Blank<br>Concentration<br>(μg/Kg) | 10 Times Blank<br>Concentration<br>(µg/Kg) | Is the sample<br>greater than 10<br>times blank? |
|---------------------|---|--|--|--|
| Acetone             | 28                                      | 16                                     | 160  | No   |
| Methyl ethyl ketone | 7.6                                     | 2.5                                    | 25   | No   |
| Methylene chloride  | 3.5                                     | 2.5                                    | 25   | No   |
| Toluene             | 84                                      | 2.5                                    | 25   | Yes  |

Since concentrations detected in the samples were less than ten times the concentrations found in the rinse blanks, acetone, methyl ethyl ketone, and methylene chloride are not considered to have positive detections. Toluene was detected in four samples, and the maximum detection was 84  $\mu$ g/Kg, which is greater than 10 times the concentration found in the rinse blank. However, the other three detections of toluene (4 J  $\mu$ g/Kg, 7 J  $\mu$ g/Kg, and 9 J  $\mu$ g/Kg) are significantly less than ten times the maximum amount detected in the rinse blank (2.5  $\mu$ g/Kg). The detection of 84  $\mu$ g/Kg of toluene was found at sample location SBDRMO-9, which is the same location where maximum levels of benzene, ethyl benzene, and total xylenes were detected. As a result, the toluene present in the sample from

SBDRMO-9 is assumed to be related to the presence of total BTEX at that location, while the remaining three detections of toluene are considered artifacts of laboratory contamination.

Benzene was detected twice, with a maximum value of 1,800 μg/Kg detected inside the DRMO Yard at SBDRMO-9 at a depth range of 2 ft. to 6 ft. bgs. The sole detection of ethyl benzene, 24,000 μg/Kg, is collocated with the maximum detected value of benzene. Meta/para xylene was also detected once at SBDRMO-9, at a concentration of 130,000 J μg/Kg. BTEX detected at SBDRMO-9 at a depth range of 2 ft. to 6 ft. bgs is 155,959 μg/Kg, as shown on **Figure 4-15**.

All other VOCs (chloroform and styrene) were detected in fewer than 10% of the samples and were not considered significant contaminants. Chloroform was detected twice (4 J  $\mu$ g/Kg and 2 J  $\mu$ g/Kg) at concentrations below the detection limit of 5  $\mu$ g/Kg. Styrene was detected in one sample (2.7 J  $\mu$ g/Kg) at the detection limit.

# 4.3.2.2 Semivolatile Organic Compounds

Twenty-four SVOCs (identified below), mainly including PAHs, were detected in the subsurface soil samples at SEAD-121C (**Table 4-4**).

| SVOCs Detected in SEAD-121C Subsurface Soil |                            |                        |  |
|---|----------------------------|------------------------|--|
| 2-Methylnaphthalene                         | Benzo(k)fluoranthene       | Dibenzofuran           |  |
| Acenaphthene                                | Bis(2-Ethylhexyl)phthalate | Diethyl phthalate      |  |
| Acenaphthylene                              | Butylbenzylphthalate       | Fluoranthene           |  |
| Anthracene                                  | Carbazole                  | Fluorene               |  |
| Benzo(a)anthracene                          | Chrysene                   | Indeno(1,2,3-cd)pyrene |  |
| Benzo(a)pyrene                              | Di-n-butylphthalate        | Naphthalene            |  |
| Benzo(b)fluoranthene                        | Di-n-octylphthalate        | Phenanthrene           |  |
| Benzo(ghi)perylene                          | Dibenz(a,h)anthracene      | Pyrene                 |  |

All SVOCs were detected at a frequency of 40% or less. BTE values were calculated for the cPAHs in each subsurface soil sample. The BTE values did not exceeded 10 mg/Kg at any of the locations; and the site-wide average BTE value was 0.42 mg/Kg. The maximum BTE value was 1.4 mg/Kg at SBDRMO-16, collected at a depth of 2 to 6 ft. bgs.

## 4.3.2.3 Pesticides and PCBs

Twenty subsurface soil samples were collected and analyzed for pesticides and PCBs, summarized in the table below and in **Table 4-4**.

| Pesticides/PCBs Detected in SEAD-121C Subsurface Soil |              |                    |  |
|---|--------------|--------------------|--|
| 4,4'-DDE  | Delta-BHC    | Endrin ketone      |  |
| 4,4'-DDT  | Endosulfan I | Heptachlor epoxide |  |
| Aldrin  | Endrin       | Aroclor-1260       |  |

4,4'-DDE, 4,4'-DDT, and Aroclor-1260 were detected three times, with maximum concentrations of 17  $\mu$ g/Kg, 16  $\mu$ g/Kg, and 200  $\mu$ g/Kg, respectively. The remaining six pesticides (aldrin, delta-BHC, endosulfan I, endrin, endrin ketone, and heptachlor epoxide) were each detected a single time. The maximum detections of Aroclor-1260 (200  $\mu$ g/Kg), delta-BHC (1.3 J  $\mu$ g/Kg), and heptachlor epoxide (1.1 J  $\mu$ g/Kg) were collocated at SB121C-2 and obtained from a depth range of 2 ft. to 2.5 ft. bgs. The maximum detections of 4,4'-DDE (17  $\mu$ g/Kg) and 4,4'-DDT (16  $\mu$ g/Kg) were collocated at SB121C-3, at a depth range of 2.5 ft. to 3 ft. bgs. The maximum detections of aldrin (11 J  $\mu$ g/Kg), endosulfan I (78 g/Kg), endrin (23 J  $\mu$ g/Kg), and endrin ketone (9.7 NJ  $\mu$ g/Kg) were collocated at SBDRMO-16, at a depth range of 2 ft. to 6 ft. bgs.

#### **4.3.2.4** Metals

Twenty-two metals (identified below) were detected in the 20 subsurface soil samples analyzed at SEAD-121C (**Table 4-4**).

| <u>Tier 1</u> | Tier 2    | Tier 3    |
|---------------|-----------|-----------|
| Chromium      | Antimony  | Aluminum  |
| Copper        | Arsenic   | Barium    |
| Lead          | Beryllium | Calcium   |
| Zinc          | Cadmium   | Cobalt    |
|               | Mercury   | Iron      |
|               | Thallium  | Magnesium |
|               | Vanadium  | Manganese |
|               |           | Nickel    |
|               |           | Potassium |
|               |           | Silver    |
|               |           | Sodium    |

Arsenic, chromium, copper, lead, and zinc were detected in all 20 samples collected. Cadmium was detected twice, at SB121C-2 and at SBDRMO-16. Mercury had a frequency of detection of 95%.

**Figure 4-16** shows the distribution of metals in the subsurface soil across the DRMO Yard. This chart shows that one location in the northern corner of the site, SB121C-2 (which was sampled during

the EBS), detected metals in the subsurface at concentrations that are significantly higher than the levels in the surrounding samples. The metals found at the highest concentrations were Tier 1 metals (copper, lead, and zinc). The maximum concentrations of antimony, arsenic, cadmium, chromium, copper, lead, mercury, and zinc were each detected at SB121C-2 at a depth range of 2 ft. to 2.5 ft. bgs. The maximum values of copper, lead, and zinc detected at SB121C-2 were 2,440 mg/Kg, 1,780 mg/Kg, and 691 mg/Kg, respectively.

The maximum detection of antimony, arsenic, and mercury are 11.5 mg/Kg, 8.1 mg/Kg, and 0.07 mg/Kg, respectively. Thallium was detected in two of the 20 samples collected, and the highest hit, 1.8 mg/Kg, was measured at SBDRMO-24 at a depth range of 2 ft. to 6 ft. bgs.

### 4.3.2.5 Other Constituents

## **Total Petroleum Hydrocarbons**

TPH was detected in four of the 16 subsurface soil samples collected (**Table 4-4**). Three of the detections were from sample locations on the southern site of the DRMO Yard. The maximum detection of TPH was 3,700 J mg/Kg, found at SBDRMO-16 at a depth range of 2 ft. to 6 ft. bgs.

### 4.3.3 Groundwater

Groundwater was sampled from two temporary wells (MW121C-1 and MW121C-2) using bailers during the EBS survey (Figure 4-17), and in the 2003 RI two rounds (February and May) of groundwater sampling were completed in three new permanent wells (MW121C-3, MW121C-4, and MW121C-6) using low flow sampling techniques (Figure 4-18). The five sampled wells associated with the DRMO Yard are located within the boundary of the site; and well (MW121C-5) was dry on both 2003 sampling events and thus was not sampled. The discussion below presents and summarizes the results from the EBS and RI sampling programs. All the data is presented and discussed below; however, due to the sampling technique and the fact that wells MW121C-1 and MW121C-2 were temporary and not fully developed, the results from the EBS investigation are not considered as reliable as the data derived from the 2003 sampling events. The EBS data served as the basis for further groundwater sampling during the RI field program. While the data from the EBS temporary wells are presented in this discussion, summary statistic in Table 4-5A, and the analytical results in Table C-5A for completeness, these data are not considered representative of site conditions and will not be included in the dataset used to characterize site groundwater. Table 4-5B summarizes the results for the 2003 RI groundwater samples, and the analytical results are presented in **Table C-5B**.

All of the groundwater data developed for SEAD-121C was compared to a combined set of federal and state criteria that was derived by selecting the lowest value defined from the following regulatory lists: New York State Class GA Standards, Federal Drinking Water Standards Maximum Contaminant Levels (MCLs), and secondary MCLs (SEC).

# 4.3.3.1 Volatile Organic Compounds

Seven VOCs (identified below) were detected in the groundwater samples collected from the temporary wells during the EBS (**Table 4-5A**).

| VOCs Detected in SEAD-121C EBS Temporary Wells |                  |  |  |
|--|------------------|--|--|
| 1,4-Dichlorobenzene Bromoform Vinyl chloride   |                  |  |  |
| Acetone  | Carbon disulfide |  |  |
| Bromochloromethane                             | Chlorobenzene    |  |  |

1,4-Dichlorobenzene, which was detected once at  $36 \,\mu\text{g/L}$  at sample location MW121C-2, is the only VOC that exceeded its GA standard of 3  $\,\mu\text{g/L}$ , as shown in **Figure 4-17**. Four VOCs (bromochloromethane, bromoform, chlorobenzene, and vinyl chloride) were also detected once in MW121C-2 at concentrations that were less than five times the concentration found in the rinse blank. Carbon disulfide and acetone, which are common laboratory contaminants, were detected once at temporary well MW121C-1 at a concentrations of 57  $\,\mu\text{g/L}$  of acetone and 2  $\,\mu\text{g/L}$  of carbon disulfide. According to RAGS, "sample results should only be considered if the concentration of the chemical in the site sample exceeds five times the maximum amount detected in any blank" (USEPA, 1989).

No VOCs were detected in the groundwater during the 2003 RI sampling program, which used low flow sampling techniques and included permanent wells (**Figure 4-18**).

# 4.3.3.2 Semivolatile Organic Compounds

Eight SVOCs (identified below) were detected in the groundwater samples collected during the EBS at SEAD-121C(**Table 4-5A**).

| SVOCs Detected in SEAD-121C EBS Temporary Wells |                     |              |  |
|---|---------------------|--------------|--|
| Bis(2-  |                     |              |  |
| Ethylhexyl)phthalate                            | Diethyl phthalate   | Phenanthrene |  |
| Butylbenzylphthalate                            | Fluorene            | Pyrene       |  |
| Di-n-butylphthalate                             | Hexachlorobutadiene |              |  |

However, none exceeded their respective GA or MCL standard. Six SVOCs (butylbenzylphthalate, diethyl phthalate, fluorene, hexachlorobutadiene, phenanthrene, and pyrene) were detected at estimated values that were below their detection limits (ranging from 1 to 1.5  $\mu$ g/L). The maximum detections of bis(2-ethylhexyl)phthalate and di-n-butylphthalate (1.4 J  $\mu$ g/L and 1.7  $\mu$ g/L, respectively) were slightly above their detection limits, which ranged from 1  $\mu$ g/L to 1.2  $\mu$ g/L. These

SVOCs are not discussed further since no exceedance of groundwater standards was detected in site groundwater.

During the 2003 RI sampling rounds, two SVOCs, bis(2-ethylhexyl)phthalate and di-n-butylphthalate were detected once (**Table 4-5B**). Neither SVOC exceeded its respective GA standard and both were detected at levels slightly above their respective detection limits.

### 4.3.3.3 Pesticides and PCBs

Nineteen pesticides (identified below) were detected in one or two of the groundwater samples collected during the EBS (**Table 4-5A**).

| Pesticides/PCBs Detected in SEAD-121C EBS Temporary Wells |                    |                    |  |
|---|--------------------|--------------------|--|
| 4,4'-DDD  | Dieldrin           | Gamma-BHC/Lindane  |  |
| 4,4'-DDE  | Endosulfan I       | Gamma-Chlordane    |  |
| 4,4'-DDT  | Endosulfan II      | Heptachlor         |  |
| Alpha-BHC   | Endosulfan sulfate | Heptachlor epoxide |  |
| Alpha-Chlordane   | Endrin             | Methoxychlor       |  |
| Beta-BHC  | Endrin aldehyde    |                    |  |
| Delta-BHC   | Endrin ketone      |                    |  |

All detected pesticides were found in the two temporary wells that were sampled with bailers. No PCBs were detected in the temporary wells. Nine pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-BHC, beta-BHC, delta-BHC, dieldrin, heptachlor, and heptachlor epoxide) exceeded their respective GA standard, as shown on **Figure 4-17**. The maximum concentration of dieldrin (0.2 J  $\mu$ g/L) was 50 times the GA standard (0.004  $\mu$ g/L); the maximum concentration of beta-BHC (0.33 J  $\mu$ g/L) was eight times greater than the GA standard (0.04  $\mu$ g/L); the maximum concentration of delta-BHC (0.16 J  $\mu$ g/L) were over four times the GA standard (0.04  $\mu$ g/L); the maximum concentrations of heptachlor (0.14 J  $\mu$ g/L) and 4,4'-DDD (0.81 J  $\mu$ g/L) were three times the GA standard (0.04  $\mu$ g/L and 0.3  $\mu$ g/L, respectively). Both temporary wells and bailer sampling increase turbidity in the water column, which can produce false positives or elevated detections.

No pesticides or PCBs were detected in the permanent wells during the RI (**Table 4-5B**). The data from the 2003 sampling rounds are considered more reliable due to the improved sampling technique (low flow sampling) and the permanent installation of the wells.

# 4.3.3.4 Metals

Eighteen metals were detected in groundwater samples at the DRMO Yard collected EBS temporary well, see (**Table 4-5A**) and summarized in the table below based on their Tier classification.

| <u>Tier 1</u> | <u>Tier 2</u> | <u>Tier 3</u> |
|---------------|---------------|---------------|
| Chromium      | Arsenic       | Aluminum      |
| Copper        | Beryllium     | Barium        |
| Zinc          | Cadmium       | Calcium       |
|               | Vanadium      | Cobalt        |
|               |               | Iron          |
|               |               | Magnesium     |
|               |               | Manganese     |
|               |               | Nickel        |
|               |               | Potassium     |
|               |               | Selenium      |
|               |               | Sodium        |

Aluminum, iron, and manganese exceeded their respective groundwater standards in both temporary wells; and sodium exceeded its standard in one temporary well. **Figure 4-17** shows exceedances of groundwater standards in the temporary wells. All metals were detected in both temporary wells except arsenic, beryllium, and cadmium, which were detected in a single temporary well.

Nineteen metals (identified below) were detected in the RI permanent wells at the DRMO Yard (Table 4-5B).

| <u>Tier 1</u> | <u>Tier 2</u> | Tier 3    |
|---------------|---------------|-----------|
| Chromium      | Antimony      | Aluminum  |
| Copper        | Beryllium     | Barium    |
| Lead          | Cadmium       | Calcium   |
| Zinc          | Mercury       | Cobalt    |
|               |               | Iron      |
|               |               | Magnesium |
|               |               | Manganese |
|               |               | Nickel    |
|               |               | Potassium |
|               |               | Selenium  |
|               |               | Sodium    |

Aluminum, antimony, iron, manganese, and sodium exceeded their respective groundwater standard in the permanent wells. **Figure 4-18** shows exceedances of groundwater standards from the permanent wells. A summary of the exceedances and the locations of the maximum detections in the permanent wells are presented below.

|           | No. of<br>Detections | Groundwater<br>Criteria (Source) | Maximum Value<br>(Location)           | 2 <sup>nd</sup> Highest Value<br>(Location) |
|-----------|----------------------|----------------------------------|---------------------------------------|---|
| Aluminum  | 6                    | 50 μg/L (SEC)                    | 588 J μg/L<br>(MW121C-4)              | 401 μg/L<br>(MW121C-3)                      |
| Antimony  | 2                    | 3 μg/L (GA)                      | 8.4 J μg/L<br>(MW121C-6)              | 7.3 J μg/L<br>(MW121C-4)                    |
| Iron      | 3                    | 300 μg/L (GA)                    | 869 J μg/L<br>(MW121C-4)              | 540 μg/L<br>(MW121C-3)                      |
| Manganese | 6                    | 50 μg/L (SEC)                    | 297 μg/L<br>(MW121C-6)                | 286 μg/L<br>(MW121C-4)                      |
| Sodium    | 3                    | 20,000 μg/L (GA)                 | 58,400 μg/L<br>(MW121C-4)<br>Feb 2003 | 54,100 μg/L<br>(MW121C-4)<br>May 2003       |

Aluminum exceeded the secondary MCL (SEC) standard of 50  $\mu$ g/L in four samples. Antimony exceeded the GA standard twice in the May 2003 sampling round. Iron exceeded its GA standard three times. Manganese exceeded the secondary MCL standard in every sample collected, and sodium exceeded the GA standard in three samples.

Sample results for the round conducted in February 2003 were higher than the results from the round conducted in May 2003, which is likely due to seasonal variation.

The maximum concentrations of aluminum, iron, manganese, and sodium detected in the temporary wells were greater than the maximum concentrations in the permanent wells. This data is consistent with the change in sampling techniques (bailers vs. low flow) and groundwater well type (temporary vs. permanent).

# 4.3.3.5 Other Constituents

# Total Petroleum Hydrocarbon

TPH was not detected in the groundwater collected at SEAD-121C.

# 4.3.3.6 Building 360 (SEAD-27)

There has been periodic monitoring of the groundwater at Building 360, which is immediately east and outside of the DRMO Yard. This sampling is associated with the RCRA closure of SEAD-27 (Building 360 – Steam Cleaning Waste Tank). The fence along the eastern boundary of the Yard hugs the west side of Building 360. Two wells (MW-1 and MW-2) and a T-sump located inside of Building 360, shown in **Figure 4-19**, were sampled in April and May 2003. MW-1 is located to the east of Building 360, between Building 360 and Building 316. MW-2 is located to the west of Building 360, a few feet inside the fence line of the DRMO Yard. The T-sump, a secondary

containment device inside of the 1,1,1-trichloroethane (1,1,1-TCA) storage tank, located inside Building 360. Summary statistics of the RI groundwater sampling for MW-1, MW-2, and the T-sump at Building 360 (SEAD-27) are presented in **Table 4-6** and summarized in the table below.

| Chemicals Detected in Building 360 (SEAD-27) Groundwater |                        |                |  |
|--|------------------------|----------------|--|
| VOCs   |                        |                |  |
| 1,1-Dichloroethane                                       | Carbon disulfide       | Vinyl chloride |  |
| 1,2-Dichloropropane                                      | Cis-1,2-Dichloroethene |                |  |
| Acetone  | Methylene chloride     |                |  |
| SVOC   |                        |                |  |
| Bis(2-Ethylhexyl)phthalate                               |                        |                |  |
| <u>Metals</u>  |                        |                |  |
| Aluminum   | Copper                 | Potassium      |  |
| Arsenic  | Iron                   | Selenium       |  |
| Barium   | Lead                   | Silver         |  |
| Cadmium  | Magnesium              | Sodium         |  |
| Calcium  | Manganese              | Thallium       |  |
| Chromium   | Mercury                | Vanadium       |  |
| Cobalt   | Nickel                 | Zinc           |  |

Data from these wells and the T-sump provide information about the groundwater upgradient of the DRMO Yard and may add additional insight as to contaminants that may be related to site activities versus contaminants that migrated from upgradient locations. For this reason, results of sampling of these wells have been included in this discussion.

The groundwater samples collected from Building 360 (SEAD-27) were analyzed for VOCs, SVOCs, PCBs, and metals. Sampling efforts conducted by International Technology Corporation in 1995 used bailers. The results from the 1995 sampling program were not considered as reliable as data from the 2003 sampling efforts, due to the sampling technique employed. The following analytes exceeded groundwater standards in the samples collected during the well development and the three subsequent monthly sampling events: 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1,2,2tetrachloroethane, and total xylenes. 1,1,1-Trichloroethane was exceeded GA groundwater standard in all the sampling events. All of the remaining exceedances occurred in the final sampling event conducted in May 1995. 1,1-Dichloroethane was detected in MW-1, the upgradient well, at 7.0 µg/L and 7.6 μg/L in the sample and the sample duplicate, respectively; , the GA standard is 5 μg/L. The concentration of 1,1,2,2-tetrachloroethane (7.6 µg/L) and total xylenes (7.6 µg/L) measured were slightly greater than NYSDEC's GA standard concentration of 5 µg/L (for both). The downgradient well MW-2 did not have any exceedances of groundwater standards. The T-sump, located inside of Building 360, detected 1,1,1-trichloroethane above the GA groundwater standard consistently for

across the four sampling events, with a maximum detected concentration of 20  $\mu$ g/L in a sample duplicate for the March 1995 sampling event.

Sampling conducted in 2003 used low flow sampling techniques. The analytes that exceeded their groundwater standards during the sampling conducted in 1995 were either not detected during the 2003 sampling rounds or were found at levels below their respective GA or MCL standards. Most analytes detected in the groundwater during the 2003 sampling rounds were at or below the GA or MCL standards. The maximum concentration of vinyl chloride detected was estimated as 2.3 J  $\mu$ g/L in MW-1, which slightly exceeded the standard of 2  $\mu$ g/L. **Figure 4-19** shows that vinyl chloride was not detected in any wells inside the DRMO Yard, which suggests that the detection of vinyl chloride is a residual of contaminants present upgradient of the site and is not associated with activities related to the DRMO Yard.

Aluminum, chromium, iron, lead, manganese, sodium, thallium, and zinc exceeded their respective GA or MCL standard; however, their concentrations are within the range of the site-specific background data. Thallium was only detected in the upgradient well, MW-1. **Figure 4-19** shows that aluminum concentrations vary across the site; however, they are higher at the on-site wells than at the upgradient wells, MW-1 and MW-2, and T-sump.

The single detection of lead was found at the T-sump, and a single exceedance of the groundwater standards for chromium and zinc was detected at the T-sump. The maximum detection of iron,  $255,000 \,\mu g/L$ , was found at the T-sump at a level that was more than 45 times greater than the iron concentrations detected at MW-1 or MW-2 or at any of the DRMO Yard wells. This result suggests that the presence of iron is an artifact of an upgradient source and is not related to activities performed at the DRMO Yard.

#### 4.3.4 Surface Water

The quality of surface water at SEAD-121C has not been classified by NYSDEC. Summary statistics for the surface water analyses are shown in **Table 4-7**. Surface water data was compared to New York State's Ambient Water Quality Standards (AWQS) Class C standard. Exceedances of this standard are shown on **Figure 4-20**.

### 4.3.4.1 Volatile Organic Compounds

VOCs were not detected in the surface water collected in the vicinity of the DRMO Yard.

# 4.3.4.2 Semivolatile Organic Compounds

One SVOC, bis(2-ethylhexyl)phthalate, was detected at one location, SWDRMO-2, which is upgradient of the DRMO Yard, at a concentration of 4.2 J  $\mu$ g/L (shown of **Figure 4-20**). This value exceeds the NYSDEC AWQS Class C standard for surface water, 0.6  $\mu$ g/L.

### 4.3.4.3 Pesticides/PCBs

Pesticides and PCBs were not detected in the surface water collected in the vicinity of the DRMO Yard.

#### 4.3.4.4 Metals

Twenty-two metals (identified below) were detected in the surface water at the DRMO Yard (**Table 4-7**).

| <u>Tier 1</u> | <u>Tier 2</u> | <u>Tier 3</u> |
|---------------|---------------|---------------|
| Chromium      | Arsenic       | Aluminum      |
| Copper        | Beryllium     | Barium        |
| Lead          | Cadmium       | Calcium       |
| Zinc          | Mercury       | Cobalt        |
|               | Thallium      | Iron          |
|               | Vanadium      | Magnesium     |
|               |               | Manganese     |
|               |               | Nickel        |
|               |               | Potassium     |
|               |               | Selenium      |
|               |               | Silver        |
|               |               | Sodium        |

Eleven metals exceeded their respective NYS AWQS Class C standard for surface water, with a frequency of detection ranging from 20% for mercury and silver to 100% for aluminum, copper, lead, and zinc. Metals exceedances in surface water are posted on **Figure 4-20**.

The maximum detection for all 11 metals that exceeded their standard were found in one sample location, SWDRMO-2, which is located upgradient of the DRMO Yard and across from Building 316. The second highest detections for all 11 metals were found at SWDRMO-3, which is immediately downgradient of SWDRMO-2, along Drainage Ditch #2. Ten of the metals detected at SWDRMO-3 exceeded their respective surface water standards. These results suggest that the contaminants present in Drainage Ditch #2 are from a source further upgradient that is not related to activities at the DRMO Yard.

Only aluminum, iron, and lead were detected in samples other than SWDRMO-2 and SWDRMO-3 at levels greater than their criteria, shown on **Figure 4-20**. **Figure 4-21**, which graphs the total metals concentrations in surface water at SEAD-121C for each sample location, illustrates a decreasing gradient of metals concentrations across SWDRMO-2, SWDRMO-3, and SWDRMO-5. Summary statistics for the metals that exceeded their criteria in the surface water are summarized below.

|          | No. of Detections / | NYS AWQS    | Maximum      | 2 <sup>nd</sup> Highest |
|----------|---------------------|-------------|--------------|-------------------------|
|          | No. of Exceedances  | Class C     | Value (µg/L) | Value (µg/L)            |
|          |                     | Standard    | (Location)   | (Location)              |
|          |                     | $(\mu g/L)$ |              |                         |
| Aluminum | 10 / 5              | 100         | 8760         | 4500                    |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Cadmium  | 4 / 2               | 3.84        | 19.5         | 4.3                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Cobalt   | 7 / 2               | 5           | 47           | 9.7                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Copper   | 10 / 2              | 17.3        | 1160         | 118                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Iron     | 8 / 5               | 300         | 110,000      | 17200                   |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Lead     | 10 / 10             | 1.46        | 839          | 261                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Mercury  | 2/2                 | 0.0007      | 2.1          | 0.26                    |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Nickel   | 3 / 1               | 99.9        | 154          | 20.4                    |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Silver   | 2/2                 | 0.1         | 8            | 1.7                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Vanadium | 5 / 2               | 14          | 233          | 14.6                    |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |
| Zinc     | 10 / 2              | 159.3       | 6910         | 425                     |
|          |                     |             | (SWDRMO-2)   | (SWDRMO-3)              |

# 4.3.4.5 Other Constituents

# **Total Petroleum Hydrocarbons**

TPH was detected at one surface water sample (SWDRMO-2), upgradient of the DRMO Yard, at a level of 8.08 mg/L.

# 4.4 SEAD-121I -RUMORED COSMOLINE OIL DISPOSAL FIELD

For the purposes of this discussion, SEAD-121I is defined as the land within the four north-south oriented rectangular blocks, bounded by 3<sup>rd</sup> Street to the north, Avenue D to the east, 7<sup>th</sup> Street to the south, and Avenue C to the west. For this discussion, the blocks are numbered from north to south such that the northern most block will be referred to as the first block and the southern most block will be referred to as the fourth block. Soils and surface water samples were collected from locations inside and outside SEAD-121I.

#### 4.4.1 Surface Soil and Ditch Soil

Soil data have been evaluated relative to recommended NYS soil cleanup objectives, listed in NYSDEC TAGM #4046. However, the discussion in the sections below focuses on the presentation of analytes that the Army believes may have particular significance.

Based on field observations, all sediment sample locations have been reclassified as ditch soil. Nine ditch soil sample locations (SD121I-4, SD121I-5, SD121I-6, SD121I-7, SD121I-8, SD121I-9, SD121I-10, SD121I-1EBS, and SD121I-2EBS) are not considered to be sediment since they are not perennially wet and do not support benthic organisms or normal wetland vegetation. These nine ditch soil samples are either located inside SEAD-121I or immediately outside its bounds. The three remaining ditch soil samples (SD121I-1, SD121I-2, and SD121I-3) located downgradient of the site are located in man-made drainage ditch along Avenue A. The material at the bottom of these ditches is competent shale, and any soil in the ditch is the result of erosion due to surface water runoff and is not naturally present in the ditch. As a result, the analytical results from these ditch soil samples have been combined with the results from the surface soil samples to form one cohesive discussion of potential impacts to SEAD-121I. Most soil samples analyzed at SEAD-121I were collected at a depth of less than 2 inches bgs or overlying tar, grass, or vegetative covering. Six samples (at five locations) were collected from the top interval of a soil boring at a depth range of 0 to 2 ft. bgs. For the sake of discussion, these six soil boring samples have been grouped with surface soil since they do not appear to vary in character. Summary statistics for the surface soil and ditch soil analyses are shown in **Tables 4-8**. The results of the chemical analyses for surface soils and ditch soils are presented in **Table C-7** and **C-8** of **Appendix C**.

# 4.4.1.1 Volatile Organic Compounds

Forty-five soils samples were collected and analyzed for VOCs at SEAD-121I (**Table 4-8**) and summarized in the table below.

| VOCs Detected in SEAD-121I Surface and Ditch Soil |                     |              |  |
|---|---------------------|--------------|--|
| Acetone   | Meta/Para Xylene    | Ortho Xylene |  |
| Benzene   | Methyl ethyl ketone | Toluene      |  |
| Ethyl benzene                                     | Methylene chloride  |              |  |

Eight VOCs (listed above) were detected in the soils. Acetone was detected in 36 samples. The two highest concentrations of acetone detected (150  $\mu$ g/Kg and 110  $\mu$ g/Kg) were found inside SEAD-121I at SD121I-8 and SS121I-15, respectively. The other detections of acetone were lower than 100  $\mu$ g/Kg. Acetone is considered to be a common laboratory contaminant. In addition, the soil samples collected for VOC analyses were preserved with sodium bisulfate, and acetone is known to form in samples that are preserved with sodium bisulfate (Hewitt, 1999). Each of the remaining seven VOCs

were detected in fewer than 24% of the samples collected; frequency of detection ranged from a low of 13% for ethyl benzene and total xylenes to a high of 24% for methyl ethyl ketone. Maximum detections of benzene, toluene, and total xylenes were 41 J  $\mu$ g/Kg, 31 J  $\mu$ g/Kg, and 9.9 J  $\mu$ g/Kg, respectively, which were all collocated at sample location SS121I-29 in the second block next to the northern ore pile. The maximum detected concentration of ethyl benzene, 7.8 J  $\mu$ g/Kg, was found at SS121I-15. Methyl ethyl ketone was detected in 11 samples, with a maximum concentration of 78  $\mu$ g/Kg found at sample location SD121I-8. Methylene chloride was detected in nine samples below its detection limit with an estimated maximum concentration of 2.8 J  $\mu$ g/Kg.

# 4.4.1.2 Semivolatile Organic Compounds

Twenty-eight SVOCs (majority were PAHs) were detected in the soil (surface soil and ditch soil) samples collected at SEAD-121I (**Table 4-8**) and summarized in the table below.

| SVOCs Detected in SEAD-121I Surface and Ditch Soil |                            |                        |  |
|--|----------------------------|------------------------|--|
| 2-Methylnaphthalene                                | Bis(2-Ethylhexyl)phthalate | Fluorene               |  |
| 3,3'-Dichlorobenzidine                             | Butylbenzylphthalate       | Indeno(1,2,3-cd)pyrene |  |
| Acenaphthene                                       | Carbazole                  | Isophorone             |  |
| Acenaphthylene                                     | Chrysene                   | Naphthalene            |  |
| Anthracene   | Di-n-butylphthalate        | Nitrobenzene           |  |
| Benzo(a)anthracene                                 | Di-n-octylphthalate        | Phenanthrene           |  |
| Benzo(a)pyrene                                     | Dibenz(a,h)anthracene      | Phenol                 |  |
| Benzo(b)fluoranthene                               | Dibenzofuran               | Pyrene                 |  |
| Benzo(ghi)perylene                                 | Diethyl phthalate          |                        |  |
| Benzo(k)fluoranthene                               | Fluoranthene               |                        |  |

Five SVOCs (3'3-dichlorobenzidine, di-n-octylphthalate, isophorone, nitrobenzene, and phenol) were detected once at SD121I-7. SVOCs were detected with less frequency and at lower concentrations in the samples collected at the downgradient ditch soil locations along Avenue A. Seven of the detected PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] are known carcinogens. BTE values were calculated for each soil sample at SEAD-121I, and the distribution of the BTE values is shown in **Figure 4-22**. The bar graph presented in **Figure 4-23** shows that three out of 51 samples (SS121I-2, SS121I-20, and SD121I-2EBS) exceeded the 10 mg/Kg BTE guidance value. The site-wide average BTE concentration within SEAD-121I is 3.0 mg/Kg. The maximum value of BTE, located at SS121I-20, was 32 mg/Kg. The next two highest BTE values were at SS121I-2 (21 mg/Kg) and SD121I-2EBS (26 mg/Kg), respectively. **Figure 4-23** illustrates that benzo(a)pyrene, alone, exceeds the 10 mg/Kg benchmark value at these three locations. The bar graph also shows that the BTE values at the other sample locations are well below the 10 mg/Kg guidance value.

As shown in **Figure 4-22**, SS121I-20 is located along Avenue C on the block immediately west of SEAD-121I. The warehouses on the block west of SEAD-121I are currently being used for commercial purposes. Field observations noted that there were frequent truck deliveries to these warehouses. Building 330, which was the destination of much of the traffic, had deliveries to a loading dock on the building's east side, along Avenue C. SS121I-20 is located in front of this loading dock. The sample locations with high BTE values are located along roadways, and thus, it is possible that grease and grime from vehicular traffic or material from the roadway surface itself has contributed to the levels of contamination found. The warehouse roofing/reproofing operations in the area also contribute to the PAHs contamination. The facilities have built-up roofing systems that use layers of hot tar and felt to produce a watertight roofing system. The tar kettles are heated daily while the roofing process occurs in order to liquefy the tar for application with mops. This process generates PAHs from the heated tar. The presence of elevated cPAHs beyond the boundary of SEAD-121I supports the conclusion that general site activity not related to a specific release of hazardous material exist and are contributing to the levels of PAHs detected.

## 4.4.1.3 Pesticides and PCBS

Seven pesticides and two PCBs (listed below) were detected in the soils at SEAD-121I (Table 4-8).

| Pesticides/PCBs Detected in SEAD-121I Surface and Ditch Soil |          |                    |  |
|--|----------|--------------------|--|
| 4,4'-DDE   | Dieldrin | Heptachlor epoxide |  |
| 4,4'-DDT Endosulfan I  |          | Aroclor-1254       |  |
| Aldrin   | Endrin   | Aroclor-1260       |  |

Frequency of detection for pesticides ranged from a low of 4% for dieldrin and endrin to a high of 59% for endosulfan I. Most detections of pesticides, which were relatively low, were found along Avenue C and Avenue D. Pesticides and PCBs were not detected in the downgradient ditch soil locations. 4,4'-DDE was detected in five samples, with a maximum concentration of 34 NJ  $\mu$ g/Kg at sample location SS121I-23. 4,4'-DDT was detected twice at a maximum value of 39 J  $\mu$ g/Kg at SS121I-21, which is located exterior to SEAD-121I. The maximum detection of aldrin and dieldrin were 12  $\mu$ g/Kg and 34 J  $\mu$ g/Kg, respectively. Endosulfan I and endrin, which were detected in 24 samples and two samples, respectively, had maximum concentrations of 95 J  $\mu$ g/Kg and 30 J  $\mu$ g/Kg, respectively. Heptachlor epoxide was detected in eight samples, with a maximum concentration of 55 J  $\mu$ g/Kg measured at sample location SS121I-21, which is located outside the boundary of SEAD-121I. Aroclor-1254 was detected in two samples, with a maximum concentration of 67  $\mu$ g/Kg, and Aroclor-1260 was detected in three samples, with a maximum concentration of 46 J  $\mu$ g/Kg.

#### **4.4.1.4** Metals

Twenty-three metals plus cyanide were detected in the 45 soil samples collected at or around SEAD-121I (**Table 4-8**) and summarized in the table below based on their Tier classification.

| <u>Tier 1</u> | <u>Tier 2</u> | <u>Tier 3</u> |
|---------------|---------------|---------------|
| Chromium      | Antimony      | Aluminum      |
| Copper        | Arsenic       | Barium        |
| Lead          | Beryllium     | Calcium       |
| Zinc          | Cadmium       | Cobalt        |
|               | Mercury       | Iron          |
|               | Thallium      | Magnesium     |
|               | Vanadium      | Manganese     |
|               |               | Nickel        |
|               |               | Potassium     |
|               |               | Selenium      |
|               |               | Silver        |
|               |               | Sodium        |

Fifteen metals (aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, vanadium, and zinc) were detected in all samples. The frequency of detection for the remaining ten detected metals ranged from a low of 18% for silver to a high of 98% for beryllium and mercury. Cyanide was detected with a frequency of 7%. Total cyanide was detected at three surface soil locations, with a maximum concentration of 2.00 mg/Kg at SS121I-29.

**Figure 4-24** presents the distribution of iron and manganese in soils at SEAD-121I. Iron and manganese were detected in each sample collected. The maximum detections of iron and manganese, both found at SS121I-29, are 58,400 mg/Kg and 311,000 mg/Kg, respectively. SS121I-29 is located in the second block adjacent to the ore pile. Historical records and site observations note the presence of ferrous-manganese ore piles in the second and fourth blocks at SEAD-121I. Based on historical records and site-specific knowledge, the presence of iron and manganese in media of concern at SEAD-121I may need to be addressed at the time of removal of the ore piles. **Figure 4-25** posts the concentrations of iron and manganese in the soils. The data clearly shows there are elevated levels of iron and manganese in the soils at SEAD-121I, which are limited to the areas surrounding the ore piles. The soil samples in the second and fourth blocks were collected in close proximity to the ore piles. Field observations noted that there were gray fines, similar in color to the ore, on the ground near the sampling locations. The data confirms the presence of the ferrous-manganese ore, which concurs with conclusions based on the visual inspection. The three ditch soil samples collected along

Avenue A reported lower levels of iron and manganese compared to samples collected in the vicinity of the ore piles.

For the purposes of discussion, the three tiers developed for the discussion of metals in soils at SEAD-121C will be used in the discussion of soils at SEAD-121I. A summary of the maximum values detected for the four Tier 1 metals (chromium, copper, lead, and zinc) are shown below.

|          | No. of            | Maximum Value | 2 <sup>nd</sup> Highest Value |
|----------|-------------------|---------------|-------------------------------|
|          | <b>Detections</b> | (Location)    | (Location)                    |
| Chromium | 45                | 439 mg/Kg     | 83.9 mg/Kg                    |
|          |                   | (SS121I-29)   | (SD121I-8)                    |
| Copper   | 40                | 209 mg/Kg     | 130 mg/Kg                     |
|          |                   | (SS121I-29)   | (SD121I-4)                    |
| Lead     | 45                | 122 mg/Kg     | 93.3 mg/Kg                    |
|          |                   | (SS121I-25)   | (SD121I-6)                    |
| Zinc     | 45                | 532 mg/Kg     | 329 mg/Kg                     |
|          |                   | (SD121I-6)    | (SS121I-33)                   |

The distribution of copper in the soils at SEAD-121I is graphed on **Figure 4-26**. The maximum detection of copper, 209 mg/Kg, was found at SS121I-29, next to the northern ore pile in the second block. A comparison of **Figure 4-26** to **Figure 4-24** shows that the higher detections of copper are collocated with the high levels of iron and manganese, surrounding the ore piles.

Lead was detected in all of the soils samples, with a maximum concentration (122 mg/Kg) detected at SS121I-25. A level of 1,250 mg/Kg is being considered as the lead benchmark for an industrial site at SEAD-16 and SEAD-17. The data results for lead in soils at SEAD-121I are significantly below the 1,250 mg/Kg criteria.

The chromium concentrations in the soils at SEAD-121I are shown on **Figure 4-27**. The maximum concentration of chromium, 439 mg/Kg, was found at SS121I-29 in the second block. **Figure 4-28**, which graphs the distribution of chromium in soils across SEAD-121I, shows that the high concentrations of chromium are clustered around the northern ore pile. Zinc concentrations are also displayed on **Figure 4-27**. The maximum concentration of zinc in soils at SEAD-121I, 532 mg/Kg, was detected at SD121I-6, which is located between two railroad tracks next to the southern ore pile in the fourth block. **Figure 4-29** graphs the distribution of zinc in the soils at the site. The second highest hit of zinc, 329 mg/Kg, was detected at SS121I-33, which is in the center of the northern most block of SEAD-121I. **Figure 4-29** shows that the remaining zinc samples are significantly lower that the two highest detections. Concentrations of zinc and chromium inside SEAD-121I are notably higher than the levels detected in samples located outside of the site.

A statistics summary of detects for the seven Tier 2 metals are shown below. With the noted exception of mercury, the higher concentrations of Tier 2 metals were detected within the boundary of SEAD-121I.

|           | No. of     | Maximum Value | 2 <sup>nd</sup> Highest Value |
|-----------|------------|---------------|-------------------------------|
|           | Detections | (Location)    | (Location)                    |
| Antimony  | 14         | 7.5 mg/Kg     | 5.2 mg/Kg                     |
|           |            | (SS121I-28)   | (SB121I-2)                    |
| Arsenic   | 34         | 104 mg/Kg     | 32.1 J mg/Kg                  |
|           |            | (SD121I-8)    | (SB121I-2)                    |
| Beryllium | 45         | 0.68 mg/Kg    | 0.67 mg/Kg                    |
|           |            | (SB121I-5)    | (SB121I-4)                    |
| Cadmium   | 14         | 6.6 mg/Kg     | 5.0 mg/Kg                     |
|           |            | (SB121I-3)    | (SS121I-10)                   |
| Mercury   | 44         | 0.18 mg/Kg    | 0.1 mg/Kg                     |
|           |            | (SD121I-3)    | (SD121I-9)                    |
| Thallium  | 9          | 163 J mg/Kg   | 37.8 J mg/Kg                  |
|           |            | (SS121I-29)   | (SS121I-15)                   |
| Vanadium  | 45         | 182 J mg/Kg   | 69.4 mg/Kg                    |
|           |            | (SS121I-29)   | (SD121I-8)                    |

**Table 4-8** shows that beryllium was detected at concentrations less than 1 mg/Kg. Vanadium was detected in all soils samples. The maximum detection of vanadium, 182 J mg/Kg, was found at SS121I-29, which is collocated with elevated levels of chromium, iron, and manganese. All other detections of vanadium are significantly lower than the maximum value.

Antimony and cadmium were each detected in less than 31% of the soil samples. The distribution of antimony and cadmium in soils at SEAD-121I is shown on **Figures 4-30** and **4-31**, respectively. The maximum concentrations of antimony, 7.5 mg/Kg, was detected at SS121I-28, and the maximum concentration of cadmium, 6.6 mg/Kg, was found at SB121I-3. Mercury was detected in 98% of the samples collected. The maximum detected concentration was 0.18 mg/Kg.

Arsenic and thallium concentrations in the soils at SEAD-121I are presented on **Figure 4-32**. Arsenic was detected in 100% of the soil samples collected at SEAD-121I. The maximum detection of arsenic, 104 mg/Kg, was found at SD121I-8 in the third block. This sample was collected immediately outside the fence surrounding the northern ore pile. **Figure 4-33** shows that all of the arsenic concentrations detected above 20 mg/Kg are collocated with other metals surrounding the ore piles.

Thallium was detected in 20% of the soil samples collected. Thallium concentrations are posted on a site map in **Figure 4-32** and the distribution of concentrations are plotted on **Figure 4-34**. The maximum detection of thallium is 163 J mg/Kg, located at SS121I-29. This sample location also has high levels of chromium, iron, and manganese, and it is immediately adjacent to the northern ore pile.

**Figure 4-34** illustrates that all of the high levels of thallium were detected in samples collected from areas surrounding the ore piles, and that the levels of thallium detected in the samples collected from other areas at or near the site are drastically lower.

In summary, high levels of manganese and iron, shown on **Figure 4-25**, were detected in two areas inside SEAD-121I, each surrounding a ferrous-manganese ore pile. The higher levels of other metals detected (specifically arsenic, chromium, thallium, and zinc) were generally limited to the same sample locations surrounding the ore piles. The concentrations of metals detected in the downgradient samples were substantially lower than the levels of metals found near the ore piles.

In general, metals in Tier 3 that have been detected at the Depot were related to natural sources. Iron and manganese at SEAD-121I are a noted exception and have been discussed at the beginning of this section. Historically, the remaining Tier 3 metals have not been considered contaminants of concern by the Army, EPA, or NYSDEC. As a result, Tier 3 metals (with the noted exception of iron and manganese) will not be discussed further.

#### 4.4.1.5 Other Constituents

## **Total Petroleum Hydrocarbons**

TPH were detected in 15 soils samples at SEAD-121I (**Table 4-8**). The maximum level of TPH detected was 2,200 mg/Kg at sample location SS121I-27, which is located in the middle of the southern ore pile. The second highest detection of TPH, 1,200 J mg/Kg, was found at SS121I-13, near the railroad tracks in the third block.

## 4.4.2 Surface Water

The quality of surface water at SEAD-121I has not been classified by NYSDEC. Summary statistics for the seven surface water samples collected are shown in **Table 4-9**. Surface water data was compared to NYS AWOS Class C standard. Exceedances of this standard are shown on **Figure 4-35**.

# 4.4.2.1 Volatile Organic Compounds

VOCs were not detected in the surface water at the Rumored Cosmoline Oil Disposal Area.

# 4.4.2.2 Semivolatile Organic Compounds

Two SVOCs were detected in the surface water at SEAD-121I, shown on **Table 4-9**. Butylbenzylphthalate was detected in one sample at the northwestern corner of SEAD-121I, SW121I-10, at a maximum concentration of 1.1 J  $\mu$ g/L. Fluoranthene was also detected at a maximum concentration of 1.1 J  $\mu$ g/L in one sample, SW121I-6, located inside SEAD-121I. Neither detection exceeded their AWQS Class C Standards.

#### 4.4.2.3 Pesticides and PCBs

Pesticides and PCBs were not detected in the surface water at SEAD-121I.

#### **4.4.2.4** Metals

Eighteen metals (identified below) were detected in the surface water at SEAD-121I (**Table 4-9**).

| <u>Tier 1</u> | Tier 2    | <u>Tier 3</u> |
|---------------|-----------|---------------|
| Chromium      | Beryllium | Aluminum      |
| Copper        | Cadmium   | Barium        |
| Lead          | Vanadium  | Calcium       |
| Zinc          |           | Cobalt        |
|               |           | Iron          |
|               |           | Magnesium     |
|               |           | Manganese     |
|               |           | Nickel        |
|               |           | Potassium     |
|               |           | Selenium      |
|               |           | Sodium        |

Four metals (aluminum, iron, lead, and zinc) exceeded their respective AWQS Class C standards, shown on **Figure 4-35**. Aluminum and zinc were detected in all seven samples, iron was detected in five samples, and lead was detected in four samples. Aluminum exceeded the AWQS Class C standard at three locations; iron exceeded its standard twice; lead exceeded its standard in four samples; and zinc exceeded its standard once.

The maximum detections of aluminum, iron, lead, and zinc (2,050  $\mu$ g/L, 3,410  $\mu$ g/L, 26.3  $\mu$ g/L, and 190  $\mu$ g/L, respectively) were collocated at SW121I-6, which is located immediately north of the southern ore pile inside SEAD-121I. This was the only zinc exceedance in surface water, which was only slightly greater than its AWQS standard of 159  $\mu$ g/L. The second highest concentrations of aluminum, iron, and lead (1,490  $\mu$ g/L, 3,080  $\mu$ g/L, and 21  $\mu$ g/L, respectively) were found at SW121I-10, which is located north of the northern ore pile within the boundary of SEAD-121I.

At sample location SW121I-5, which is upgradient of the site, aluminum slightly exceeded its surface water standard (119  $\mu$ g/L). Lead was also detected at SW121I-5 (6.6 J  $\mu$ g/L) and at a downgradient location, SW121I-2 (4.3 J  $\mu$ g/L).

#### 4.4.2.5 **Other Constituents**

# **Total Petroleum Hydrocarbons**

TPH was not detected in the surface water in or near SEAD-121I.

April 2006
P:\PIT\Projects\SENECA\PID Area\Report\Final\text\Sec4.doc Page 4-40

#### 5.0 CONTAMINANT FATE AND TRANSPORT

This section presents a site-specific conceptual site model, summarizes the chemical impacts present in various media at SEAD-121C and SEAD-121I, and describes the potential transport of constituents of concern at these sites. Information developed independently for SEAD-27 (Building 360) is included within the discussion presented below for SEAD-121C, as there is an indication that contaminants from SEAD-27, or from another site located further upgradient, have flowed into SEAD-121C.

The remainder of this section is subdivided organized into three separate subsections. The first two sections address site physical and chemical characteristics at SEAD-121C, Building 360 (SEAD-27), and SEAD-121I. The remaining subsection deals with the fate and transport of individual contaminants identified at SEAD-121C and SEAD-121I.

#### 5.1 CONCEPTUAL SITE MODEL OF SEAD-121C

The conceptual site model defines the physical and chemical setting for SEAD-121C. This conceptual site model combines site information and data collected during the 1998 Environmental Baseline Survey (EBS) and the 2002 Remedial Investigation (RI). This includes geophysical survey data, field observations, and analytical data associated with SEAD-121C.

Information for SEAD-27, the Steam Cleaning Waste Tank located in Building 360, is also summarized in this discussion to address an apparent upgradient source of contaminants that could flow into SEAD-121C. The conceptual site model for SEAD-121C has been adapted to reflect site information collected in 1995 by International Technology Corporation (IT) and two rounds of groundwater sampling in 2003 by Parsons. More details of the IT activities can be found in their document "Final Report – Volume I, Building 360 Closure, Seneca Army Depot, Romulus, New York."

#### **5.1.1** Summary of Physical Site Characteristics

The site-wide physical characteristics of SEAD-121C have been described in the preceding sections. In summary, SEAD-121C [Defense Reutilization and Marketing Office (DRMO Yard)] is a triangularly shaped, gravel lot located in the east-central portion of the Depot (**Figure 1-3**). Several buildings (Buildings 360, 316, and 317) are located adjacent and east of the site, and one building (Building T-355) is located within the site boundaries. Building T-355 is located in the central part of the DRMO Yard and is used for storage. The DRMO Yard is surrounded by a chain-linked fence and access into the site is limited by a single gate that is normally locked and that is located south of Building 360.

The surface of the DRMO Yard is graded to allow surface water to drain toward the man-made ditches that bound the site on the north and south sides. The major pathway of surface water flow out

of SEAD-121C is to these drainage ditches, which then flow to the west towards a wetland area and the headwaters of Kendaia Creek in the former munitions storage area.

Bedrock is encountered at less than 8 feet below ground surface (bgs) in most locations at SEAD-121C. The geologic units commonly encountered were till, brown silt or clay, fill material (in a few locations), and weathered shale above competent shale. Groundwater was encountered at less than two feet above competent shale (approximately 5 – 6 feet below grade) and flows to the southwest.

In addition to Building T-355, several other man-made features are prominent within the DRMO Yard; these features include: a ladled-shaped, earthen bottomed, storage cell in the southwest corner of the site; a rectangular shaped, earthen bottomed, storage cell immediately adjacent to, and located halfway along the northwest perimeter fence of the site; and a multi-chambered, concrete bottomed, storage cell adjacent to the east perimeter fence, near the northern-most point of the DRMO Yard. Each of the storage cells is bounded horizontally on three sides by concrete (jersey) barriers. Common debris, including scrap metal, wood debris, ordnance components, batteries, tiles, oil filters, auto parts, paint cans, tires, and other miscellanies were found in the concrete bottomed, multichambered storage cell. During site visits in 2002, 2003, and 2004, Parsons observed that scrap metal, military items, and old machines were stored in the earthen bottomed storage cell located along the northwest fence, while the ladle-shaped earthen bottomed cell was empty, except for small quantities of metal shavings. A silo-like structure was also found inside the fence of the DRMO Yard, adjacent to the northern edge of Building 360. Furthermore, a large crane was located in the northern portion of the Yard, north of the silo-like structure and Buildings 360 and 316. East of the DRMO Yard, a dielectric transformer box was observed between Building 317 and 1st Street. Train tracks were also observed to approach the DRMO Yard from the north, with one spur ending at Building 317, a second ending at Building 316, while a third spur extended to the area between Building 316 and Building 360.

SEAD-27 is located within Building 360 and is comprised of the steam cleaning waste tank (also known as the Steam Jenny Accumulation Pit). SEAD-27 is an open grate topped, concrete tank that is located within the northern portion of Building 360. The tank measures 35 feet long by 12 feet wide, and the maximum depth is 4 feet. The tank's capacity is 4,500 gallons when filled to near the top or 1,100 gallons when filled to the 2-foot freeboard mark. This tank is no longer in use.

Bedrock was encountered at 15 feet bgs on both the east and west facing sides of Building 360. The geologic units encountered in borings (till, reworked till, weathered shale, etc.) located around SEAD-27 were equivalent to those found in SEAD-121C as described above. Groundwater was encountered less than two feet above competent bedrock and flowed southwesterly.

Meteorological and physical site conditions that may impact the fate and transport at SEAD-121C have been described in **Section 1**.

# 5.1.2 Summary of Chemical Impacts at SEAD-121C

Available data summarized in this report (See Section 4.3, and Tables 4-2, 4-3, and 4-4) indicate that impacts associated with inorganic (i.e., metals) and semivolatile organic compounds (SVOCs) are found at SEAD-121C in surface soils, ditch soil, and subsurface soils; subsurface soils are also impacted by volatile organic compounds (VOCs). Groundwater at the site has also been impacted by a VOC, PCBs, and metals; while surface water is impacted by one SVOC and metals.

#### Soil

Surface soils (0-2 in. bgs) at the site show elevated concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and metals. The table below summarizes the analytes detected in surface soil samples at levels higher than New York's recommended soil cleanup guidance values.

| Analytes Exceeding TAGMs in SEAD-121C Surface Soil |                      |           |                       |  |  |
|--|----------------------|-----------|-----------------------|--|--|
| SVOCs  |                      |           |                       |  |  |
| Benzo(a)anthracene                                 | Benzo(b)fluoranthene | Chrysene  | Dibenz(a,h)anthracene |  |  |
| Benzo(a)pyrene Benzo(k)fluoranthene                |                      |           |                       |  |  |
| Metals   |                      |           |                       |  |  |
| Antimony   | Calcium              | Lead      | Silver                |  |  |
| Arsenic  | Chromium             | Magnesium | Sodium                |  |  |
| Barium   | Copper               | Mercury   | Thallium              |  |  |
| Beryllium  | Iron                 | Nickel    | Zinc                  |  |  |
| Cadmium  |                      |           |                       |  |  |

The SVOCs identified above include six of the seven cPAHs that are of particular interest to the NYSDEC and the NYSDOH. Comparison of reported cPAH concentrations to New York's 10 ppm Benzo(a)pyrene Toxicity Equivalence (BTE) guidance criterion concentration for soils indicated that a single sample (i.e., SSDRMO-12) exceeded the guidance value. This sample was collected from a location near the northwest security fence, approximately one-third of the way between the western and northern most corners of this perimeter fence. The average site-wide surface soil BTE concentration was 1.1 mg/Kg.

The metals listed above were collocated in most instances in two parts of the site, the northeast and southwest corners. These locations coincide with the locations of two storage cells used for scrap metal accumulation.

The table below lists other analytes that were detected at concentrations below NYS's TAGM cleanup objective levels in shallow soil samples at SEAD-121C.

| Analytes Detected Below TAGMs in SEAD-121C Surface Soil |                            |                    |                        |  |
|---|----------------------------|--------------------|------------------------|--|
| VOCs  |                            |                    |                        |  |
| Acetone   | Chloroform                 | Meta/Para Xylene   | Ortho Xylene           |  |
| Benzene   | Ethyl benzene              | Methylene chloride | Toluene                |  |
| Carbon disulfide  |                            |                    |                        |  |
| SVOCs   |                            | •                  | •                      |  |
| 2,4-Dinitrotoluene                                      | Bis(2-Ethylhexyl)phthalate | Dibenzofuran       | Indeno(1,2,3-cd)pyrene |  |
| 2-Methylnaphthalene                                     | Butylbenzylphthalate       | Diethyl phthalate  | N-Nitrosodiphenylamine |  |
| Acenaphthene  | Carbazole                  | Fluoranthene       | Naphthalene            |  |
| Acenaphthylene  | Di-n-butylphthalate        | Fluorene           | Phenanthrene           |  |
| Anthracene  | Di-n-octylphthalate        | Hexachlorobenzene  | Pyrene                 |  |
| Benzo(ghi)perylene                                      |                            |                    |                        |  |
| Pesticides/PCBs   |                            |                    |                        |  |
| 4,4'-DDD  | Delta-BHC                  | Endrin             | Heptachlor epoxide     |  |
| 4,4'-DDE  | Dieldrin                   | Endrin ketone      | Aroclor-1242           |  |
| 4,4'-DDT  | Endosulfan I               | Gamma-Chlordane    | Aroclor-1254           |  |
| Aldrin  | Endosulfan II              | Heptachlor         | Aroclor-1260           |  |
| Alpha-Chlordane   |                            |                    |                        |  |
| Metals  |                            |                    |                        |  |
| Aluminum  | Manganese                  | Selenium           | Vanadium               |  |
| Cobalt  | Potassium                  |                    |                        |  |

With the exception of acetone and toluene, all of the listed VOCs were detected in fewer than four of the 48 surface soil samples collected. Acetone and toluene were detected at a frequency of 28% and 19%, respectively.

Five of the 21 SVOCs listed above [i.e., benzo(ghi)perylene, bis(2-ethylhexyl)phthalate, fluoranthene, phenanthrene, and pyrene]were detected at frequencies of greater than 50%; 13 other were found in less than 30% of the samples characterized. Three of the listed pesticides (4,4'-DDE, 4,4'-DDT, and Endosulfan I) were detected in more than 25% of the samples characterized, but there is no evidence of a cohesive release as the results show the samples to be randomly distributed across the site. Two PCB congeners (Aroclor-1254 and Aroclor-1260) were found in 10% or more of the samples characterized, but in only two cases were both congeners found in the same sample. All three identified PCB congeners were detected in the sample from location SS121C-4 collected during the EBS.

Subsurface soils (2-15 ft bgs) were impacted by cPAHs and metals, but to a lesser degree than the surface soils, and by VOCs. The table below lists analytes detected in subsurface soil that were found in one or more samples at levels exceeding NYS's soil cleanup objective levels.

| Analytes Exceeding TAGMs in SEAD-121C Subsurface Soils |                      |                       |  |
|--|----------------------|-----------------------|--|
| VOCs   |                      |                       |  |
| Benzene  | Ethyl benzene        |                       |  |
| SVOCs  |                      |                       |  |
| Benzo(a)anthracene                                     | Benzo(b)fluoranthene | Dibenz(a,h)anthracene |  |
| Benzo(a)pyrene   | Chrysene             |                       |  |
| Metals   | •                    |                       |  |
| Antimony   | Copper               | Nickel                |  |
| Barium   | Iron                 | Sodium                |  |
| Cadmium  | Lead                 | Thallium              |  |
| Chromium   | Magnesium            | Zinc                  |  |

Concentrations of benzene and ethyl benzene exceeded their TAGM values in one sample, SBDRMO-9. Benzene and ethyl benzene were also detected in the surface soil sample collected from SBDRMO-9, but in this sample the measured concentrations for both analytes were below their respective TAGM values. Of the five cPAHs listed above, benzo(b)fluoranthene was the most frequently detected compound, as it was found in eight of the 19 subsurface samples collected. Benzo(a)pyrene was found the most number of times at concentrations above NYS's cleanup objective value. The site-wide average BTE concentration in subsurface soil was 0.42 mg/Kg.

No pesticides or PCBs were found in subsurface soils at concentrations exceeding NYS's soil cleanup objective levels.

Twelve metals were detected at concentration above NYS's soil cleanup objectives but generally values found in excess of TAGMs were infrequent, limited to 35% of the sample or fewer. Lead and zinc were the two metals most frequently detected at concentrations above guidance criteria.

Forty-six other TCL or TCL analytes were detected in the subsurface soils collected at SEAD-121C (DRMO Yard), but all of these are considered to be of minimal concern because they were detected at a low frequency and they were detected at concentrations below available NYS soil guidance values.

Man-made drainage ditches, which channel storm-event runoff flow out of SEDA's administrative and industrial areas have been excavated along, and form, much of the southern and northwestern boundaries of the DRMO Yard. These ditches are traditionally dry, except during and after storm or snow melt events.

Results of soil samples collected within the drainage ditches indicate that ditch soil at the DRMO yard has been impacted by benzo(a)anthracene, benzo(a)pyrene, chrysene and 11 metals, as is summarized below.

| Analytes Exceeding TAGMs in SEAD-121C Ditch Soil |          |        |  |  |  |
|--|----------|--------|--|--|--|
| SVOCs  |          |        |  |  |  |
| Benzo(a)anthracene Benzo(a)pyrene Chrysene       |          |        |  |  |  |
| Metals   | Metals   |        |  |  |  |
| Aluminum   | Copper   | Silver |  |  |  |
| Cadmium  | Lead     | Sodium |  |  |  |
| Calcium  | Mercury  | Zinc   |  |  |  |
| Chromium   | Selenium |        |  |  |  |

No pesticide or PCB congener was detected in any of the ditch soils characterized. Twenty-seven other VOCs, SVOCs and metals were detected in the ditch soil, but all were at concentrations below TAGM guidance values. The site-wide average BTE concentration in ditch soil was 1.1 mg/Kg with a maximum BTE concentration of 2.0 mg/Kg at sample location SDDRMO-2, which is located outside the fence line of the DRMO Yard to the east along 1<sup>st</sup> Street and across from Building 316.

Metals listed in the summary table above were detected at varying concentrations and when compared to associated TAGM values, the metals found at concentrations greater than three times the associated TAGM value were cadmium, copper, lead, silver, sodium, and zinc. The maximum concentrations of aluminum, cadmium, calcium, copper, and lead were collocated in the single ditch soil sample collected inside of the DRMO Yard in the northern corner of the site. The detection of high metal concentrations at this ditch soil sample is consistent with the surface soil results in this area of the Yard.

#### Groundwater

Available groundwater data at SEAD-121C indicate that this media has not been significantly impacted by contaminants found in the soils at the site. Groundwater samples collected during the 1998 EBS were collected from temporary wells and were not collected using USEPA's preferred low flow purging and sampling methods. Several VOCs, SVOCs, pesticides, and PCBs reported in samples collected during the EBS sampling round were not observed during the RI groundwater sampling events conducted in 2003, which included use of low-flow sampling procedures and permanent wells. Based on the RI data, the 1998 EBS data are considered to be biased by turbidity and improper well development, and have been excluded from further consideration. Once the EBS data is removed from consideration, the analytes of concern in groundwater at SEAD-121C are limited to five metals: aluminum, antimony, iron, manganese, and sodium based on noted exceedances of GA groundwater standards.

Results from two rounds of groundwater sampling at locations associated with SEAD-27 (two wells and the "T-sump") indicate that organic compound contamination is present upgradient of SEAD-121C and may be migrating into the site along the eastern bound of the site. Figures displaying the data are

### provided in **Section 4** as **4-17**, **4-18**, and **4-19**.

Three SVOCs [2-methylnaphthalene, bis(2-ethylhexyl)phthalate, and naphthalene] were each detected once in 1995 at concentrations below the NYSDEC GA groundwater standard. VOCs, including 1,1,1-TCA, 1,1,2,2-tetrachloroethane, 1,1-dichloroethane, cis-1,2-dichloroethene, and vinyl chloride have been found periodically at the SEAD-27 site. The Army believes that the contaminants found at SEAD-27 either result from a source located in Building 360 or from a location upgradient of Building 360. The organic compounds noted in the groundwater in the SEAD-27 wells are not emanating from sources located in SEAD-121C. This belief is supported by the fact that none of the contaminants found in SEAD-27 are found in site wells located for SEAD-121C, which also suggest that any possible plume is not migrating. Furthermore, none of the chlorinated VOCs identified in the groundwater are observed in the surface or subsurface soils in SEAD-121C.

# **Surface Water**

Surface water flow at SEAD-121C results mainly from storm events or storm-event runoff, and is extremely variable in nature. Surface water at SEAD-121C does not appear to have been significantly impacted by contaminants associated with the site. Exceedances of NYSDEC Ambient Water Quality Standard (AWQS) Class C for surface water are limited to 11 metals and bis(2-ethylhexyl)phthalate. The maximum concentrations of metals, and the single detection of bis(2-ethylhexyl)phthalate, are all collocated and found at sample location SWDRMO-2. Location SWDRMO-2 is roughly 20 feet away from soil sampling location SBDRMO-16, where elevated levels of SVOCs and metals were detected in the surface and subsurface soil samples.

The following metals are considered analytes of concern: aluminum, cadmium, cobalt, copper, iron, lead, mercury, nickel, silver, vanadium, and zinc.

# 5.1.3 Conceptual Model Summary

Based on the analysis of chemical data discussed in **Section 4**, metals and cPAHs are present in soils and ditch soils. A localized site of subsurface soil was impacted by BTEX. The highest concentrations of metals are collocated in two areas of the site focused in the northeast and southwest corners. Concentrations of cPAHs were unevenly distributed across the site, and a single surface soil sample exceeded NYSDEC's suggested cleanup level of 10 mg/Kg BTE. Although surface water is only found at the site following storm or runoff events, available information indicates it has been impacted by metals.

#### 5.2 CONCEPTUAL SITE MODEL OF SEAD-121I

The conceptual site model defines the physical and chemical setting for SEAD-121I. This conceptual site model combines site information collected during the 1998 EBS and the 2002 RI. This includes geophysical survey data, field observations, and analytical data associated with SEAD-121I.

# 5.2.1 Summary of Physical Site Characteristics

The site-wide physical characteristics of SEAD-121I (Rumored Cosmoline Oil Disposal Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-121I there are two rows of buildings that are actively used for warehousing. Buildings 331 and 329, located to the west and across Avenue C, receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-121I is overland flow to ruts located along the sides of the roadways, to catch basins and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1000 feet) west of SEAD-121I. From that point, surface water flow either infiltrates into the ground, or during high flow periods it may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake north of Pontius Point and the SEDA's Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-121I may move easterly toward Cayuga Lake.

Subsurface conditions at SEAD-121I are governed by shallow bedrock, as the site is located near the top of an apparent geological divide. The site is located on the western slope of this divide and therefore, regional groundwater flow is expected to be primarily westward towards Seneca Lake. Bedrock is typically encountered at a depth of 6 inches to 2 ft. bgs across the entire site, and it is composed mainly of weathered shale and glacial till.

Two ferrous-manganese ore piles are located within the site; one ore pile is in the first (north to south) block and the other ore pile is in the third (north to south) block. These ore piles are part of a strategic stockpile and are not a waste product. The ore piles are exposed to the weather, and run off surface water is collected by the existing storm water collection system within the Planned Development (PID) area. The ore piles are expected to be removed from SEAD-121I at a future time.

Meteorological and physical site conditions that may impact the fate and transport of contaminants at SEAD-121I have been described in **Section 1**.

# 5.2.2 Summary of Chemical Impacts at SEAD-121I

On the basis of the analytical results obtained from surface soil, ditch soil, and surface water samples, the following impacts to various media are present at SEAD-121I:

• surface soil: PAHs, a pesticide, and metals;

• ditch soils: PAHs and metals; and

surface water: metals.

# **Surface Soil and Ditch Soil**

Surface (0-2 in. bgs.) and ditch soil at SEAD-121I are impacted by SVOCs, pesticides, and metals. The table below summarizes the analytes of potential concern at SEAD-121I.

| Analytes Exceeding TAGMs in SEAD-121I Surface Soil & Ditch Soil |                        |              |  |  |
|---|------------------------|--------------|--|--|
| SVOCs   |                        |              |  |  |
| Benzo(a)anthracene  | Chrysene               | Nitrobenzene |  |  |
| Benzo(a)pyrene  | Dibenz(a,h)anthracene  | Phenanthrene |  |  |
| Benzo(b)fluoranthene  | Indeno(1,2,3-cd)pyrene | Phenol       |  |  |
| Benzo(k)fluoranthene  | Fluoranthene           | Pyrene       |  |  |
| Pesticides  | •                      |              |  |  |
| Heptachlor epoxide  |                        |              |  |  |
| Metals  | •                      |              |  |  |
| Antimony  | Copper                 | Nickel       |  |  |
| Arsenic   | Iron                   | Selenium     |  |  |
| Cadmium   | Lead                   | Silver       |  |  |
| Chromium  | Manganese              | Thallium     |  |  |
| Cobalt  | Mercury                | Zinc         |  |  |

The SVOCs detected in the surface and ditch soils at levels above TAGM values were primarily cPAHs. At least one of the seven cPAHs exceeded its TAGM value in all but seven of these samples collected at SEAD-121I. The average BTE concentration found for all samples collected within and outside the identified SEAD-121I boundary is 3.0 mg/Kg. BTE concentrations exceeded NYSDEC's 10 mg/Kg criteria level at three sample locations: SS121I-2 (21 mg/Kg), SS121I-20 (32 mg/Kg), and SD121I-2EBS (26mg/Kg). The location with the highest overall value (i.e.,SS121I-20) is located outside of the SEAD-121I boundary; the site-wide average BTE concentration based on only those samples collected within SEAD-121I is 2.2 mg/Kg.

Five SVOCs (fluoranthene, nitrobenzene, phenanthrene, phenol, and pyrene) exceeded their TAGM value once. Nitrobenzene and phenol were both detected once in a sample collected at SD121I-7 on the corner of Avenue D and 3<sup>rd</sup> St. outside of the site boundary; however, neither SVOC was detected in the sample duplicate collected at the same location. Fluoranthene, phenanthrene, and pyrene were

detected with a frequency of 94%. The maximum detections of fluoranthene and phenanthrene were collocated with the maximum detection of cPAHs.

Heptachlor epoxide was detected above the comparison TAGM value of 20  $\mu$ g/Kg three times at SS121I-21 (55 J  $\mu$ g/Kg), SS121I-9 (25  $\mu$ g/Kg), and SS121I-22 (21  $\mu$ g/Kg). SS121I-21 was collected next to Building 329; and SS121I-22 was collected next to Building 328. SS121I-9 was collected near the intersection of 5<sup>th</sup> Street and Avenue C.

The majority of the metals listed above were detected in all of the soil samples collected. The following metals were detected with in site samples frequency ranging from 18% to 98%: antimony (31%), cadmium (31%), mercury (98%), selenium (47%), silver (18%), and thallium (20%).

The table below presents the remaining analytes that were detected in one or more of the surface or ditch soil samples at SEAD-121I, but at levels below their comparison TAGM values.

| Analytes Detected Below TAGMs in SEAD-121I Surface Soil & Ditch Soil |                            |                     |                   |  |
|--|----------------------------|---------------------|-------------------|--|
| VOCs   |                            |                     |                   |  |
| Acetone  | Ethyl benzene              | Methyl ethyl ketone | Ortho Xylene      |  |
| Benzene  | Meta/Para Xylene           | Methylene chloride  | Toluene           |  |
| SVOCs  |                            |                     |                   |  |
| 2-Methylnaphthalene  | Anthracene                 | Carbazole           | Diethyl phthalate |  |
| 3'3-Dichlorobenzidine  | Benzo(ghi)perylene         | Di-n-butylphthalate | Fluorene          |  |
| Acenaphthene   | Bis(2-Ethylhexyl)phthalate | Di-n-octylphthalate | Isophorone        |  |
| Acenaphthylene   | Butylbenzylphthalate       | Dibenzofuran        | Naphthalene       |  |
| Pesticides/PCBs  |                            |                     |                   |  |
| 4,4'-DDE   | Aldrin                     | Endosulfan I        | Aroclor-1254      |  |
| 4,4'-DDT   | Dieldrin                   | Endrin              | Aroclor-1260      |  |
| Metals   |                            |                     |                   |  |
| Aluminum   | Beryllium                  | Cyanide, Total      | Potassium         |  |
| Barium   |                            |                     |                   |  |

#### **Surface Water**

Surface water at SEAD-121I has been impacted by metals. Aluminum, iron, lead, and zinc were detected above their NYSDEC AWQS Class C standard. Aluminum, iron, and lead were detected at concentrations more than 10 times greater than their respective surface water standards. Zinc exceeded its standard of 159  $\mu$ g/L in a single sample (SW121I-6).

The table below identifies the other analytes that were detected in surface water, but not found at levels that exceeded Class C standards.

| Analytes Detected in SEAD-121I Surface Water |              |           |  |  |
|--|--------------|-----------|--|--|
| SVOCs  |              |           |  |  |
| Butylbenzylphthalate                         | Fluoranthene |           |  |  |
| Metals                                       |              |           |  |  |
| Aluminum                                     | Cobalt       | Nickel    |  |  |
| Barium                                       | Copper       | Potassium |  |  |
| Beryllium                                    | Iron         | Selenium  |  |  |
| Cadmium                                      | Lead         | Sodium    |  |  |
| Calcium                                      | Magnesium    | Vanadium  |  |  |
| Chromium                                     | Manganese    | Zinc      |  |  |

# 5.2.3 Conceptual Model Summary

Based on the analysis of chemical data discussed in **Section 4** and summarized above, residual levels of SVOCs and metals exist in site surface soils and ditch soils, and the surface water has been impacted by metals. The highest concentrations of SVOCs, specifically cPAHs, were found along the outside boundary of SEAD-121I along Avenues C and D. Three soil samples exceeded NYSDEC's 10 mg/Kg BTE value for cPAHs, and the site-wide average BTE concentration within SEAD-121I was 2.2 mg/Kg. The highest BTE concentration (32 mg/Kg) was found in a location used for loading/unloading materials onto trucks at Building 330, which is outside the bounds of the Rumored Cosmoline Oil Disposal Area. The other two locations where BTE concentrations were greater than 10 mg/Kg are were located along the fences bordering SEAD-121I on Avenues C and D. The majority of the samples with exceedances for metals (arsenic, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, and zinc) were located in the vicinity of the two ferrous-manganese ore piles (see **Figures 4-24, 4-26, 4-28, 4-29, 4-33**, and **4-34**), which are strategic stockpiles for the United States government. These stockpiles are not waste materials subject to CERCLA regulations.

#### 5.3 SEAD-121C AND SEAD-121I CONTAMINANT FATE AND TRANSPORT

Contaminant fate refers to the chemical characteristics and the predictable behaviors of a contaminant within different media at a site. **Section 5.3.1** presents a discussion of the fate and transport characteristics for chemical classes common to SEAD-121C and SEAD-121I. **Section 5.3.2** discusses the fate and transport properties of specific compounds found at the sites. Fate and transport considerations within specific potential release areas are discussed where applicable. The analytical results for SEAD-121C and SEAD-121I are summarized in **Section 4** and presented in full in **Appendix C**.

There are environmental impacts to surface soil, subsurface soil, ditch soil, surface water, and groundwater within SEAD-121C and to surface soil, ditch soil, and surface water at SEAD-121I. No groundwater transport modeling was performed as part of the chemical fate and transport analysis.

# 5.3.1 Overview of Compound Fate

# **5.3.1.1** Fate of Inorganic Compounds (Metals)

This section provides background information that will help assess and evaluate the fate of metals in soils at SEAD-121C and SEAD-121I. The major fate mechanisms for metals are complexation, adsorption, precipitation, oxidation, and reduction.

All soils naturally contain trace levels of metals. The concentration of metals in "uncontaminated" soils is primarily related to the geology of the parent material from which the soil was derived. Therefore, the concentrations of these metals can vary significantly depending on the composition of the parent bedrock material. Background concentrations of metals in till at SEDA have been estimated via a sampling program as discussed in **Section 3.1** (background data are included in **Appendix B**).

The mobility of metals within a soil system is primarily associated with the movement of water through that system. This mobility is associated with the solubility of the metal and its compounds, as well as chemical parameters affecting the oxidation state of the metal in solution. Metals associated with the aqueous phase of soil are subject to movement with water, and may be transported through the vadose zone to groundwater. However, the rate of migration of the metal usually does not equal the rate of water movement through the soil due to fixation and adsorption reactions (Dragun, 1988). Metals, unlike hazardous organic compounds, can not be degraded (McLean and Bledsoe, 1992). Metals become immobile due to mechanisms of adsorption and precipitation.

Mechanisms of adsorption and precipitation inhibit the mobility of metals in groundwater. Metal-soil interactions are such that when metals are introduced at the soil surface, downward transportation does not occur to any great extent unless the metal retention capacity of the soil is overloaded, or metal interaction with the associated waste matrix enhances mobility. Changes in soil environment conditions over time, such as the degradation of the organic waste matrix, changes in pH, oxidation-reduction potential, or soil solution composition, due to natural weathering processes, also may enhance the mobility of metals. The extent of vertical impacts is intimately related to the soil solution and surface chemistry of the soil matrix with reference to the metal and waste matrix in question.

In soils, metals are found in one or more of several categories in the soil. These categories as defined by Shuman (1991) are as follows:

• dissolved in the soil solution;

- occupying exchange sites on inorganic soil constituents;
- specifically adsorbed on inorganic soil constituents;
- associated with insoluble soil organic matter;
- precipitated as pure or mixed solids;
- present in the structure of secondary minerals; and/or
- present in the structure of primary minerals.

In situations where metals have been introduced into the environment through human activities, metals are associated with the first five categories. Native metals may be associated with the first five categories depending on the geological history of the area. The aqueous fraction, and those fractions in equilibrium with this fraction (i.e., the exchange fraction) are of primary importance when considering the migration potential of metals associated with soils.

The following paragraphs discuss general aspects of adsorption and leaching of metals in soil. In general, the clay minerals within most soils possess a negative charge (Dragun, 1988). This is due the polarity of the clays and their interactions with soil moisture (water), as well as other cations and anions present in the soil. These negatively charged positions on clay minerals are responsible for attracting cationic species of elements at the soil surface.

In addition, humus is also responsible for the accumulation of ionic species of elements at soil surfaces. Humus is the relatively stable fraction of soil organic matter that remains in soil after the chemicals comprising the plant and animal residues have decomposed (Dragun, 1988). Humus is colloidal in structure and the colloid surface possesses functional groups that posses negative charges. These charges are responsible for accumulating cationic species of elements at soil surfaces.

The process by which a cation (a positively charged ion) in water is attracted to a soil surface and displaces another cation is known as ion exchange. The term cation exchange specifically refers to the exchange between cations balancing the surface charge on the soil surface and the cations dissolved in water (Dragun, 1988). The total amount of cations adsorbed by these negative charges on a unit mass of soil is defined as the cation exchange capacity of the soil (CEC), which is a stoichiometric and reversible process (Dragun, 1988).

The process by which a cation combines with molecules or anions containing free pairs of electrons is known as complex formation (Dragun, 1988). The cation-anion or cation-molecule combination is known as a complex. The anion(s) or molecule(s) with which the cation forms a complex is usually referred to as a ligand.

According to Dragun (1988), the equilibrium distribution of a cation is governed by two opposing rate processes, the adsorption rate and the desorption rate. The adsorption rate is the rate at which the dissolved cation in water transfers into the adsorbed state. The desorption rate is the opposite process; it is the rate at which the cation transfers from the adsorbed state into water. The extent of adsorption is expressed using the adsorption coefficient or distribution coefficient,  $K_d$ . The distribution coefficient is defined as the ratio of the concentration of a solute adsorbed on soil surfaces to the concentration of the solute in water. The greater the extent of adsorption, the greater the magnitude of  $K_d$ . The  $K_d$  values are dependant such characteristics as ionic size and valence, varying with these characteristics for each metal.

The chemistry and migration of all cationic metals in soil is controlled by pH. At soil pH of greater than 6.5, those metals normally present as cations, are fairly immobile. At higher pH values, cationic metals often form insoluble carbonate and hydroxide complexes. However, some metals (e.g., arsenic and uranium) may form mobile anionic complexes. Cationic metals are most mobile in highly acidic soils, e.g., those with a pH of 5 or less. Anionic metals are most mobile where the soil pH is greater than 7.0.

At SEAD-121C, groundwater pH was measured in the field as an indicator parameter during the February and May 2003 sampling events, as shown in **Table 3-10**. Field measurements for the 2003 sampling of the upgradient wells at SEAD-27 are presented in the table below. No groundwater wells were installed at SEAD-121I.

| SEAD-121C Groundwater Field pH Measurements            |   |      |      |           |      |                  |
|--|---|------|------|-----------|------|------------------|
|  | April-03 May-03   |      |      |           |      |                  |
| Well ID  | Sample ID pH 1 Temperature (°C) Sample ID pH 1 Temperature (° |      |      |           |      | Temperature (°C) |
| MW-2   | 121C-2006   | 7.24 | 7.49 | 121C-2014 | 7.03 | 9.46             |
| MW-1   | 121C-2005   | 7.42 | 7.13 | 121C-2013 | 9.16 | 9.5              |
| Notes 1) pH values were not corrected for temperature. |   |      |      |           |      |                  |

General trends of element mobility using the published results for studies of ten soils (Dragun, 1988) include:

- Cations and anions exhibit low mobility in clay and silty clay soils. As the surface areas and the clay content increases, the ability of the soil to retain cations and anions will generally increase.
   [Thus, the presence of silt and clay in the soils, typically 0-6 feet bgs at SEAD-121C and 0-2 feet bgs at SEAD-121I, would tend to decrease the mobility of cations in soil.]
- Cations usually exhibit moderate to high mobility in sandy, loamy sand, and sandy loam soil.
- Cations can exhibit low, moderate, or high mobility in soils with intermediate textures.

Anions usually exhibit relatively low mobility in clay and silty clay soils and moderate to high
mobility in other soil types. [Thus, the presence of silt and clay in the soils at SEAD-121C and
SEAD-121I would tend to decrease the mobility of anions in soil.]

As mentioned above, the leaching of metals from soils is controlled by numerous factors. An important consideration for leaching of metals is the chemical form (base metal or cation) present in the soil. However, at SEAD-121C and SEAD-121I, the exact form (or speciation) of individual inorganics is not known.

The leaching of metals from soils is substantial if the metal exists as a soluble salt. Metallic salts have been identified as a component of such items as tracer ammunition, ignition compositions, incendiary ammunition, flares, colored smoke and primer explosive compositions. For example, barium nitrate, lead stearate, lead carbonate, and mercury fulminate are likely metal salts or complexes that may have been incinerated at the sites. During the burning of these materials, a portion of these salts were likely oxidized to their metallic oxide forms. In general, metallic oxides are considered to be less likely to leach metallic ions than metallic salts.

The discussion of the individual metals in **Section 5.3.2.1** provides an overview of the characteristics that affect the fate of each of the metals impacting SEAD-121C and SEAD-121I. Much of the information below was obtained from McLean and Bledsoe (1992).

# 5.3.1.2 Fate of Organic Compounds

On the basis of the chemical data at SEAD-121C and SEAD-121I, the organic compounds that will be addressed in this section include: VOCs, SVOCs, and pesticides. Organic compounds are affected by both external site conditions and the compounds' inherent chemical and physical properties. These properties will, in combination, determine the compound state and provide insight into its mobility within a media. In the following discussion, the fate characteristics of VOC, SVOCs, and pesticides are discussed.

Important soil properties to consider include the fraction of organic carbon, the mineralogy, and the porosity. Many organic compounds adsorb more strongly to the organic fraction in the soil or sediment. Therefore, the larger the amount of organic compounds in the soil, the less mobile organic constituents will be (i.e., soils with higher organic content will adsorb more organic compounds than soils with more clays). Generally, surface soils will have higher organic content than deeper soils, due to the presence of live and dead plant matter at the surface.

One measure of the affinity of a compound for the organic fraction of the soil is the organic carbon partition coefficient,  $K_{oc}$ . The  $K_{oc}$  is the ratio of the amount of the compound present in the organic fraction to that present in the aqueous fraction. **Table 5-1** describes the relative relationship between  $K_{oc}$  and mobility. As can be seen, compounds with a  $K_{oc}$  between 500 ml/g and 2000 ml/g are generally

considered to have low mobility; compounds with a  $K_{oc}$  greater than 2000 ml/g are considered to be immobile (Dragun, 1988).

Some organic compounds adsorb more strongly to the clay fraction of a soil or sediment. Understanding the type and amount of clays present is crucial to estimating the mobility of the compounds. Most of the soils at SEDA are classified as clay loam. These soils generally have low permeability and high water retention capabilities. Because of these properties, contaminants tend to move slowly through these soils.

# **Volatile Organic Compounds**

VOCs are characterized by relatively high vapor pressures and Henry's Law constants, indicating a strong potential for volatilization. Volatile constituents will enter the air in void spaces in the soil above the saturated zone. These constituents may then leave the system through the ground surface. The tendency of compound to volatilize is usually expressed in terms of a Henry's Law constant  $K_H$ . Henry's Law holds in cases where the solute concentration is very low, which is applicable to most constituents found at hazardous waste sites. Henry's Law states that the concentration of a constituent in the vapor phase is directly proportional to the concentration of that constituent in the aqueous phase. The proportionality factor is the Henry's Law constant. Generally, for compounds with a Henry's Law constant less than 5 x  $10^{-3}$ , volatilization from the soils will not be a major pathway (Dragun, 1988).

VOCs tend to have a low residence time in surface soil and surface water environments. These chemicals can be persistent in groundwater. However, there is evidence that non-chlorinated VOCs may degrade rapidly in the vadose zone above groundwater plumes. (Gas Research Institute, Management of Manufactured Gas Plant Sites, Volume III, Risk Assessment, May 1988, GRI-87/0260.3).

Major exposure routes of interest include the ingestion of groundwater and the inhalation of the gases. The latter can be important in situations involving the excavation of pits or the entrainment of soil gas into buildings. There is little potential for these chemicals to accumulate in aquatic or terrestrial biota.

The organic partition coefficients,  $K_{oc}$ , for VOCs vary from being highly mobile (acetone) to being only moderately mobile (xylene). VOCs such as acetone have a  $K_{oc}$  of 1 whereas xylenes have a  $K_{oc}$  ranging in value from 39 to 365 depending on the soil and pH.

# **Semivolatile Organic Compounds**

SVOCs are characterized by low vapor pressures and low Henry's Law constants, indicating little potential for volatilization. High sorption coefficients (7,500 ml/g) indicate that these chemicals will tend to stay sorbed to the soil, and will migrate only in conjunction with the soil itself.

### Polycyclic Aromatic Hydrocarbons (PAHs)

PAH compounds have a high affinity for organic matter and low water solubility. Most PAHs have  $K_{oc}$  values greater than 2,000 ml/g. Water solubility tends to decrease and affinity for organic material tends to increase with increasing molecular weight (Gas Research Institute, 1988). Therefore, naphthalene is much more soluble in water than benzo(a)pyrene. When present in soil or sediments, PAHs tend to remain bound to the soil particles and dissolve only slowly into groundwater or the overlying water column. Because of the high affinity for organic matter, the physical fate of the chemicals is usually controlled by the transport of particulate. Thus, soil, sediment, and suspended particulate matter (in air) represent important media for the transport of PAHs.

PAH compounds are readily taken up (bioaccumulated) by living organisms. However, organisms have the potential to metabolize the chemicals and to excrete the polar metabolites (Gas Research Institute, 1988). The ability to do this varies among organisms. Fish appear to have well-developed systems for metabolizing the chemicals. The metabolites are excreted. Shellfish (bi-valves) appear to be less able to metabolize the compounds (Gas Research Institute, 1988). As a result, while PAH compounds are seldom high in fish tissues, they can be high in shellfish tissues.

Several factors can degrade PAH compounds in the environment. Biodegradation on soil microorganisms is an important process affecting the concentrations of the chemicals in soils, sediment and water. Volatilization may also occur. This mechanism is effective for the lighter molecular weight compounds. However, the volatilization of higher molecular weight PAH compounds occurs slowly.

#### **Pesticides/PCBs**

The pesticide compounds are all expected to be highly immobile in the soil/groundwater environment when present at low dissolved concentrations (Installation Restoration Program Toxicity Guide, 1987). Bulk quantities of these compounds dissolved in an organic solvent could be transported through the unsaturated zone as the result of a spill. However, their extremely low solubility and their strong tendency to sorb to soils results in a very slow transport rate in soils.

# 5.3.2 Fate and Transport of Specific Compounds at SEAD-121C and SEAD-121I

The following sections discuss the fate and transport mechanisms specific to elements and compounds found at SEAD-121C and SEAD-121I. Analytes detected in surface soil, subsurface soil, ditch soil, surface water, or groundwater are discussed in the subsequent sections by chemical class.

#### **5.3.2.1** Metals

# **Aluminum**

Aluminum compounds may be found in rock, minerals, clays, and soil and are released naturally by the weathering of rocks and minerals. These compounds are also present in air and water. Since aluminum compounds compose a large portion of the earths crust, natural weathering processes far exceed the contribution of releases from natural activities. Aluminum ions and compounds behavior in the environment is controlled by their coordination chemistry and the characteristics of the local environment such as pH. The major features of the biogeochemical cycle of aluminum include: leaching of aluminum ions from soil and minerals into aqueous environments; adsorption and/or precipitation of aluminum ions and compounds onto soil or sediment; and wet and dry deposition aluminum-containing dust particulates from the air to land or surface water. Aluminum ions and compounds will not bioconcentrate in aquatic organisms to any significant degree. Volatilization of aluminum compounds from moist soil surfaces is not an important fate process because these compounds are ionic and will not volatilize. (Source: (http://toxnet.nlm.nih.gov)

# **Antimony**

In the soil environment antimony transport is controlled by the form of antimony in the soil, the soil pH, and the composition of the soil. Antimony bonds strongly with soil and sediment particles; the presence of iron, manganese, and aluminum may lead to the formation of hydroxylated oxides within the soil or groundwater. Organic carbon content does not have a significant influence on the absorption capacity of antimony to soil. (Source: (<a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

#### Arsenic

In the soil environment arsenic exists as either arsenate, As (V), or arsenite, As(III), however, arsenite is the more toxic form. And, arsenite compounds are reported to be 4 to 10 times more soluble than arsenate compounds (McLean and Bledsoe, 1992).

The adsorption of both forms of arsenic is strongly pH dependent. Griffin and Shimp (1978) found that arsenate had a maximum adsorption in soils with a pH of 5. These same researchers found that arsenite sorption was observed to increase over a pH range of 3 to 9. Other researches found the maximum adsorption of As(III) by iron oxide occurred at pH of 7.

Both pH and redox are important in assessing the fate of arsenic in soil. At high redox levels, As(V) predominates and arsenic mobility is low and as the pH increases or the redox decreases As(III) predominates (McLean and Bledsoe, 1992). The reduced form of arsenic is more subject to leaching because of its high solubility. Also, arsenite, As(III), can be oxidized to As(V) and manganese oxides are the primary electron acceptor in this oxidation (Oscarson et al., 1983).

### Barium

Barium is a highly reactive metal that occurs naturally only in the combined state. Most barium is released into the environment form industrial sources in forms that do not become widely dispersed. In the atmosphere, barium is likely to be present in particulate form. Environmental fate processes may transform one barium compound to another; however, barium itself is not degraded. It is removed from the atmosphere primarily by wet or dry deposition.

Barium in soil may be taken up to a small extent either by vegetation, or transported through soil with precipitation. Barium is not very mobile in most soil systems. The higher the level of organic matter in the soil, the greater the adsorption. The presence of calcium carbonate will also limit mobility, since barium will form barium carbonate (BaCO<sub>3</sub>), an insoluble carbonate.

### **Cadmium**

Cadmium may be adsorbed by clay minerals, carbonates, or hydrous oxides or iron and manganese or may be precipitated as calcium carbonate, hydroxide, and phosphate. Evidence suggests that adsorption mechanisms may be the primary source of cadmium removal from soils. Several authors have reported that in soils polluted with metals wastes, the greatest percentage of the total cadmium was associated with the exchangeable fraction (McLean and Bledsoe, 1992). As with all cationic metals, the chemistry of cadmium in the soil environment is to a greater extent controlled by pH. Under acidic conditions cadmium solubility increases and very little adsorption of cadmium by soil colloids, hydrous oxides, and organic matter takes place. At pH values greater than 6, cadmium is adsorbed by the soil solid phase or is precipitated, and the solution concentrations of cadmium are greatly reduced. Cadmium forms soluble complexes with inorganic and organic ligands. The formation of these ligands will increase the mobility of cadmium in soils.

# Chromium

Chromium occurs naturally in soils and rocks. It may occur in either of two oxidation states; trivalent, Cr(III), or hexavalent, Cr(VI). While Cr (III) is the more stable and common form, hexavalent chromium is the more toxic.

Trivalent chromium is readily adsorbed by soils, exhibiting typical cation sorption behavior. Under normal pH and oxidation-reduction conditions, chromium (III) minerals of oxides and hydroxides are stable and insoluble. Hexavalent chromium can be reduced to Cr(III) under normal soil pH and oxidation-reduction conditions and soil organic matter has been identified as the electron donor in this reaction (Bartlett and Kimble, 1976; Bloomfield and Pruden, 1980). Barlett and James (1979) showed that Cr(III) could be oxidized under conditions prevalent in some soils.

Forms of Cr(VI) in soil are immobilized at pH values of less than 6.5. Because of the anionic structure of Cr(VI), its association with soil surfaces is limited to positively charged exchanges sites,

the number of which decreases with increasing soil pH (McLean and Bledsoe, 1992). Generally, hexavalent chromium compounds are readily soluble, however, they are expected to only occur highly mobile in soils. However, some researches have found that clay soil, containing free iron and manganese oxides, significantly retarded Cr(VI) migration. Cr(VI) was also found to be highly immobile in alkaline soils.

# **Cobalt**

Cobalt exists naturally in the earths crust with an average concentration of 18 ppm. Traces of cobalt are found in all rocks, minerals, and soils, and may be release through weathering. Cobalt always occurs in nature in association with nickel, and usually also with arsenic. Ionic cobalt compounds would exist in the particulate phase in air, and these compounds may be removed from the air by wet and dry deposition. Cobalt can be commonly found in an oxidation state of +2 and +3. Soils with higher pH and contents of clay, natural organics, and hydrous manganese and iron oxides, bind cobalt to a greater degree; as these factors decrease, the mobility of cobalt increases. Chelating agents, which are compounds that bind metal ions (i.e., ethylenediamine tetraacetic acid, EDTA), increase the solubility of cobalt and enhance the mobility of cobalt in soil. Kd values for cobalt range from 0.2 to 3,800 ml/g. Mean Freundlich and n values were 37 liters/Kg and 0.754, respectively, in eleven US soils; Freundlich values ranged from 2.6 to 363 liters/Kg and correlated with soil pH and cation exchange capacity. Volatilization from water or moist or dry soil surfaces is not expected based upon cobalt's ionic characteristics. The transport and speciation of cobalt in natural waters and sediments is complicated by many factors. Solubility of cobalt in freshwater can be increased by anthropogenic pollution through the formation of complexes with the sewage-derived organics. The predominant cobalt species in unpolluted freshwater are: Co2+, the carbonate, hydroxide, sulfate, adsorbed forms, oxide coatings, and crystalline sediments. In aqueous solution in the absence of complexing agents, the oxidation of the hexaaquacobalt(II) ion to Co(III) is very unfavorable. In the presence of complexing agents, such as ammonia which forms very stable complexes with Co(III), the stability of Co(III) is improved. Co(III) is inert to ligand exchange relative to Co(II). Volatilization from water surfaces will not occur due to the ionic character of cobalt compounds. Concentration factors for marine and freshwater fish range from 100 to 4000 and 40 to 1000, respectively; bioconcentration factors <30 are low and from 100-1000 are high. (Source: (http://toxnet.nlm.nih.gov)

# Copper

The degree of persistence of copper in soil depends on the soil characteristics and the forms of the copper that are present. Copper is retained in soils through exchange and specific adsorption mechanisms (McLean and Bledsoe, 1992). This may not be the case in waste-soil systems and precipitation may be an important mechanism of retention. McLean and Bledsoe (1992) state that copper is preferentially adsorbed by soils and soil constituents over other metals (arsenic, cadmium, nickel, zinc, mercury, silver, and selenium), with the exception of lead. However, copper has a high

affinity for soluble organic ligands and the formation of these complexes may enhance copper mobility in soil. Copper is not expected to volatilize from soil.

### <u>Iron</u>

The following information is adapted from the USEPA Ecological Soil Screening Level for Iron.

Iron is the second most abundant metal in earth's crust after aluminum (about 5%). Iron can occur in either the divalent (ferrous or Fe+2) or trivalent (ferric or Fe+3) states under typical environmental conditions. The valence state is determined by the pH and Eh (redox potential) of the system, and the iron compound is dependent upon the availability of other chemicals.

Iron occurs predominantly as Fe+3 oxides in soils. The divalent state can be oxidized to the trivalent state, where it may form oxide or hydroxide precipitates. The general rule governing the mobilization and fixation of iron are that oxidizing and alkaline conditions promote the precipitation of insoluble iron Fe+3 oxides, whereas acidic and reducing conditions promote the solution of ferrous (Fe+2) compounds. To evaluate site-specific conditions and iron fate and transport, it is recommended that the site-specific measured pH and Eh be used to determine the expected valence state of the iron and associated chemical compound and resulting bioavailability and toxicity in the environmental setting. In well-aerated soils between pH 5 and 8, the iron demand of plants is higher than the amount available. Because of this limitation, plants have developed various mechanisms to enhance iron uptake. Under these soil conditions, iron is not expected to be toxic to plants.

# **Lead**

Lead is one of the least mobile of the common metal contaminants in the environment. Lead is generally present in the +2 oxidation state, and will form lead oxides, although the lead itself is not degraded. Lead occurs naturally, primarily as sulfides, carbonates, and phosphates. Lead contamination may be associated with organometallic complexes associated with historical gasoline releases. Other anthropogenic sources of lead include paints, solders, and military uses.

Soluble lead added to the soil reacts with clays, phosphates, sulfates, carbonates, hydroxides, and organic matter such that lead solubility is greatly reduced. At pH values above 6, lead is either adsorbed on clay surfaces or forms lead carbonate. Generally, studies that evaluate the relative affinity of metals for soils and soil constituents, lead is sorbed by soils and soil constituents to the greatest extent compared to copper, zinc, cadmium, and nickel (McLean and Bledsoe, 1992). Some authors have demonstrated decreased sorption of lead in the presence of complexing ligands and complexing cations. Lead has a strong affinity for organic ligands and the formation of such complexes may greatly increase the mobility of lead in soil.

### Magnesium

Magnesium is widely distributed in the environment in a variety of rock and minerals, such as igneous (e.g., olivine), metamorphic (e.g., montmorillonite), and sedimentary rocks (e.g., magnesite, brucite, dolimite). Rocks and minerals contain a higher percentage of magnesium than do soils resulting from the loss of magnesium due to weathering. Magnesium compounds in soil are removed by weathering. As soils weather, soil magnesium compounds become more soluble. Below pH 7.5, most magnesium minerals are too soluble to persist in soils. Volatilization of magnesium compounds from moist soil surfaces is not an important fate process because these compounds are ionic and will not volatilize. If released into water, magnesium compounds may be removed by incorporation into sediment. There is also significant uptake of magnesium by sediment in which sulfate reduction is taking place. The average Kd value for magnesium sorption on sediments is 1.3 cu m/Kg, which suggests that magnesium ions are weakly sorbed. Volatilization of magnesium compounds from water surfaces is not an important fate process because these compounds are ionic and will not volatilize. (Source: (http://toxnet.nlm.nih.gov)

### Manganese

Manganese compounds are found in the earth's crust in the form of numerous minerals such as pyrolusite, romanechite, manganite, hausmannite. Manganese compounds enter the atmosphere and aqueous environment from the weathering of rocks and windblown soil. Manganese is multi-valent and can exist in the 2+, 3+, 4+, 6+, and 7+ oxidation states, with 2+, 3+, and 4+ being the dominant oxidation states in the environment. Manganese 2+ is the most stable oxidation state in water while manganese 3+ and 4+ compounds are immobile solids. Organic matter may reduce manganese 3+ and 4+ compounds, resulting in the formation of soluble manganese 2+ compounds. Soluble manganese 2+ compounds do not strongly complex to soil and organic matter. Thus manganese 2+ compounds are relatively mobile and may potentially leach into surface and groundwater. As ions or insoluble solids, most manganese compounds are not expected to volatilize from water and moist soil surfaces. Manganese compounds, released into the ambient atmosphere are expected to exist in the particulate phase. In the particulate phase, manganese compounds may be removed from the air by wet and dry deposition. Manganese compounds do not bioconcentrate in humans and animals. Sorption of manganese is complicated by redox reactions that produce compounds of different oxidation states. Soluble manganese 2+ compounds are relatively mobile and may potentially leach into surface water and ground water. At low concentrations (less than 5 mg/l), chemical complexation of manganese 2+ to metal oxides and organic matter occurs. At higher concentrations (greater than 5 mg/l), manganese 2+ associates predominantly through weak electrostatic interactions with metal oxides and organic matter. Manganese 2+ does not form strong complexes with organic ligands such as humic and fulvic acids. Thus enrichment of manganese 2+ compounds on the organic matter fraction of soil is low. Most manganese compounds are salts or insoluble solids and are not expected to volatilize from moist soil surfaces. (Source: http://toxnet.nlm.nih.gov)

### Mercury

The distribution of mercury species in soils (elemental mercury, mercurous ions, and mercuric ions) is dependent on soil pH and redox potential (McLean and Bledsoe, 1992). Both the mercurous and mercuric cations are adsorbed by clay minerals, oxides, and organic matter. Adsorption is pH dependent, increasing with increasing pH. Mercurous and mercuric mercury are also immobilized by forming various precipitous; Mercurous mercury precipitates with chloride, phosphate, carbonate, and hydroxide. At concentrations of mercury commonly found in soil, only the phosphate precipitate is stable. In alkaline soils, mercuric mercury will precipitate with carbonate and hydroxide to form a stable solid phase. At lower pH and high chloride concentrations, HgCl2 is formed. Divalent mercury also will form complexes with soluble organic matter, chlorides, and hydroxides that may contribute to its mobility (Kinniburgh and Jackson, 1978).

Under mildly reducing conditions, both organically bound mercury and inorganic mercury compounds may be degraded to the elemental form of mercury, Hg0. Elemental mercury can readily be converted to methyl or ethyl mercury by biotic and abiotic processes (Roger, 1976, 1977). These are the most toxic forms of mercury. Some researchers have estimated that mercury can be removed due to volatilization and/or precipitation and the removal increased with pH. The volatilization was found to be inversely related to soil adsorption capacity.

### **Nickel**

Nickel does not form insoluble precipitates in unpolluted soils and retention of nickel is, therefore, exclusively through adsorption mechanisms (McLean and Bledsoe, 1992). Nickel will adsorb to clays, iron, and manganese oxides, and organic matter and it thus removed from the soil solution. The formation of complexes nickel with both inorganic and organic ligands will increase nickel mobility in soils.

# Selenium

Selenium can be found in the earth's crust at an average of 0.05 to 0.09 ppm. In nature, selenium usually occurs in the sulfide ores of heavy metals. It predominates in approximately 40 minerals, with higher levels being found in clausthalite, naumannite, tiemannite, and berzelianite. Selenium occurs in volcanic rock, sandstone, carbonaceous rocks, and some types of coal and mineral oil. In nature, selenium is found in the -2 (selenide), 0 (selenium), +4 (selenite), and +6 (selenate) oxidation states. Natural releases of selenium to air may result from biomethylation by plants and bacteria, and volcanic eruptions.

If released to the atmosphere, selenium is expected to exist predominately in the particulate phase. Particulate-phase selenium will be physically removed from the atmosphere by wet and dry deposition. The solubility and mobility of selenium are dependent upon its valence and chemical state. In soils, the behavior of selenium is affected by redox conditions, pH, hydrous oxide content,

clay content, organic materials and the presence of competing anions. Selenium has sorptive affinity for hydrous metal oxides, clays and organic materials. Heavy metal selenides, which are insoluble and immobile, predominate in acidic soils and soils with high amounts of organic matter. In alkaline, well-oxidized soil environments, selenates (Se(VI)), which are very mobile, predominate. No sorption of sodium selenate was observed in 10 of 11 soils. Sodium and potassium selenites dominate in neutral, well-drained mineral soils. Selenite (Se(IV)) is soluble, but can strongly adsorb to soil minerals and organic material; iron and manganese oxides sorb Se(IV). No sorption of sodium selenate was observed in 10 of 11 soils; a log Kd value of 0.958 was determined in Kula soil(pH 5.9, 6.62% TOC, 73.7% sand, 25.4% silt, 0.9% clay)(5). Se(IV) adsorption was observed to decrease with increasing pH in the range 4 to 9 and Se(VI) adsorption was minimal under most pH conditions.

In soil and water, biological methylation of selenium species and subsequent volatilization of the alkyl selenides is expected to be an important fate process. If released into water, selenium is expected to form oxyanions and exhibit anionic chemistry. Speciation will be determined by pH and redox potential of the solution. Elemental selenium is favored by low pH and reducing conditions. Selenates are stable under alkaline oxidizing conditions and are not expected to adsorb to suspended solids in the water column. Selenious acid species occur under the intermediate to slightly oxidizing conditions encountered in aerobic water. At pHs less than 7 and under mildly reducing conditions, selenites are reduced to elemental selenium. In sediments, reduced and tightly bound selenium will remain relatively immobile unless the sediments are chemically or biologically oxidized. BCFs ranging from 200 to 3,600 for selenite and 65 to 500 for selenate suggest bioconcentration in aquatic organisms will be moderate to very high. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

#### Silver

Published data concerning the interaction of silver with soil are rare. As a cation it will participate in adsorption and precipitation reactions. Silver is very strongly adsorbed by clay and organic matter and precipitates of silver, AgCl, Ag<sub>2</sub>SO<sub>4</sub>, and AgCO<sub>2</sub>, are highly insoluble (Lindsay, 1979). Silver is highly immobile in the environment.

### Thallium

Thallium is a soft, heavy metal that is insoluble in water and organic solvents. Various thallium salts are extremely poisonous, and often used in rodenticides, fungicides and insecticides. Thallium occurs naturally in trace amounts, as a Group III metal, it is often associated with lead and zinc. Thallium is generally univalent, and may form sulfate, nitrate and acetate salts that are moderately soluble in water

#### Vanadium

Vanadium compounds are widely distributed in the earth's crust. Elemental vanadium does not occur in nature, but its compounds exist in over 50 different mineral ores and in association with fossil

fuels. Principal ores are patronite, roscoelite, carnotite, and vanadinite; phosphate rock may also contain vanadium. Vanadium compounds are released naturally to air through the formation of continental dust, marine aerosols, and volcanic emissions. Weathering of rocks and soil erosion are the natural sources of vanadium release into water and soils.

In soil, vanadium's mobility is expected to be dictated by soil pH; mobility is expected to be lower in acidic soils. The more soluble pentavalent cation may leach. Clay soils studied have more vanadium than other soils. If released into water, vanadium is expected to exist primarily in the tetravalent and pentavalent forms. Both species are known to bind strongly to mineral or biogenic surfaces by adsorption or complexing. Vanadium species common found in water are known to bind strongly to mineral or biogenic surfaces by adsorption or complexing. Sorption and biochemical processes are thought to contribute to the removal of vanadium from sea water. Adsorption to organic matter as well as to manganese oxide and ferric hydroxide results in precipitation of dissolved vanadium.

Vanadium is fairly mobile in neutral or alkaline soils relative to other metals, but its mobility decreases in acidic soils. In the presence of humic acids, mobile metavanadate anions can be converted to the immobile vanadyl cations resulting in local accumulation of vanadium. Under oxidizing, unsaturated conditions some mobility is observed, but under reducing, saturated conditions vanadium is immobile. Vanadium may be important in soils with high Fe-oxides and soils experiencing redox reactions, as this element has four oxidation states. It occurs in Fe-oxides and is also adsorbed by silicate clay materials. Clay soils studied have more vanadium than other soils. When mafic rocks weather in a humid climate, the vanadium remains in the trivalent state or is weakly oxidized to the relatively insoluble tetravalent state. In either case, the vanadium is captured along with aluminum in the residual clays. Subsequent leaching of the clays can produce bauxite and lateritic iron ores that contain 400 to 500 ppm vanadium. When mafic rocks are intensely oxidized in an arid climate, some of the vanadium is converted to the pentavalent state. The pentavalent cation is considerably more soluble than the trivalent cation, is readily dissolved by groundwater, and can be transported over long distances. Log Kd values for ammonium vanadate determined in 11 soils ranged from 1.035 to 3.347. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# **Zinc**

Zinc is stable in dry air, but upon exposure to moist air it will form a white coating composed of basic carbonate. Zinc loses electrons (oxidizes) in aqueous environments. In the environment zinc is found primarily in the +2 oxidation state. Elemental zinc is insoluble and most zinc compounds show negligible solubility as well, with the exception of elements (other than fluoride) from Group VIIa of the Periodic Table compounded with zinc (i.e., ZnCl<sub>2</sub>, and ZnI<sub>2</sub>) that show a general 4:1 compound to water solubility level. In contaminated waters, zinc often complexes with a variety of organic and inorganic ligands. Therefore, the overall mobility of zinc in an aqueous environment, or through moist to wet soils, may be accelerated by compounding/complexing reactions.

Zinc is readily adsorbed to clay minerals, carbonates, or hydrous oxides. Several authors noted in McLean and Bledsoe (1992) found that the greatest percent of the total zinc found in "polluted" soils and sediments was associated with iron and magnesium oxides. Precipitation of zinc is not a major mechanism of retention of zinc in soils because of the relatively high solubility of zinc compounds. Precipitation may be a more significant mechanism of zinc retention in soil-waste systems. Zinc adsorption increases with pH, and hydrolyzed species are strongly adsorbed to soil surfaces. McLean and Bledsoe (1992) also state that zinc forms complexes with inorganic and organic ligands that will affect its adsorption reactions with the soil surface. Volatilization of zinc is not an important process from soil or water.

### **5.3.2.2** Volatile Organic Compounds

# **Acetone**

Acetone with an estimated  $K_{oc}$  of 1 is expected to be very mobile in a soil matrix and absorption to the soil component is not expected. The Henry's Law Constant (1.87X10<sup>-5</sup> atm-cu m/mol) and vapor pressure suggest that volatilization from dry and wet soil surfaces is expected and the dominant migration pathway for acetone. The Henry's Constant also indicates volatilization from the waters surface is expected and substantial migration pathway. In the water matrix, absorption to suspended solids or sediments is unlikely given the very low  $K_{oc}$  value of 1. (Source: (http://toxnet.nlm.nih.gov)

# **Benzene**

Benzene is very water soluble based upon a  $K_{oc}$  of 85 The low  $K_{oc}$  means benzene is potentially highly mobile within the soil. Benzene is expected to volatilization out from moist soil surfaces due to a Henry's Law constant of 5.56X10-3 atm-cu m/mole; and benzene's vapor pressure indicates it may volatilize from dry soil surfaces. (Source: (http://toxnet.nlm.nih.gov)

#### Ethyl benzene

If released to air, ethyl benzene will exist as a vapor in the ambient atmosphere based upon a vapor pressure of 9.6 mm Hg at 25 deg C. Vapor-phase ethyl benzene will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 55 hr. If released to soil, ethyl benzene is expected to have moderate mobility based upon an estimated Koc of 520. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 7.88X10-3 atm-cu m/mole. Ethyl benzene may volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation in soil takes place via nitrate-reducing processes. If released into water, ethyl benzene may adsorb to suspended solids and sediment in water based upon the estimated Koc. Ethyl benzene was degraded in 8 days in groundwater and 10 days in seawater as a component of gas oil. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant.

Hydrolysis is not expected to occur due to the lack of hydrolyzable functional groups. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### Methyl ethyl ketone

Methyl ethyl ketone (MEK), like benzene, is expected to be highly mobile in soils with a  $K_{oc}$  of 29 and 34 in silt loam. MEK's Henry's Law Constant (4.7x10-5 atm-cu m/mol) and vapor pressure indicate the tendency to volatilize from wet and dry soil surfaces. MEK has the potentially to be biodegrade under aerobic and anaerobic conditions within the soil. In groundwater, MEK is expected to be very water soluble due to its  $K_{oc}$  and not be adsorbed to suspended solids or soils. Volatilization from water is the dominant pathway for migration of MEK. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### **Toluene**

Toluene, like benzene, is expected to be mobile within the soil due to its  $K_{oc}$  ranging from 37-178. Its mobility will vary from being moderate to highly mobile depending on factors influencing the matrix interactions. The Henry's Law Constant (6.64x10-3 atm-cu m/mole) and vapor pressure for toluene indicate it will volatilize from moist and dry surface soils. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# Vinyl chloride (SEAD-121C only)

Vinyl chloride's production and use in the manufacture of polyvinyl chloride (PVC) and other chlorinated compounds may result in its release to the environment through various waste streams. Vinyl chloride is also an anaerobic biodegradation product of higher chlorinated compounds such as tetrachloroethylene and trichloroethylene. If released to air, vinyl chloride will exist exclusively as a gas in the ambient atmosphere based upon a vapor pressure of 2,980 mm Hg at 25 deg C. In the atmosphere gas-phase vinyl chloride will be degraded by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 55 hours. Direct photolysis is not expected to be an important environmental fate process since this compound only absorbs light weakly in the environmental UV spectrum. If released to soil, vinyl chloride is expected to have high mobility based upon an estimated Koc value of 57. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 0.0278 atm-cu m/mole. Vinyl chloride may volatilize from dry soil surfaces based upon its vapor pressure. The volatilization half-life of vinyl chloride was estimated as 0.2 days when incorporated in a soil at a depth of 1 cm and 0.5 days at a depth of 10 cm. Biodegradation is expected to occur slowly in the environment under both aerobic and anaerobic conditions. In the absence of sand 20% and 55% degradation occurred in 4 and 11 weeks, respectively.

If released into water, vinyl chloride is not expected to adsorb to suspended solids and sediment in water based upon the estimated Koc. The biodegradation half-life of vinyl chloride in aerobic and anaerobic waters was reported as 28 and 110 days, respectively. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant.

Estimated volatilization half-lives for a model river and model lake are 1 hour and 3 days, respectively. Hydrolysis is not expected to be an important environmental fate process based on a hydrolysis half-life of 9.91 years at pH 7 and 25 deg C. Vinyl chloride may undergo indirect photolysis in natural waters when photosensitizers such as humic material are available. This process is only expected to be important in sunlit surface waters containing humic material. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# **Xylene**

Xylene, a widely used industrial solvent, is a mixture of ortho-, meta-, and para- isomers. Natural sources of xylene such as petroleum, forest fires and the volatiles of plants may also account for this compounds presence in the environment. Xylene will enter the atmosphere primarily from fuel emissions and exhausts linked with its use in gasoline. Xylene is expected to exist entirely in the vapor phase, based upon an experimental vapor pressure of 7.99 mm Hg at 25 deg C, in the ambient atmosphere. In the atmosphere xylene will degrade by reaction with photochemically-produced hydroxyl radicals with an estimated atmospheric lifetime of about 1-2 days.

Xylene is expected to have moderate to high mobility in soils based upon experimental Koc values obtained with a variety of soils at differing pH values and organic carbon content. The reported Koc value of o-xylene is in the range of 48-68. Mixtures of xylenes in silt clay soil at pH 8.5 and organic carbon content of 0.17 percent have a reported experimental Koc of 365; xylene in silt clay soil at pH 7.0 and organic carbon content of 1.40 percent have a reported experimental Koc of 39. Volatilization from moist soil surfaces is expected based on an experimental Henry's Law constant of 7.0X10-3 atm-cu m/mole. Biodegradation is an important environmental fate process for xylene. In general, it has been found that xylene is biodegraded in soil and groundwater samples under aerobic conditions and may be degraded under anaerobic denitrifying conditions. In water, xylene is expected to adsorb somewhat to sediment or particulate matter based on its measured Koc values. This compound is expected to volatilize from water surfaces given its experimental Henry's Law constant. Estimated half-lives for a model river and model lake are 3 and 99 hours, respectively. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# 5.3.2.3 Semivolatile Organic Compounds

### Bis(2-ethylhexly)phthalate

Bis(2-ethylhexly)phthalate within a soil matrix is expected to be practically immobile given the  $K_{oc}$  ranges 87,420 to 510,000. The Henry's Law Constant (1.3x10-7 atm-cu m/mole) and vapor pressure suggest volatilization from moist or dry soil surfaces are not expected and not a significant migration pathway. The high  $K_{oc}$  values also indicate that in the water matrix it has an affinity for absorption into suspended solids and sediments; and volatilization is also not expected given the Henry's Constant. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### **Butyl benzyl phthalate**

Butyl benzyl phthalate is expected to exist in both the vapor and particulate-phase in the ambient atmosphere due to a measured vapor pressure of 8.25X10-6 mm Hg at 25 deg C. Vapor-phase butyl benzyl phthalate is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an atmospheric half-life of about 35 hours, while particulate-phase butyl benzyl phthalate is removed from the atmosphere by wet and dry deposition.

Butyl benzyl phthalate is expected to have low mobility in soil based upon a measured log Koc value of greater than 4.7. Volatilization from dry soil surfaces is not expected based upon the vapor pressure; however volatilization from moist soil surfaces is expected based upon the estimated Henry's Law constant of 4.78X10-6 atm-cu m/mole and water solubility of 0.71 mg/l at 25 deg C. This compound is expected to biodegrade rapidly in the environment with estimated half-lives in the range of 4 to 13 days. In water, butyl benzyl phthalate is expected to adsorb to sediment or particulate matter given its measured Koc value. This compound is expected to volatilize from water surfaces given its experimental Henry's Law constant. Estimated half-lives for a model river and model lake are 14 and 106 days respectively. Hydrolysis may be an important environmental fate for this compound based upon an estimated hydrolysis half-life of 51 days at pH 8. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

#### Carbazole

Carbazole is released to the atmosphere in emissions from waste incineration, tobacco smoke, aluminum manufacturing, and rubber, petroleum, coal, and wood combustion. If released to the atmosphere, vapor-phase carbazole is rapidly degraded by photochemically produced hydroxyl radicals (estimated half-life of 3 hr). In the particulate phase, the rate of degradation depends upon the adsorbing substrate. Substrates containing carbon (>5%) stabilize carbazole and permit longrange atmospheric transport. Physical removal via wet and dry deposition is important. If released to soil, environmental substrates that commonly adsorb carbazole may limit or prevent photolysis. Based on the UV absorption spectra(1), carbazole may photolyze if spilled on soil surfaces(SRC); however, environmental substrates that commonly adsorb carbazole will limit or prevent photolysis(9). Data are available which suggest that carbazole may be susceptible to rapid aerobic and anaerobic biodegradation in soil and water provided specific degrading bacteria are present (2-6). Although all of these studies are not specific to soil media, they suggest that biodegradation in soil may be important(SRC). An average Koc value of 637(7) indicates low mobility in soil(8,SRC). Biodegradation in soil should be the dominant fate process providing the presence of specific degrading bacteria in the microbial community (biodegradation half-life of 4.3 min-6.2 hr in screening studies). If released to water, volatilization and bioconcentration in aquatic organisms will not be important. Volatilization will not be important(5) based on an estimated Henry's Law constant of 8.65X10-8 atm-cu m/mole at 25 deg C(4). Carbazole should be metabolized to its N-methyl and N-acetyl derivatives in aquatic organisms(6). Sorption of carbazole to sediments is nonlinear and

highly correlated with organic content (average Koc of 637)(7). Biodegradation and photolysis should be the dominant fate processes in water systems providing specific degrading bacteria and sufficient sunlight. However, carbazole may partition from the water column to sediment and suspended matter limiting the rate of photolysis. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

#### Dibenzofuran

Dibenzofuran with a  $K_{oc}$  of 4,200 is expected to be slightly mobile in the soil matrix. The Henry's Law Constant (2.1x10-4 atm-cu m/mole) suggests volatilization from moist soil surfaces is expected and has fate implications. However, volatilization from soil is expected to be hampered by the adsorption to soil. Volatilization from dry soil is also not expected based upon its vapor pressure. Dibenzofuran's  $K_{oc}$  also indicates absorption to suspended solids and sediments is expected to detract from the volatilization of it from surface water. (Source: http://toxnet.nlm.nih.gov)

# Diethyl phthalate

Diethyl phthalate's production and use as a plasticizer, solvent for resins, wetting agent and insect repellent may result in its release to the environment through various waste streams. Based on a measured vapor pressure of 2.1X10-3 mm Hg at 25 deg C, diethyl phthalate is expected to exist primarily in the vapor-phase in the ambient atmosphere. Vapor-phase diethyl phthalate is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an atmospheric half-life of about 110 hours. Diethyl phthalate is expected to have moderate to low mobility in soil based upon experimental Koc values in the range of 320-1,726 measured in various soils at different pH and organic carbon content. Volatilization from dry soil surfaces is not expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is not expected to be important based upon the estimated Henry's Law constant of 6.1X10-7 atm-cu m/mole and water solubility of 1X10+3 mg/l at 25 deg C(5). In water, biodegradation of diethyl phthalate is expected to occur under aerobic and anaerobic conditions with estimated half-lives of about 3 and 28 days, respectively. Diethyl phthalate is expected to adsorb to sediment or particulate matter given its measured Koc values. This compound is expected to slowly volatilize from water surfaces given its estimated Henry's Law constant. Estimated half-lives for a model river and model lake are 89 and 652 days, respectively. Hydrolysis is expected to occur slowly with an estimated half-life of 110 days at pH 8. (Source: http://toxnet.nlm.nih.gov)

#### Fluorene

Fluorene occurs in fossil fuels. Its release to the environment is wide spread since it is a ubiquitous product of incomplete combustion. It is released to the atmosphere in emissions from the combustion of oil, gasoline, coal, wood and refuse. If released to the atmosphere, fluorene will exist primarily in the vapor phase where it will degrade readily by photochemically produced hydroxyl radicals (estimated half-life of 29 hr). Particulate phase fluorene (such as fluorene associated with fly ash) can be removed from air physically via wet and dry deposition; fluorene has been detected in rain, snow

and fog samples. Some particulate phase fluorene can be stable to photo-oxidation which will permit its long range global transport. If released to soil or water, fluorene will biodegrade readily (aerobically) in the presence of acclimated microbes; microbial adaptation is an important fate process. Measured log Koc values of 3.70-4.21(6-8) indicate that fluorene is generally immobile in soil(SRC). Volatilization from soil surfaces does not appear to be an important environmental fate process(9). Biodegradation can be slow in pristine soils or waters (or under conditions of limited oxygen). Strong adsorption to soil and water sediment is an important transport process; fluorene has been detected in numerous, widespread sediment samples. The half-life of fluorene in soil has been reported to range from 2 to 64 days. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# **PAHs**

The PAHs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)pyrene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, flouranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene, were found in soils sampling locations. As described in **Section 4.4.1.2**, PAHs are relatively immobile, having a high affinity for organic matter.

#### 5.3.2.4 Pesticides/PCBs

# 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT

DDD, DDE, and DDT are expected to be immobile within a soil matrix based upon their respective  $K_{oc}$  values. The absorption to soil will weaken volatilization from moist soil and based upon the vapor pressure volatilization from dry soil is not expected. The three are expected to be absorbed by suspended solids or sediment in the water column based on their  $K_{oc}$  values. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

#### Aldrin

Aldrin's former use as a pesticide resulted in its direct release to the environment. If released to air, a vapor pressure of 1.2X10-4 mm Hg at 25 deg C indicates aldrin will exist solely in the vapor-phase in the ambient atmosphere. Vapor-phase aldrin will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 6 hrs. Aldrin has a UV absorption max of 227 nm and photodegradative half-life of 113 hrs and dieldrin is the primary photoproduct. If released to soil, aldrin is expected to have moderate to no mobility based upon a range of Koc values of 400-28,000. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 4.4X10-5 atm-cu m/mole. However, adsorption to soil is expected to attenuate volatilization. A loss of 50% of surface applied aldrin to soil was estimated to occur within 1-2 weeks after application compared to 10-15 weeks for soil-incorporated aldrin. Aldrin was classified as moderately persistent with a half-life in soil ranging from 20-100 days. In soil, aldrin is converted to dieldrin by epoxidation, which occurs in aerobic and biologically-active soils. If released into water, aldrin is expected to adsorb to suspended

solids and sediment based upon the range of Koc values. A river die-away test was conducted in capped bottles with aldrin in raw water from the Little Miami River in Ohio. After 2, 4, and 8 weeks, 20, 60, and 80% of the initial amount of aldrin had degraded. Aldrin may be degraded rapidly under anaerobic conditions based on an anaerobic wastewater study. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. In a laboratory study using distilled water, the volatilization half-life of aldrin was 5.8 days at 30 deg C and a depth of approximately 1 cm. Experimental BCF values ranging from 735 to 20,000 suggest that bioconcentration in aquatic organisms is high to very high. Hydrolysis is not expected to occur due to the lack of hydrolyzable functional groups. (Source: http://toxnet.nlm.nih.gov)

# <u>Alpha-chlordane (SEAD-121C only)</u>

No fate and transport information could be found for alpha-chlordane through the following source. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### **Delta-BHC (SEAD-121C)**

Delta-Hexachlorocyclohexane's (Delta-BHC) former production and use as a component in the insecticide BHC resulted in its release to the environment through various waste streams. If released to air, a vapor pressure of 3.5X10-5 mm Hg at 25 deg C, indicates that delta-hexachlorocyclohexane is expected to exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase delta-hexachlorocyclohexane will be degraded in the atmosphere by reaction with photochemicallyproduced hydroxyl radicals; the half-life for this reaction in air is estimated to be 28 days. Particulate-phase delta-hexachlorocyclohexane will be removed from the atmosphere by wet and dry deposition. If released to soil, delta-hexachlorocyclohexane is expected to have low mobility based upon Koc values of 700-2,700 measured in 2 oil contaminated soils. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 4.3X10-7 atm-cu m/mole and water solubility, 31.4 mg/l at 25 deg C(4). Delta-Hexachlorocyclohexane is not expected to volatilize from dry soil surfaces based upon its vapor pressure. This compound is expected to biodegrade slowly based upon half-lives of 33.9 and 23.4 days on cropped and uncropped soils. If released into water, delta-hexachlorocyclohexane is expected to adsorb to suspended solids and sediment in the water column based upon its measured Volatilization from water surfaces is expected to occur slowly based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 146 days and 3 years, respectively. (Source: http://toxnet.nlm.nih.gov)

# **Dieldrin**

Dieldrin's former production and use as an insecticide resulted in its direct release to the environment. Dieldrin is also a degradation product of the insecticide aldrin, and the former use of aldrin has contributed to the occurrence of dieldrin in the environment. If released to air, a vapor pressure of 5.89X10-6 mm Hg at 25 deg C indicates dieldrin will exist in both the vapor and particulate phases in

the ambient atmosphere. Vapor-phase dieldrin will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. The half-life for the reaction with hydroxyl radicals in air is estimated to be 42 hours. Dieldrin also undergoes direct photolysis in the environment yielding photodieldrin as the primary degradation product. Particulate-phase dieldrin will be removed from the atmosphere by wet and dry deposition. If released to soil, dieldrin is expected to have low to no mobility based upon Koc values of 1,957 to 23,310 measured in soil and sediment. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 1X10-5 atm-cu m/mole; however adsorption may attenuate this process. Dieldrin was volatilized 90 percent in 30 days when applied to vegetation and 20 percent in 50 days when applied to a moist soil surface. Approximately 3.6 percent dieldrin was volatilized in 167 days when incorporated in a soil at a depth of 7.5 cm. Dieldrin degrades slowly in soil surfaces with a reported half-life of about 7 years in field studies. If released into water, dieldrin is expected to adsorb to suspended solids and sediment in water based upon the Koc data. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. However, volatilization from water surfaces is expected to be attenuated by adsorption to suspended solids and sediment in the water column. The estimated volatilization half-life from a model pond is 7 years when adsorption is considered. The hydrolysis half-life of dieldrin has been reported as greater than 4 years. BCF values of 3,300 to 14,500, measured in fish, suggest bioconcentration in aquatic organisms is very high. (Source: http://toxnet.nlm.nih.gov)

# **Endosulfan I**

Endosulfan I is of the same general chemical and their environmental fate properties are generally similar. Generally the  $K_{oc}$  in a soil matrix is 2,000 and indicates a low mobility for the two chemicals. The vapor pressure is expected to hinder volatilization from dry surface soils; and the Henry's Law constant (6.6x10-5 atm-cu m/mole at 20 deg C) suggest volatilization from wet soil surfaces is expected to be limited due to absorption. The volatilization from wet soils surfaces is a dominant migration pathway. Biodegradation in aerobic and anaerobic conditions within soil also can have a significant influence in both chemicals fate processes. In the water matrix the  $K_{oc}$  is expected to dominate reactions with absorption to suspended solids and sediment; and volatilization from the waters surface is limited by this absorption. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# **Endrin**

Endrin with a  $K_{oc}$  of 11,420 has no mobility within a soil matrix and this high  $K_{oc}$  suggests it prefers partitioning to soil than volatilization and is considered recalcitrant in soil. The Henry's Law Constant (6.4x10-6 atm-cu m/mole) indicates that volatilization from moist soil surfaces is expected and a major factor in its fate. Endrin is not expected in water given its high  $K_{oc}$  and absorption to suspended solids and sediments is the preferred pathway of migration. However, volatilization from the water surface takes place but absorption is the dominant partitioning processes within the water matrix. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### **Endrin ketone (SEAD-121C only)**

Endrin ketone (chemically similar to endrin aldehyde) has a  $K_{oc}$  (4,300) suggesting it is slightly mobile within a soil matrix. The Henry's Law Constant (4.2x10-6 atm-cu m/mole) indicates that volatilization from moist soil surfaces is slow. Absorption into suspended solids or sediments is not expected given the  $K_{oc}$  value estimated. However, absorption is expected to lessen the volatilization from the surface of the water; volatilization from the surface of water based upon the Henry's Constant, is not expected to be a major fate processes. (Source: http://toxnet.nlm.nih.gov)

# **Heptachlor Epoxide**

Heptachlor epoxide has a strong affinity for the soil matrix and is biodegradation opportunities are limited. Volatilization from the soil surface is limited to photodegradation and downward migration is not substantial. In the water matrix absorption to suspended solids or sediment is the dominant migration pathway and volatilization from surface waters is expected limited due to need for photolysis. Biodegradation in the water matrix is not expected to be substantial compared to the absorption. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

### Aroclor-1242 (SEAD-121C only)

Aroclor 1242 is a mixture of different congeners of chlorobiphenyl. The approximate distribution of chlorinated biphenyls in Aroclor 1242 is as follows: 3% mono-, 13% di-, 38% tri-, 30% tetra-, 22% penta-, and 4% hexachlorobiphenyls. The relative importance of the environmental fate mechanisms generally depends on the degree of chlorination. In general, the persistence of the PCB congeners increase with an increase in the degree of chlorination. If released to air, estimated vapor pressures ranging from 1.2X10-3 to 5.8X10-7 mm Hg at 25 deg C indicate Aroclor 1242 will exist in both the vapor and particulate phases in the ambient atmosphere, with enrichment of PCBs with the highest vapor pressure (low chlorine). Vapor-phase Aroclor 1242 will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to range from 4.6 to 98 days. Physical removal of PCBS in the atmosphere is accomplished by wet and dry deposition processes; dry deposition will be important only for the PCB congeners associated in the particulate phase. The relatively long degradation half-lives in air indicate that physical removal may be more important than chemical transformation. If released to soil, Aroclor 1242 is expected to adsorb strongly and be immobile based upon estimated log Koc values ranging from 4.0 to 5.1. Aroclor 1242 should not leach significantly in most aqueous soil systems, although the most water soluble PCBs will be leached preferentially. In the presence of organic solvents, which may be possible at waste sites, PCBs may have a tendency to leach through soil. Volatilization from moist soil surfaces is expected to be an important fate process based upon estimated Henry's Law constants ranging from 3.1X10-4 to 6.9X10-5 atm-cu m/mole. Although the volatilization rate of Aroclor 1242 may not be rapid from soil surfaces due to the strong adsorption, the total loss by volatilization over time may be significant because of the persistence and stability of Aroclor 1242. Studies show biodegradation in soil occurs, but slowly. A static flask screening procedure measured

0-66% degradation in 28 days of Aroclor 1242 concentrations at 5 and 10 ppm. <1-27% CO2 evolution was measured after 63 days of inoculation in Altamont soil. If released into water, Aroclor 1242 is expected to adsorb to suspended solids and sediment based upon the estimated  $K_{oc}$ s. The lower chlorinated congeners of Aroclor 1242 will sorb less strongly than the higher chlorinated congeners. Screening tests show that Aroclor 1242 in water is expected to biodegrade slowly. A static flask screening procedure utilizing BOD dilution water and settled domestic wastewater inoculum was conducted. It has also been shown that the more highly chlorinated congeners in Aroclor 1242 are susceptible to reductive dechlorination by anaerobic microorganisms found in aquatic sediments. Abiotic transformation processes such as hydrolysis and oxidation do not significantly degrade Aroclor 1242 in the aquatic environment. Volatilization from water surfaces is expected to be an important fate process based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 2.5 to 87 hrs and 6 to 46 days, respectively. Although adsorption can immobilize PCBs for relatively long periods of time in the aquatic environment, resolution into the water column has been shown to occur. Experimental BCF values of 3,600-43,000 suggest bioconcentration in aquatic organisms is very high. http://toxnet.nlm.nih.gov)

# Aroclor-1254

Aroclor 1254 is a mixture of different congeners of chlorobiphenyl. The approximate distribution of chlorinated biphenyls in Aroclor 1254 is: <0.1% di-, 1.8% tri-, 17.1% tetra-, 49.3% penta-, 27.8% hexa-, 3.9% hepta-, <0.05% octa-, and <0.05% nonachlorobiphenyl. The relative importance of the environmental fate mechanisms generally depends on the degree of chlorination. In general, the persistence of the PCB congeners increase with an increase in the degree of chlorination. If released to the atmosphere, the PCB congeners in Aroclor 1254 will exist in both the vapor-phase and particulate phase based on estimated vapor pressures ranging from 8.5X10-6 to 1.3X10-7 mm Hg for the dominant congeners. The dominant atmospheric transformation process for these congeners is the vapor-phase reaction with hydroxyl radicals. The half-lives for this reaction range from 22 to 79 days. Particulate phase Aroclor 1254 will be removed from the atmosphere through wet and dry deposition. If released to soil, the PCB congeners present in Aroclor 1254 will become strongly adsorbed to the soil particles based on experimental log Koc values ranging from 5.0 to 6.1. Screening studies indicate that Aroclor 1254 is generally resistant to biodegradation in soils. Although the volatilization rate of Aroclor 1254 may be low from soil surfaces, the total loss by volatilization over time may be significant because of the persistence and stability of Aroclor 1254. Enrichment of the low chlorine PCBs will occur in the vapor phase relative to Aroclor 1254; the residue will be enriched in the PCBs containing high chlorine content. Based on estimated Henry's law constants ranging from 2.2X10-4 to 3.4X10-4 atm-cu m/mole, Aroclor 1254 is expected to have a volatilization half-life from a model river and lake ranging from 5.5 to 6.2 hrs and 8.8 to 9.4 days, respectively. However, volatilization from water surfaces is expected to be attenuated by adsorption to suspended solids and sediment in the water column. Although adsorption can immobilize Aroclor 1254 for relatively long periods of time, eventual re-solution into the water column will occur. The PCB composition in

water will be enriched in the lower chlorinated PCBs because of their greater water solubility while the least water soluble PCBs (higher chlorine content) will remain adsorbed. Although the resulting volatilization rate may be low due to strong adsorption, the total loss by volatilization over time may be significant because of the persistence and stability of Aroclor 1254. (Source: <a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>)

# Aroclor-1260

Aroclor 1260 is a mixture of different congeners of chlorobiphenyl. The approximate distribution of chlorinated biphenyls in Aroclor 1260 is: <0.3% tri-, <0.3% tetra-, 9.2% penta-, 46.9% hexa-, 36.9% hepta-, 6.3% octa-, and 0.7% nonachlorobiphenyl. The relative importance of the environmental fate mechanisms generally depends on the degree of chlorination. In general, the persistence of the PCB congeners increase with an increase in the degree of chlorination. If released to the atmosphere, the PCB congeners in Aroclor 1260 will exist in both the vapor-phase and particulate phase based on an estimated vapor pressure values ranging from 2.2X10-6 to 2.87X10-8 mm Hg for the dominant congeners. The dominant atmospheric transformation process for these congeners is the vapor-phase reaction with hydroxyl radicals. The half-lives for this reaction range from 48 to 290 days. Particulate phase Aroclor-1260 will be removed from the atmosphere through wet and dry deposition. If released to soil, the PCB congeners present in Aroclor 1260 will become tightly adsorbed to the soil particles based on experimental log Koc values ranging from 4.8 to 6.8. Screening studies indicate that Aroclor 1260 is generally resistant to biodegradation in soils. Although the volatilization rate of Aroclor 1260 may be low from soil surfaces, the total loss by volatilization over time may be significant because of the persistence and stability of Aroclor 1260. Enrichment of the low chlorine PCBs will occur in the vapor phase relative to Aroclor 1260; the residue will be enriched in the PCBs containing high chlorine content. Based on an estimated Henry's law constant ranging from 1.8X10-5 to 7.4X10-5 atm-cu m/mole, Aroclor 1260 is expected to have a volatilization half-life from a model river and lake ranging from 16 to 70 hrs and 14 to 39 days, respectively. However, volatilization from water surfaces is expected to be attenuated by adsorption to suspended solids and sediment in the water column. Although adsorption can immobilize Aroclor 1260 for relatively long periods of time, eventual resolution into the water column will occur. The PCB composition in water will be enriched in the lower chlorinated PCBs because of their greater water solubility while the least water soluble PCBs (higher chlorine content) will remain adsorbed. Although the resulting volatilization rate may be low due to strong adsorption, the total loss by volatilization over time may be significant because of the persistence and stability of Aroclor 1260. Aroclor 1260 is known to bioconcentrate significantly in aquatic organisms. (Source: http://toxnet.nlm.nih.gov)

## 6.0 BASELINE HUMAN HEALTH RISK ASSESSMENT

This section of the SEAD-121C and SEAD-121I Remedial Investigation (RI) report presents the human health baseline risk assessment (BRA) that was performed for the Defense Reutilization and Marketing Office (DRMO) Yard (SEAD-121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I) at the Seneca Army Depot Activity (SEDA or the Depot) in Romulus, New York (hereafter referred to as the sites). The ecological risk assessment is presented in Section 7.0.

This baseline human health risk assessment was conducted in accordance with the United States Environmental Protection Agency (USEPA) (1989) *Risk Assessment Guidance for Superfund* (RAGS) and the supplemental guidance and updates to the RAGS. Technical judgment, consultation with USEPA staff, and recent publications were used in the development of the risk assessment. The overall objective of the baseline human health risk assessment was to assess potential risks to current and reasonably anticipated future human receptors resulting from the release of, and exposure to, hazardous substances at the sites. The results of the risk assessment were used to identify whether a corrective action may be warranted.

## 6.1 SECTION ORGANIZATION

This baseline human health risk assessment section is organized as follows:

# **Conceptual Site Model (Section 6.2)**

A Conceptual Site Model (CSM) has been developed for the sites for the human health risk characterization. This section presents sources and types of contaminants present at the sites; contaminant release and transport mechanisms; affected media; potential receptors that could contact site-related contaminants in affected media under current and future land use scenarios; and potential routes of exposure.

# **Data Evaluation (Section 6.3)**

This section identifies the site data that were included in the baseline risk assessment. Background soil and groundwater data collected from the SEDA are presented in this section. A brief discussion of the data validation is also presented in this section.

# **Identification of Chemicals of Potential Concern (Section 6.4)**

A site-specific screening was performed to identify chemicals of potential concern (COPCs) for each affected medium at the sites. This section presents the methodology and results of the screening.

# **Exposure Assessment (Section 6.5)**

This section presents the exposure point concentrations (EPCs) for the affected media, plausible exposure factors for identified receptors and exposure pathways, and exposure quantitation approach for the baseline human health risk assessment.

# **Toxicity Assessment (Section 6.6)**

This section presents oral, inhalation, and dermal toxicity values used in the human health risk calculations. The USEPA recommended human health toxicity value hierarchy was used to identity toxicity values for this BRA.

## Risk Characterization (Section 6.7)

This section presents the risk calculations for all human health exposure pathways for the current and future land use scenarios. Non-carcinogenic and carcinogenic risk estimates are summarized for each receptor and exposure pathway.

## **Uncertainty Analysis (Section 6.8)**

This section discusses uncertainty associated with the baseline human health risk assessment. The uncertainty associated with key variables and major assumptions used in the four major steps (site characterization and data evaluation, exposure assessment, toxicity assessment, and risk characterization) of the risk assessment are discussed to address their potential impacts on the results of the baseline human health risk assessment.

# **COC Identification (Section 6.9)**

A further evaluation of COPCs contributing to elevated potential risks, if any, based on the risk characterization is presented in this section. Final chemicals of concern (COCs) identified for the sites are presented in this section.

## Comparison of Chemicals Detected in Site Samples to ARARs and TBCs (Section 6.10)

A comparison of chemicals detected at the sites to the identified Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) criteria was conducted and presented in this section.

# **Summary and Conclusions (Section 6.11)**

This section summarizes overall findings based on the baseline human health risk assessment.

## 6.2 CONCEPTUAL SITE MODEL

Potential sources of contamination, exposure pathways, and receptors are depicted in the CSMs for SEAD-121C and SEAD-121I presented in **Figures 6-1A** and **6-1B**, respectively. The CSM provides an overall assessment of the primary and secondary sources of contamination at the sites, and the corresponding release mechanisms and affected media. The CSM also identifies the potential human receptors and the associated pathways of exposure to the affected media. The CSM is further discussed below.

# 6.2.1 Sources, Release Mechanisms, and Affected Media

The contaminant source areas, release mechanisms, and affected media for each site are discussed in **Sections 1** and **4** of the report and are summarized below:

## SEAD-121C

The source of contamination at SEAD-121C (DRMO Yard) results from the materials that were brought into the DRMO Yard for sorting, evaluation, and re-distribution. The materials found at the DRMO Yard included scrap metal, wood debris, ordnance components, batteries, tiles, oil filters, auto parts, paint cans, and tires. Historically, there was a rapid turnaround of materials and vehicles stored in this area. Presently, several areas composed of concrete barriers and concrete blocks are located within the site and during the site visits conducted in 2002 and 2003, Parsons observed that scrap metal, military items, and old machines were still present in these areas. The primary release mechanisms from the site include soil particles resuspension and deposition, surface water runoff, and the infiltration of precipitation through the source areas.

Polycyclic aromatic hydrocarbons (PAHs) and metals were detected in soil and ditch soil above New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) TBCs. Metals and bis(2-ethylhexyl)phthalate were detected in surface water above New York State (NYS) Ambient Water Quality Standard (AWQS) Class C for Surface Water. Metals were detected in groundwater above the lowest applicable groundwater standard.

Benzene, seven polycyclic aromatic hydrocarbons [PAHs; benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd) pyrene], three aroclors (i.e., 1242, 1254, and 1260), dieldrin, and five metals (antimony, arsenic, copper, iron, and lead) were detected in soil and ditch soil above USEPA Region IX residential

preliminary remediation goals (PRGs). Eight metals (arsenic, cadmium, chromium, iron, lead, manganese, thallium and vanadium) were detected in surface water above USEPA Region IX tap water PRGs. None of the chemicals detected in the groundwater at SEAD-121C were found at levels above the USEPA Region IX tap water PRGs.

## **SEAD-121I**

Information provided by the Army indicates that the loading docks at the Rumored Cosmoline Oil Disposal Area (SEAD-121I) were used for delivery of equipment and machinery that was frequently packed in or coated with Cosmoline (oil). During delivery and unpacking of the equipment and machinery, Cosmoline may have been released to the ground. The results of the investigation showed no evidence of any systemic release of Cosmoline oil. Two piles of ferro-manganese ore, which are part of the United States' strategic stockpile of raw materials, are staged directly on the ground within SEAD-121I, and these are the likely source of elevated concentrations of iron and manganese detected in the soils within the area. PAHs detected in the vicinity of SEAD-121I were likely a result of either roofing or maintenance operations at the surrounding warehouses or the historic and continuing truck traffic to and from neighboring active warehouses. The primary release mechanisms from the site are soil particles resuspension and deposition, surface water runoff, and infiltration of precipitation through the potential source areas.

PAHs, heptachlor epoxide, and metals were detected in soil and ditch soil above NYSDEC TAGMs, which are TBC criteria. Metals were detected in surface water above NYS AWQS Class C for Surface Water.

Seven PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd) pyrene], two chlorinated pesticides (dieldrin and heptachlor epoxide), and six metals (arsenic, chromium, iron, manganese, thallium and vanadium) were detected in soil above USEPA Region IX residential PRGs. All of the PAHs and four of the metals (arsenic, iron, manganese, and thallium) were also found in samples of the SEAD-121I ditch soils at levels above the USEPA Region IX residential soil PRGs. Lead was detected in surface water above USEPA Region IX tap water PRGs. No groundwater samples were collected at SEAD-121I, because the water table was not found in the overburden.

# **6.2.2** Fate and Transport

The environmental fate and transport associated with the general classes of chemicals found at SEAD-121C and SEAD-121I is presented in **Section 5** and is discussed briefly below.

## **Volatile Organic Compounds**

Volatile organic compounds (VOCs) were detected with a low frequency of detection in soil at SEAD-121C and SEAD-121I, and the concentrations found were generally below USEPA Region IX residential soil PRGs and below the NYSDEC TAGM TBCs. Because of the low frequency of detection and low concentrations, the sites are not significantly impacted by VOCs and volatilization of VOCs was not considered significant in this assessment.

## **Semivolatile Organic Compounds**

The principal semivolatile organic compounds (SVOCs) found in soil SEAD-121C and SEAD-121I were PAHs. Generally, these constituents are relatively persistent and immobile in the environment. Transport of PAHs is limited due to their low water solubility and strong soil affinity. Several SVOCs [di-n-butylphthalate, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, and fluoranthene] were detected in the groundwater and/or the surface water at SEAD-121C and SEAD-121I with low frequency of detection.

## Pesticides/PCBs

Pesticides and polychlorinated biphenyls (PCBs) were found in soil at both sites. Exceedances of the Region IX residential soil PRG were observed for dieldrin at both SEAD-121C and 121I and for heptachlor epoxide at SEAD-121I; three aroclor congeners (aroclor-1242, 1254, and 1260) were also found at concentrations above the Region IX residential soil PRGs at SEAD-121C. All other pesticides and PCBs were detected below Region IX residential PRGs and NYSDEC's TAGM criteria. Affinity for absorption into the soil reduces the transport potential of pesticides. Low concentrations of pesticides can dissolve into water but absorption to soil is the dominant partitioning route. Transport of suspended solids and sediment in groundwater or surface water is a potential transportation mechanism. Surface water flow across the sites is expected to be more significant than groundwater flow due to the low hydraulic groundwater gradient at SEAD-121C and SEAD-121I. No pesticides or PCBs were detected in groundwater or surface water samples collected from SEAD-121C and SEAD-121I.

## Metals

The metals detected at SEAD-121I were deposited from the surface water runoff of the ferrous-manganese ore piles (as discussed previously). The ore piles are part of the United States' strategic stockpile of raw materials. The behavior of metals in soil is unlike organic compounds in many aspects. For example, volatilization of metals from soil is not considered a realistic mechanism for pollutant migration. Leaching and sorption are considered potential mechanisms for metal transport. Leaching of metals from soil is controlled by numerous factors. The most important factor is the chemical form (base metal or cation) in the soil. The leaching of metals from soils is substantial if the

metal exists as a soluble salt. Upon contact with surface water or precipitation, the metals, either as metal oxides or metal salts, can be solubilized, eventually leaching to the groundwater. Multiple metals were found in soil and surface water at SEAD-121C and SEAD-121I; and in groundwater at SEAD-121C. Five metals (antimony, arsenic, copper, iron and lead) exceeded Region IX residential soil PRGs and most metals exceeded NYSDEC TAGM values at SEAD-121C; six metals (arsenic, chromium, iron, manganese, thallium and vanadium) exceeded Region IX residential soil PRGs and most metals exceeded NYSDEC TAGM values at SEAD-121I. Groundwater samples from SEAD-121C and surface water samples from SEAD-121I had exceedances of respective NYSDEC GA groundwater standards for several metals, although none of the groundwater levels measured for metals at SEAD-121C exceeded the Region IX tap water PRG. Surface water samples from SEAD-121C exhibited exceedance of the Region IX tap water PRG for eight metals (arsenic, cadmium, chromium, iron, lead, manganese, thallium, and vanadium) and several also exceeded NYSDEC AWQS Class C levels. Only lead exceeded the Region IX tap water PRGs at SEAD-121I, while several other metals exceeded NYSDEC AWQS Class C levels.

## 6.2.3 Physical Setting and Characteristics

The physical setting and characteristics of the sites are described in **Section 1** of this report and are discussed briefly below. SEAD-121C and SEAD-121I are located in the east-central portion of the SEDA facility near the rounded top of a geologic formation separating two of the Finger Lakes. Glacial till varying in depth from a few feet to as much as 20 feet is the predominant geological unit at the SEDA. Bedrock underlies the glacial till at SEDA. Groundwater is typically less than 10 feet below ground surface (bgs) at the sites and groundwater flow is generally to the south-west.

The physical characteristics of SEAD-121C have been described in the preceding sections. In summary, SEAD-121C (DRMO Yard) is a triangularly shaped, gravel lot located in the east-central portion of the Depot (Figure 1-3). Several building (Buildings 360, 316, and 317) are located adjacent and east of the site, and one building (Building T-355) is located within the site boundaries. Building T-355 is located in the central part of the DRMO Yard and is used for storage. The DRMO Yard is surrounded by chain-linked fence and access into the site is limited by a single gate, which is normally locked. The access is located south of Building 360. The surface of the DRMO Yard is graded to allow surface water to drain toward the man-made ditches that bound the site on the north and south sides. In addition to Building T-355, several other man-made features are prominent within the DRMO Yard; these features include: a ladled-shaped, earthen bottomed, storage cell in the southwest corner of the site; a rectangular shaped, earthen bottomed, storage cell immediately adjacent to, and halfway along the northwest perimeter fence of the site; and a multi-chambered, concrete bottomed, storage cell adjacent to the east perimeter fence, near the northern-most point of the DRMO Yard. Each of the storage cells is bounded horizontally on three sides by concrete (jersey) barriers. A silo-like structure was also found inside the fence of the DRMO Yard, adjacent to the northern edge of Building 360. Furthermore, a large crane was located in the northern portion of the Yard, north of the silo-like structure and Buildings 360 and 316. Train tracks were observed to

approach the DRMO Yard from the north, with one spur ending at Building 317, a second ending at Building 316, while a third spur extended to the area between Building 316 and Building 360.

The physical characteristics of SEAD-121I (Rumored Cosmoline Oil Spill Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-121I are two rows of buildings that are actively used for warehousing. Buildings 331 and 329 located to the west and across Avenue C receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-121I is overland flow to ruts located along the sides of roadways, to catch basins and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1,000 feet) west of SEAD-121I. From here, surface water flow either infiltrates into the ground or during high flow periods may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake at a location north of Pontius Point and the SEDA's former Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-121I may move easterly toward Cayuga Lake.

Two ferrous-manganese ore piles are located within the site; one ore pile is in the first (north to south) block and the other ore pile is in the third (north to south) block. These ore piles are part of United States' Strategic Stockpile. The ore piles are exposed to the weather and run off surface water is collected by the existing storm water collection system within the Planned Industrial Development (PID) area. The ore piles are expected to be removed from SEAD-121I at a future time.

# 6.2.4 Land Use and Potentially Exposed Populations

The SEDA is a 1995 Base Realignment and Closure (BRAC) facility, and the Army is attempting to transfer the property for redevelopment and reuse by private and public parties. As part of the BRAC process, current and future land use of areas within SEDA were established in 1995, and these are now being updated by the local land redevelopment authority. This section discusses the current and future land use of SEAD-121C and SEAD-121I.

#### **6.2.4.1** Current Land Use

SEDA was closed in September of 2000 and military operations at these sites ceased. SEAD-121I is surrounded by active warehouses. SEAD-121C is bounded on two sides by vacant space, and on one

side by inactive industrial facilities. Neither SEAD-121C nor SEAD121I is currently occupied, and only infrequently do any personnel visit these sites for periodic inspections or other reasons. There are no drinking water supply wells at SEAD-121C or SEAD-121I, and connections to a public water supply system exist throughout the Depot's former administrative, industrial and warehouse area.

#### 6.2.4.2 Potential Future Land Use

In 1995, the SEDA was selected for closure under DoD's BRAC process. Congress approved the recommendation, which became public law on October 1, 1995.

In accordance with BRAC regulations, the Army will notify all appropriate regulatory agencies and will perform any additional investigations and remedial actions to assure that any changes in the intended use of the sites is protective of human health and the environment in accordance with CERCLA. As part of the 1995 BRAC process, a Land Redevelopment Authority (LRA) comprised of representatives of the local public was established. This group commissioned a study to recommend future uses of the Seneca Army Depot. The Land Reuse Plan produced by the LRA designated various uses for different parcels of SEDA ["Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity" (RKG Associates, Inc., 1996)]. The Land Reuse Plan is the basis of future land use assumptions for SEAD-121C and SEAD-121I included in this risk assessment. Figure 1-7 shows the intended future land use of each parcel of SEDA. As shown in Figure 1-7, SEAD-121C and SEAD-121I are located in the Planned Industrial/Office Development parcel. That is, the planned future land use for SEAD-121C and SEAD-121I is industrial development.

All land within the PID area, which includes SEAD-121C and SEAD-121I, is subject to conditions of a separate finalized ROD that include institutional controls (ICs) ["Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" signed on September 28, 2004 (Parsons, 2004)]. The land use control performance objectives include:

- Prevent the development of residential housing, elementary and secondary schools, childcare facilities and playgrounds; and,
- Prevent access to or use of the groundwater until Class GA Groundwater Standards are met.

With USEPA approval, once groundwater cleanup standards are achieved, the groundwater use restrictions may be eliminated. Former solid waste management units that are still subject to CERCLA remedial actions or investigations, including SEAD-121C and SEAD-121I, have been retained by the Army pending completion of the CERCLA process.

# **6.2.4.3** Potentially Exposed Populations

Potentially exposed populations that are relevant to the current and future land use have been identified in this risk assessment as follows:

- Future Construction Worker:
- Future Industrial Worker; and
- Current/Future Adolescent Trespasser.

## **Current/Future Construction Worker**

Current/future construction workers will potentially be involved in site construction work. The workers are expected to be exposed to contaminants in soil via ingestion, dermal contact, and inhalation of particulates generated from contaminated soils such as surface soil, subsurface soil, and ditch soil. In addition, exposure to contaminants in groundwater and surface water may occur as a result of dermal contact. Intake of groundwater may be possible and is included in the exposure scenarios.

# Future Industrial Worker

SEAD-121C and SEAD-121I are located within the PID Area, and the planned future use of the sites is industrial. The future industrial worker is a potential receptor at the sites and may be exposed to contaminants in soil via ingestion, dermal contact, and inhalation of particulates generated from soils such as surface soil and ditch soil. In addition, exposure to contaminants in groundwater may occur as a result of intake.

## **Current Adolescent Trespasser/Future Adolescent Visitor**

SEDA is fenced to limit access and is occasionally patrolled by site security and local law enforcement personnel. It is also located in a sparsely populated, rural, agricultural area. It is unlikely for anyone to trespass SEAD-121C or SEAD-121I. As a conservative measure, adolescent trespassers (ages 11 to 16 yr) were selected as a potential receptor. Adolescent trespassers were assumed to trespass the sites and potentially be exposed to contaminants in soils (such as surface soil and ditch soil) and surface water. In addition, intake of groundwater was included as a potential exposure pathway as a conservative measure. The adolescent trespasser can be used as a surrogate receptor for future adolescent visitors.

As discussed in **Section 6.2.4.2**, the Army recommends prohibiting the development and use of land within the PID area for residential housing, elementary and secondary schools, childcare facilities and playgrounds for the whole PID areas. This recommendation is recorded in the signed *Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or* 

Warehousing Areas (signed on September 28, 2004 by USEPA). As a result, receptors such as future residents or day-care children were not evaluated in this risk assessment.

# 6.2.5 Identification of Exposure Pathways

Exposures were estimated only for plausible complete exposure pathways. According to USEPA (1989), a pathway is complete if there is:

- A source or chemical release from a source;
- An exposure point where contact can occur; and
- An exposure route by which contact can occur.

A pathway is not complete unless each of these elements is present. **Table 6-1** illustrates the selection of exposure pathways for the sites.

The pathways presented reflect the current and projected future site use of SEAD-121C and SEAD-121I. This section presents the rationale for including these exposure pathways in this risk assessment.

# **Inhalation of Particulate Matter in Ambient Air From Soils**

Surface soil (0-2 ft. bgs.) particles may become airborne via wind erosion and/or site activities, which in turn may be inhaled by potential receptors at the sites. Construction workers may be exposed to subsurface soil (2-6 ft. bgs.) particles in addition to surface soil (0-2 ft. bgs.) particles. Therefore, inhalation exposure to soil particulates in ambient air was assessed for all receptors.

## **Inhalation of Particulate Matter in Ambient Air From Ditch Soils**

Ditch soil particles may become airborne via wind erosion and/or site activities, which in turn may be inhaled by potential receptors at the sites. Therefore, inhalation exposure to ditch soil particulates in ambient air was assessed for all receptors.

## **Incidental Ingestion and Dermal Contact to On-Site Soils**

All receptors could come into contact with site surface soils (0-2 ft. bgs.) and involuntarily ingest and have their skin exposed to site surface soils during the course of site activities. Therefore, exposure via dermal contact and soil ingestion was assessed for all receptors. An on-site construction worker may come into contact with surface (0-2 ft. bgs.) and subsurface (2-6 ft. bgs.) soils during intrusive activities and may involuntarily ingest and have his/her skin exposed to surface and subsurface soils. Subsurface soil is defined as soil 2 ft. to 6 ft. bgs., since bedrock was generally encountered at approximately 6 ft. bgs.

# **Incidental Ingestion and Dermal Contact to On-Site Ditch Soils**

All receptors could come into contact with site ditch soils and involuntarily ingest and have his/her skin exposed to site ditch soils during the course of site activities. Therefore, exposure via dermal contact and ingestion were assessed for all receptors.

## **Groundwater Intake**

Groundwater is not currently used as a potable water source at the Depot. Three private groundwater supply wells are located approximately one mile to the south-east of the sites (Figure 1-11). However, the three private wells are located on the east sloping side of the watershed divide, while the sites are located on the west slope of the watershed divide (Figure 1-5). The future plan for all areas of SEDA is to obtain potable water from the existing water supply line that passes through the Town of Varick. Varick's water is obtained from Seneca Lake and processed through the water treatment plant in the Town of Waterloo. It is unlikely that a groundwater well would be installed for future drinking water use since a potable water pipeline exists. The shallow groundwater aquifer at SEAD-121C and SEAD-121I is inadequate for either yield or quality. Groundwater at SEAD-121C is generally at 2 ft. above the bedrock, and the bedrock is typically less than 8 ft. bgs. SEAD-121I does not have groundwater monitoring wells. Typically bedrock at SEAD-121I was encountered 0.5 to 2 ft. bgs. Therefore, groundwater, if it exists at SEAD-121I, would be inadequate for either yield. In addition, the land in the PID Area surrounding SEAD-121C and SEAD-121I is subject to a groundwater use restriction, indicating that site groundwater will not be a drinking water source (Parsons, 2004).

Nonetheless, to evaluate potential risk posed by groundwater, it was assumed that wells would be installed on-site for potable water at SEAD-121C. Therefore, for the risk assessment intake of site groundwater is considered a complete pathway for all receptors at SEAD-121C. SEAD-121I has less than two ft of groundwater laying on top of bedrock, which ranges in depth from 0.5 ft to 2 ft bgs; and thus not an adequate source for groundwater. As a result, intake of groundwater at SEAD-121I was not evaluated since groundwater data are not available at the site due to the shallow depth to bedrock and practically inability to install groundwater wells at the site.

#### **Dermal Contact with On-Site Groundwater**

Bedrock at SEAD-121C was typically less than 8 ft. bgs and groundwater was encountered at approximately 2 ft. above bedrock. Bedrock at SEAD-121I was typically encountered 0.5 to 2 ft bgs. Dermal contact with groundwater at SEAD-121I was considered unlikely and, therefore, not included in the risk assessment.

Construction workers may be exposed to groundwater via dermal contact while working at SEAD-121C (e.g., digging trenches). Therefore, exposure via dermal contact with groundwater was evaluated for construction workers at SEAD-121C. Dermal contact with groundwater by industrial worker or adolescent trespasser was considered unlikely and not included in the risk assessment.

## **Dermal Contact with On-Site Surface Water**

Surface water was found at both SEAD-121C and SEAD-121I during and following precipitation events but does not persist in drainage ditches at either site throughout the year. Potential exposure to surface water would be limited. Construction workers may be exposed to surface water via dermal contact while working at the sites. An adolescent trespasser may be exposed to surface water via dermal contact. Industrial workers are unlikely to have activities that would expose them to surface water; therefore dermal exposure to surface water for industrial workers was considered minimal and therefore not included in the risk assessment.

## 6.3 DATA EVALUATION

This section identifies the site data that were included in the BRA. Data used in the BRA, background SEDA data for soil and groundwater, quality control aspects such as precision and accuracy, completeness and representativeness of the data, and procedure for sample and sample duplicate averaging are presented in the following discussion.

## 6.3.1 Data Used in Risk Assessment

The data sets used for the BRA were:

- Surface soil (0-2 ft. bgs) from SEAD-121C and SEAD-121I;
- Surface and Subsurface soil (0-6 ft. bgs) from SEAD-121C, hereafter referred to as total soil;
- Ditch soil from SEAD-121C and SEAD-121I;
- Groundwater from SEAD-121C; and
- Surface water from SEAD-121C and SEAD-121I.

These data sets have been obtained to characterize the site conditions. Unless otherwise specified in this report, all analytical data were used to conduct the human health and ecological risk assessment for SEAD-121C and SEAD-121I.

Groundwater data representative of site conditions were used in the risk assessment. As discussed in Section 4, the data from the temporary wells placed in SEAD-121C were not reliable because: 1) the temporary wells could not be properly developed and purged prior to sample collection; and, 2) bailers were used to collect the samples. Both of these factors contributed to increased turbidity in samples and result in overstated results, especially for metals. Data from samples collected at the

DRMO Yard using low-flow sampling techniques at permanent wells were considered to be representative of the site conditions. Therefore, only the groundwater data collected during the RI sampling program at SEAD-121C were included in the risk assessment.

In summary, the following data were used for the human health risk assessment and ecological risk assessment:

- Soil data collected during the 1998 EBS (Parsons, 1999);
- Soil data (surface soil, ditch soil, and subsurface soil) collected during the RI sampling program;
- Surface water data collected during the RI sampling program; and
- Groundwater data collected in 2003 during the RI sampling program.

Samples collected from man-made drainage ditches, originally classified as sediment, were reclassified as ditch soil based on a review of the site conditions. The drainage ditches were constructed by the Army to promote drainage within and away from the PID area. The drainage ditches located near SEAD-121C and SEAD-121I do not support aquatic life, as they are only wet after storm events and continue to provide stormwater runoff infiltration and runoff control. The following subsections provide discussion of each data set used in the risk assessment.

The data used in the risk assessment are presented in **Appendix C**, **Tables C-2** through **C-4**, **C-5B**, and **C-6** through **C-9**.

# 6.3.2 Background Data

The SEDA background data sets for metals in soil and groundwater were reviewed for the purposes of the risk assessment. Background soil and groundwater samples collected during site investigations conducted throughout the SEDA have been combined into the background database, and this database has been previously shared with the USEPA and NYSDEC. This was done so that the statistical evaluation of the data would be representative of the variations in the site soil and groundwater. Geologically, the soil material is identical throughout SEDA and has been deposited from the same source. This fact justifies combining the background soil and groundwater chemical composition data from all SEDA background locations into a single database.

Groundwater samples collected prior to implementing the USEPA's low-flow purging and pumping draft Standard Operating Procedure (SOP) had elevated concentrations of inorganic elements. The high reported concentrations were due to the high amount of suspended particulates in the groundwater samples. Several locations were re-sampled using the draft USEPA low flow purging and pumping protocols where high NTU groundwater samples had been collected in the past. The results from these locations showed that the concentrations of inorganic elements in the low NTU samples were greatly reduced when compared to the reported concentrations in those samples with

high NTUs. Therefore, the results from the high NTU samples may overstate the true inorganic element concentrations in the background groundwater.

The background soil and groundwater data are presented in **Appendix D.** 

## **6.3.3** Data Usability Evaluation

Data used in the risk assessment have been validated and qualified by a Parsons' chemist under the guidelines set forth in the USEPA Contract Laboratory Program National Functional Guidelines, the Region 2 Resource Conservation and Recovery Act (RCRA) and CERCLA Data Validation SOPs and NYSDEC Contract Laboratory Program Analytical Services Protocol (ASP), with consideration for the methodology requirements. The data were qualified during the data validation process. Rejected ("R" qualified) data were excluded from the risk assessment and all the other validated data were included in the risk assessment data sets. If a chemical was detected at least once in a specific medium at the sites, surrogate values for any nondetects ("U" or "UJ" qualified results) for that analyte were included in the risk assessment data sets at one-half the associated reporting limits.

Qualifiers were attached to data by laboratories conducting analyses and by data validation personnel. These qualifiers often pertain to Quality Assurance/Quality Control (QA/QC) problems and may indicate questions concerning chemical identity, chemical concentration, or both. The qualifiers used by data validation personnel are as follows:

## For Organics:

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

# For Inorganics:

- J The associated value is an estimated quantity.
- U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
- R The data was unusable. (Note: Analyte may or may not be present.).

A summary of the relative percent difference and the quality of the data's acceptability are presented in **Section 4**.

## 6.3.4 Precision

The term precision is used to describe the reproducibility of results. It can be defined as the agreement between the numerical values of two or more measurements resulting from the same process. In the case of chemical analyses, precision is determined through the analyses of duplicate environmental samples. Duplicate sample analyses include matrix spikes, laboratory control spikes, field duplicates, and replicate instrumental analyses of individual environmental samples.

Matrix spikes involve the introduction of known concentrations of compounds or elements to a sample. The assumption is that these introduced compounds will be recovered from environmental samples to the same degree as in matrix spikes. Laboratory control spikes involve the introduction of known concentrations of compounds or elements to laboratory reagent water or pre-purified and extracted sand. Blank spikes eliminate the possibility of matrix interferences or contributions, thereby monitoring analytical performance from sample preparation to analysis. Field duplicates are a pair of samples taken from the same sampling location. They are collected simultaneously and provide the most legitimate means of assessing precision. A total of 16 field duplicate samples were collected for SEAD-121C and SEAD-121I.

| <u>Site</u>            | <u>Media</u>  | Number of Field Sample- |
|------------------------|---------------|-------------------------|
|                        |               | <u>Duplicate Pairs</u>  |
| SEAD-121C              | Surface Soil  | 5                       |
| SEAD-121C              | Ditch Soil    | 1                       |
| SEAD-121C              | Groundwater   | 2                       |
| SEAD-121C              | Surface Water | 1                       |
| Building 360 (SEAD-27) | Groundwater   | 2                       |
| SEAD-121I              | Surface Soil  | 3                       |
| SEAD-121I              | Ditch Soil    | 1                       |
| SEAD-121I              | Surface Water | 1                       |

Precision estimates were obtained using the relative percent difference (RPD) between duplicate analyses. Overall the RPDs of the data set were found to be acceptable (i.e. within the USEPA Region 2 limits, see **Table 4-1A**. A summary of field sample duplicate pairs by site and media with RPDs > 50% is presented in **Tables 4-1B** through **4-1F**; and **Appendix C Tables C-1B** through **C-1F** presents the results of the RPD values for all sample duplicate pairs. The associated results were qualified in accordance with the USEPA Region 2 SOPs. No data were deemed unacceptable based on the precision evaluation.

# 6.3.5 Accuracy

Accuracy is a measure of the closeness of a reported concentration to the true value. Accuracy is usually expressed as a bias (high or low) and is determined by calculating percent recovery (%R) from spiked samples. During field sampling and sample shipping, contamination that could affect the accuracy of analysis results may be introduced into the samples. Field blanks were used during sample collection and shipment to detect field contamination. Contamination affecting accuracy can also be introduced during laboratory analysis. Method blanks were used during laboratory procedures to assess laboratory-introduced contamination.

Estimates of accuracy are more difficult to obtain than precision since accuracy requires knowledge of the quantity being measured. In the case of chemical analyses, accuracy is determined through the introduction of known concentrations of compounds or elements to samples or analytical spikes. The assumption is that compounds will be recovered from environmental samples to the same degree as in analytical spikes.

Two types of compounds were added to environmental samples for assessing accuracy: surrogate compounds and matrix spike compounds. Surrogates are compounds that closely approximate target analytes in structure, but are not target analytes. Surrogate compounds are added to samples in the preparation stages and monitor the effectiveness of the preparation process. Matrix spike compounds

are target analytes that are added based upon expectations of matrix interferences that impede analyte detection. Laboratory method blank samples were spiked with surrogate compounds, per analysis day, as an additional means of estimating accuracy. The accuracy of chemical analyses was estimated using the percent recovery (PR) of compounds or elements that were added to analytical spikes.

Matrix spike/matrix spike duplicate (MS/MSD) recoveries for the data sets were found to be acceptable (i.e. within the USEPA Region 2 limits), except that the recoveries of certain SVOC fractions from some MS/MSD samples were outside the limits. The associated results were qualified in accordance with the USEPA Region 2 SOPs. No data were deemed unacceptable based on the MS/MSD evaluation.

LCS/LCSD recoveries for the SEAD-121C and SEAD-121I data sets were found to be acceptable (i.e. within the USEPA Region 2 limits), except that the recoveries of several VOCs fractions from some LCS/LCSD samples were outside the limits. The associated results were qualified in accordance with the USEPA Region 2 SOP. No data were deemed unacceptable based on the LCS/LCSD evaluation.

Surrogate recoveries for the SEAD-121C and SEAD-121I data sets were found to be acceptable (i.e. within the USEPA Region 2 limits) except that the recoveries of certain VOC, SVOC, pesticide, and PCB fractions from some samples were outside the limits. The associated results were qualified in accordance with the USEPA Region 2 SOPs.

Acetone, carbon disulfide, chloroform, methyl ethyl ketone, and methylene chloride were detected in one or more method blank or rinseate blank samples. The associated results were qualified in accordance with the USEPA Region 2 SOPs.

# 6.3.6 Representativeness

Representativeness expresses the extent to which collected data define site contamination. Factors influencing representativeness include sample collection, selection of sampling locations representative of site conditions, and use of appropriate chemical methods for sample analyses. Chemical analysis methods are addressed in **Section 2.2.5**. Sampling from locations representative of site conditions was achieved through implementation of the field sampling plan (Parsons, 2002).

Field duplicates were collected and analyzed in order to assess the influence of sample collection on representativeness.

During the data validation, representativeness has also been evaluated by the review of:

- Sample Package Completeness and Deliverables
- Technical Holding Time

## QA/QC Results

# 6.3.6.1 Sample Preservation and Technical Holding Time

Samples were preserved according to the USEPA Region 2 preservation criteria and analyzed within the holding time except that several samples were extracted slightly beyond the holding time (i.e., less than three days beyond holding time) for the SVOC analysis. The associated results were qualified in accordance with the USEPA Region 2 SOPs. Solids percentage was greater than 50% for all soil samples analyzed.

# 6.3.6.2 Other QA/QC Results

Other QA/QC results were reviewed during the data validation such as instrument performance, reporting limits, instrument calibration, Inductively Coupled Plasma (ICP) serial dilution for inorganic analysis, ICP linear range for inorganic analysis, and ICP interference check. Several issues with laboratory instrument performance were noted in the data validation process. The data were qualified based on the Region 2 SOPs.

# 6.3.7 Protocol for Using Field Duplicate Results

The analytical results of each pair of sample and field duplicate sample were averaged to produce a single result used to represent the concentration at the sample location. The following procedures were used to average the results of a sample and its field duplicate:

- If an analyte was detected in both the sample and duplicate sample, then the detected values were averaged.
- If an analyte was not detected in the sample and its duplicate sample, then the reporting limits (RL) were averaged and reported as the reporting limit for the duplicate pair.
- If an analyte was detected in only one sample; then the analyte was considered present at a level equal to the average of the detected value and one-half of the reporting limits for the non-detect.

**Table C-1A** in **Appendix C** presents the method used for selecting qualifiers for the average results. The sample and its field duplicate were treated as one entry and the average concentration was used to represent the result at the sampling location. This protocol is reflected in all the summary statistics (i.e. number of detections or exceedances and the maximum concentration) presented in this report and the risk assessment. **Tables C-1J** through **C-1P** presented in **Appendix C** present the data for sample duplicate pairs and their corresponding average values. It should be noted that a maximum

reported value can be generated from the average of a sample duplicate pair. Laboratory duplicates were not used for the risk assessment.

## 6.4 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

Chemicals of potential concern (COPCs) for the human health risk assessment were selected based on the screening process described below. The COPCs identified were quantitatively and/or qualitatively evaluated in the human health BRA.

• The maximum detected concentration of each chemical detected in each soil data set (i.e., surface soil, total soil, and ditch soil data sets) was compared to the USEPA Region 9 preliminary remediation goals (PRGs) for residential soil and other appropriate USEPA screening values if Region 9 PRGs were not available (e.g., USEPA Region 3 Risk-Based Concentrations for residential soil). The residential PRG value is a chemical concentration that corresponds to a risk level of 1 x 10<sup>-6</sup> (for carcinogens) or hazard quotient level of 1 (for non-carcinogens), whichever is lower.

Chemicals were eliminated as COPCs in soil for human exposure if the maximum detected concentration was less than the screening level or if no screening level was available. A chemical was considered a COPC in soil if the maximum detected concentration was greater than the screening level. For closely related chemicals (structure and mode of toxicity), screening criteria for surrogate chemicals were used.

- For groundwater and surface water, the maximum detected concentration of each data set was compared to the Region 9 PRGs for tap water corresponding to a risk level of 1 x 10<sup>-6</sup> (for carcinogens) or hazard quotient level of 1 (for non-carcinogens). Other appropriate USEPA screening values were used if Region 9 PRGs were not available [e.g., USEPA Region 3 Risk-Based Concentrations for tap water, and USEPA Maximum Contaminant Level (MCL) for drinking water]. Chemicals were eliminated as COPCs for human exposure if concentrations were less than the screening level or if there was no screening value available. A chemical was considered a COPC if the maximum detected concentration was greater than the screening value.
- Essential nutrients were eliminated as COPCs in all media, if applicable. Essential nutrients include calcium, magnesium, sodium, and potassium. The recommended dietary allowances and adequate intakes by Wright (2001) and other resources were evaluated to determine whether the concentration is within the recommended daily requirements for essential nutrients.
- An evaluation was made to determine whether any previously eliminated chemical or medium should be included due to other considerations (e.g., potential break-down products, chemicals with detection limits above health-based levels). In addition, any member of a chemical class that has other members selected as COPCs was retained (e.g., detected carcinogenic PAHs).

• For each medium, a determination was made as to whether there were any COPCs identified. If no COPCs identified, the medium was dropped from further consideration in the risk assessment.

Results of the above screening process for SEAD-121C are summarized in **Tables 6-2A**, **6-2B**, **6-2C**, **6-2D**, and **6-2E** for total soil, surface soil, ditch soil, groundwater, and surface water, respectively. Results of the screening process for SEAD-121I summarized in **Tables 6-3A**, **6-3B**, and **6-3C** for surface soil, ditch soil, and surface water, respectively.

Constituents identified as human health COPCs at SEAD-121C include:

- benzene (total soil),
- PAHs (total soil, surface soil, and ditch soil),
- pesticides/PCBs (total and surface soils), and
- inorganics (total soil, surface soil, ditch soil, and surface water)

Constituents identified as human health COPCs at SEAD-121I include:

- PAHs (surface soil, and ditch soil),
- pesticides (surface soils), and
- inorganics (surface soil, ditch soil, and surface water)

No chemicals were identified as COPCs in groundwater at SEAD-121C. Therefore, exposure to groundwater was not quantitatively evaluated in this BRA.

# 6.5 EXPOSURE ASSESSMENT

The objective of the exposure assessment was to estimate the type and magnitude of exposures to the COPCs that are present at, or migrating from, the site. The exposure assessment consists of three steps (USEPA, 1989):

- 1. Characterize Exposure Setting: In this step, information on the physical characteristics of the site that may influence exposure is considered. The physical setting involves climate, vegetation, soil characteristics, and surface and groundwater hydrology. All potentially exposed populations and sub-populations therein (receptors) are assessed relative to their potential for exposure. Additionally, locations relative to the site along with the current and potential future land use of the site are considered. This step is a qualitative one aimed at providing a general site perspective and offering insight on the surrounding population.
- 2. **Identify Exposure Pathways:** All exposure pathways, ways in which receptors can be exposed to contaminants that originate from the source, are reviewed in this step. Chemical sources and

mechanisms for release along with subsequent fate and transport are investigated. Exposure points of human contact and exposure routes are discussed before quantifying the exposure pathways in step 3.

3. Quantify Exposure: In this final step, the exposure levels (COPC intakes or doses) are calculated for each exposure pathway and receptor. These calculations typically follow USEPA guidance for assumptions of intake variables or exposure factors for each exposure pathway and USEPA-recommended calculation methods.

**Section 1** of this report presents the physical setting of the sites. The exposure pathways are presented in **Section 6.2.5**. This section presents the three key factors involved in the exposure quantification process: exposure point concentrations (**Section 6.5.1**), exposure factor assumption (**Section 6.5.2**), and exposure quantification (**Section 6.5.3**).

# **6.5.1** Derivation of Exposure Point Concentrations

After COPCs were identified for the risk assessment, exposure point concentrations (EPCs) were calculated for each of the COPCs in each medium at SEAD-121C and SEAD-121I. Two types of exposure were estimated for the baseline human health risk assessment: a reasonable maximum exposure (RME) and central tendency (CT) exposure. The RME is defined as the highest exposure that could reasonably be expected to occur for a given exposure pathway at a site, and is intended to account for both uncertainty in the contaminant concentration and variability in the exposure parameters (such as exposure frequency or averaging time). The CT may be evaluated for comparison purposes and is generally based on mean exposure parameters. Both scenarios have been evaluated in this risk assessment. The EPCs were assumed to be the same for the RME and CT scenarios.

The EPCs were derived for the following exposure points:

- SEAD-121C total soil;
- SEAD-121C and SEAD-121I surface soil;
- SEAD-121C and SEAD-121I ditch soil;
- SEAD-121C groundwater; and
- SEAD-121C and SEAD-121I surface water.

# 6.5.1.1 Soil and Ditch Soil EPC

Soil EPCs were calculated for three exposure points at SEAD-121C: 1) total soil, defined as surface soil and subsurface soil (0-6 ft bgs.); 2) surface soil (0-2 ft bgs.); and 3) ditch soil. At SEAD-121I EPCs were calculated for two exposure points: 1) surface soil (0-2 ft bgs.) and 2) ditch soil. The industrial worker and adolescent trespasser were assumed to be exposed to the surface soil (0-2 ft

bgs.) and ditch soil at both sites. The construction worker was assumed to be exposed to the total soil and ditch soil at SEAD-121C; and assumed to be exposed to the surface soil and ditch soil at SEAD-121I.

Soil EPCs for the reasonable maximum exposure and central tendency risk calculations are equal to an appropriate upper confidence limit (i.e., 95<sup>th</sup> UCL or 99<sup>th</sup> UCL based on data distributions) of the arithmetic mean of the concentrations (USEPA, 2004c). The EPC, or the appropriate UCL of the mean concentration, was calculated using the USEPA Software for Calculating Upper Confidence Limits (ProUCL version 3.00.02). ProUCL provides summary results for normal distribution test, lognormal distribution test, and gamma distribution test of the data. Based upon the data distribution and the associated skewness, ProUCL provides recommendations about an appropriate UCL computation method that may be used to estimate the unknown mean concentration of a COPC.

For lead, the arithmetic mean of each data set was used as the EPC, which is consistent with the USEPA (1994) guidance.

**Tables 6-4A, 6-4B**, and **6-4C** summarize the EPC for the total soil, surface soil, and ditch soil, respectively, at SEAD-121C. **Tables 6-5A** and **6-5B** summarize EPCs for surface soil and ditch soil, respectively, at SEAD-121I.

#### 6.5.1.2 Groundwater EPC

No COPCs were identified during the screening step described in **Section 6.4**. As a result, EPCs were not developed for groundwater at the DRMO Yard. As part of the *COC Identification* discussion in **Section 6.9.1**, the impact of groundwater at SEAD-27 on the DRMO Yard was evaluated as part of a combined SEAD-27 and SEAD-121C evaluation.

Groundwater was not recovered from the aquifer at SEAD-121I; hence risk from contact to groundwater was not evaluated at SEAD-121I.

# 6.5.1.3 Surface Water EPC

Due to the small sample size (i.e., less than or equal to 10 samples), the maximum detected concentration was used as the EPC to estimate potential exposure to surface water for both the RME and CT scenarios.

**Tables 6-4E** and **6-5C** summarize surface water EPCs at SEAD-121C and SEAD-121I, respectively.

## 6.5.1.4 Ambient Air EPC From Soil Dust

EPCs for COPCs in ambient air caused by soil dust were estimated based on the soil EPCs and PM<sub>10</sub> concentrations in ambient air. Industrial workers and adolescent trespassers were assumed to be exposed to surface soil and dust caused by surface soil. Construction workers were assumed to be exposed to dust resulting from surface and subsurface soil. Therefore, ambient air EPCs caused by surface soil (0-2 ft. bgs.) were calculated for both SEAD-121C and SEAD-121I, and ambient air EPCs caused by surface and subsurface soil (0-6 ft. bgs.) were calculated for SEAD-121C. A detailed discussion of PM<sub>10</sub> concentration evaluation is presented in **Section 6.5.3**.

**Tables 6-6A** and **6-6B** summarize ambient air EPCs caused by dust from surface soil at SEAD-121C and SEAD-121I, respectively, for industrial workers and adolescent trespassers. **Table 6-6C** summarizes ambient air EPC caused by dust from surface soil at SEAD-121I for construction workers. **Table 6-7** summarizes ambient air EPCs caused by dust from surface and subsurface soil at SEAD-121C for construction workers.

## 6.5.1.5 Ambient Air EPC From Ditch Soil Dust

Industrial workers, construction workers, and adolescent trespassers were assumed to be exposed to dust caused by ditch soil. Therefore, EPCs for COPCs in ambient air caused by ditch soil dust were estimated based on the ditch soil EPCs and  $PM_{10}$  concentrations in ambient air. A detailed discussion of  $PM_{10}$  concentration evaluation is presented in **Section 6.5.3**.

**Tables 6-8A** and **6-8B** summarize ambient air EPCs caused by dust from ditch soil at SEAD-121C and SEAD-121I, respectively, for industrial workers and adolescent trespassers. **Tables 6-8C** and **6-8D** summarize ambient air EPCs caused by dust from ditch soil at SEAD-121C and SEAD-121I, respectively, for construction workers.

# **6.5.2** Exposure Factor Assumptions

An important aspect of exposure assessment is the determination of assumptions regarding how receptors may be exposed to contaminants. An extensive listing of exposure factors are provided in USEPA guidance, and these were followed throughout this assessment. Standard scenarios and USEPA-recommended default assumptions were used where appropriate.

The exposure scenarios in this assessment involve the following receptors, based on the current land use and future use of Planned Industrial Development:

- current/future construction worker
- future industrial worker
- adolescent trespasser

The exposure assumptions for these scenarios were intended to approximate the frequency, duration, and manner in which receptors would be exposed to environmental media. For example, the exposure scenarios for industrial workers were established to approximate the exposure potential of future individuals employed at SEAD-121C or SEAD-121I.

Exposure assumptions and parameters were identified for both RME and CT exposure scenarios based on the following USEPA guidance and conservative professional judgment if USEPA guidance is not available.

- USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors
- USEPA, 1997a: Exposure Factors Handbook
- USEPA, 2002a: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December
- USEPA, 2004a: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

Details of the exposure assumptions and parameters for each exposure scenario are shown in **Tables 6-9A**, **6-9B**, and **6-9C** for the construction worker, industrial worker, and adolescent trespasser, respectively. A brief summary of two selected exposure factor assumptions are presented below for each receptor.

Construction Worker. Construction workers were assumed to spend one year working at the sites, which is a typical duration for a significant construction project. These workers spend 5 days/week for 50 weeks (i.e., 250 days, RME scenario) or 219 days (CT scenario) at the sites. During each working day, construction workers inhale the ambient air at the site and may be exposed to surface and subsurface soil (0-6 ft. bgs.) or ditch soil through ingestion or dermal contact. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated. For uncertainty analysis, construction workers were assumed to dermally contact groundwater with their hands and forearms at a frequency of one event each day during 100 workdays (i.e., one day at the beginning of the week and one day at the end of the week for 50 weeks) to assemble or disassemble a pumping system. Each event was assumed to last half an hour. Construction workers were also assumed to be exposed to COPCs in surface water via dermal contact.

**Industrial Worker**. The future industrial workers were assumed to spend 5 days/week for 50 weeks (i.e., 250 days, RME scenario) or 219 days (CT scenario) each year at the sites. This exposure lasts

for an entire 25-year (RME scenario) or 9-year (CT scenario) career. During each workday at SEAD-121C or SEAD-121I, industrial workers inhale the ambient air, and ingest and dermally contact surface soil (0-2 ft bgs.) or ditch soil. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated.

**Adolescent Trespasser**. Adolescent trespassers were assumed to spend 14 days a year for 6 years (ages 11-16 yr) at the sites. During each visit to SEAD-121C or SEAD-121I, the adolescent inhales the ambient air, dermally contacts surface water, and ingests and dermally contacts surface soil (0-2 ft bgs.) or ditch soil. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated.

# 6.5.3 Quantification of Exposure

Once the EPCs were calculated, each receptor's potential exposures to COPCs were quantified for each of the exposure pathways. A human health intake or the absorbed dose, depending on the exposure route, was calculated based on the EPC and exposure factor assumptions following methods recommended in USEPA guidance documents, such as the RAGS (USEPA 1989). Intakes or doses are normally expressed as the amount of chemical at the environment-human receptor exchange boundary in milligrams per kilogram of body weight per day (mg/kg-day), which represents an exposure normalized for body weight over time. The total exposure was divided by the period of interest to obtain an average exposure. The averaging time is a function of the toxic endpoint: for non-carcinogenic effects, it is the exposure time (specific to the scenario being assessed) and for carcinogenic effects, it is a lifetime (70 years).

The generic equation used to calculate intake for receptors is as follows (USEPA 1989):

# $DI = \frac{EPC \times CR \times EFD}{BW \times AT}$

## Where:

DI = Daily intake; the amount of chemical at the exchange boundary (mg/kg body weight-day);

EPC = Exposure point concentration (e.g., mg/L or mg/kg);

CR = Contact rate; the amount of contaminated medium contacted per unit time or event (e.g., L/d or mg/d);

EFD = Exposure frequency and duration; describes how long and how often exposure occurs. Often calculated using two terms (EF and ED):

EF = Exposure frequency (d/y) and ED = Exposure duration (y);

BW = Body weight (kg); and

AT = Averaging time; period over which exposure is averaged (d).

In this section, the methods used to calculate exposures by each pathway are explained. Tables that show the human intake or absorbed dose values calculated for each exposure scenario at each site are presented in **Appendices E** and **F**. The intakes and doses were used to assess overall carcinogenic and non-carcinogenic risks, as discussed later in the risk characterization section (**Section 6.6**).

#### 6.5.3.1 Inhalation of Particulate Matter in Ambient Air

The equation for inhalation of particulate matter in ambient air is as follows (USEPA, 1989):

Intake (mg/Kg/day) = 
$$\underline{EPC_{air}x IR x EF x ED}$$
  
 $BW x AT$ 

Where:

 $EPC_{air} = Exposure point concentration in air (mg/m<sup>3</sup>)$ 

IR = Inhalation rate  $(m^3/day)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

As discussed in **Section 6.5.1**, the EPC in air was calculated based on the soil and ditch soil EPCs and particulate matter less than  $10\mu m$  aerodynamic diameter (PM<sub>10</sub>). PM<sub>10</sub> represents smaller particles which can be inhaled (particles larger than  $10\mu m$  diameter typically cannot enter the narrow airways in the lung). Ambient PM<sub>10</sub> concentrations for a construction worker were estimated using an emission and dispersion model. PM<sub>10</sub> concentrations for industrial workers and adolescent trespassers were based on existing site air measurements shown in **Table 6-10**.

# PM<sub>10</sub> Concentrations for Construction Worker at SEAD-121C

During construction activities, fugitive dusts may be generated from soil by wind erosion, construction vehicle traffic on temporary unpaved roads, excavation, and other construction activities. The dusts would contain the chemicals present in the soil. Construction workers in the construction area would breathe this fugitive dust in the ambient air and therefore may be exposed to chemicals in site soils via inhalation. As current and future subsurface activities (e.g., excavation) could bring subsurface soils to the surface, both surface and subsurface soil (0-6 ft. bgs.) data were used to evaluate the EPC in air associated with the fugitive dust for construction workers. A model presented in the USEPA's Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002a), which evaluates the fugitive dust emission from truck traffic on unpaved roads during construction, was used to estimate the EPC in ambient air during the construction. This model was selected since truck

traffic on unpaved roads is a common activity at a construction site and, therefore, is considered a significant mechanism to cause dust. According to USEPA (2002a), "emissions from truck traffic on unpaved roads, which typically contribute the majority of dust emissions during construction . . . In the case of particulate matter, traffic on contaminated unpaved roads typically accounts for the majority of emissions, with wind erosion, excavation soil dumping, dozing, grading, and tilling operations contributing lesser emissions." Based on the above discussion, the emissions from truck traffic on unpaved roads were used as a model to represent PM produced by the construction activity.

$$EPC_{air} = EPC_{soil} \times \frac{1}{PEF_{sc}}$$

Where:

EPC<sub>air</sub> = Exposure point concentration of chemicals in air associated with fugitive dust  $(mg/m^3);$ 

EPC<sub>soil</sub> = Exposure point concentration of chemicals in soil (mg/kg);

 $PEF_{sc}$  = Subchronic road particulate emission factor (m<sup>3</sup>/kg).

$$PEF_{sc} = Q/C_{sr} \times \frac{1}{F_{D}} \times \left[ \frac{T \times A_{R}}{556 \times (W/3)^{0.4} \times \frac{365d/yr - p}{365d/yr} \times \sum VKT} \right]$$

Where:

 $Q/C_{sr}$ = Inverse of the ratio of the 1-h geometric mean air concentration to the emission flux along a straight road segment bisecting a square site (g/m<sup>2</sup>-s per kg/m<sup>3</sup>)

= Dispersion correction factor (unitless), 0.185  $F_{D}$ Т Total time over which construction occurs (s)  $A_R$ 

Surface area of contaminated road segment (m<sup>2</sup>)

 $A_R = L_R x W_R x 0.092903 m^2 / ft^2$ 

 $L_R$  = Length of road segment (ft), assumed 511 ft for the sites

 $W_R$  = Width of road segment (ft), assumed 20 ft

W = Mean vehicle weight (tons)

Number of days with at least 0.01 inches of precipitation (days/year), 120 days/year p based on Exhibit 5-2 of the USEPA (2002a) document

Sum of fleet vehicle kilometers traveled during the exposure duration (km)  $\Sigma VKT =$ 

$$Q/C_{sr} = A \times \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Page 6-27

Where:

A = Constant (unitless), 12.9351

A<sub>s</sub> = Area extent of site surface soil contamination (acres), for SEAD-121C, A<sub>S</sub> was

assumed to be the whole site area (5 acres) as a conservative estimate

B = Constant (unitless), 5.7383 C = Constant (unitless), 71.7711

Mean vehicle weight (W) can be estimated by assuming the numbers and weights of different types of vehicles. For SEAD-121C, assuming that the daily unpaved road traffic consists of 20 two-ton cars and 10 twenty-ton trucks, the mean vehicle weight would be:

$$W = \frac{[(20cars \times 2tons / car) + (10trucks \times 20tons / truck)]}{30vehicles} = 8tons$$

The sum of the fleet vehicle kilometers traveled during construction ( $\Sigma VKT$ ) can be estimated based on the size of the area of surface soil contamination, assuming the configuration of the unpaved road, and the amount of vehicle traffic on the road. The area of surface soil contamination at SEAD-121C is approximately 5 acres (or 23,000 m<sup>2</sup>), it was assumed that this area is configured as a square with the unpaved road segment dividing the square evenly, the road length would be equal to the square root of 23,000 m<sup>2</sup>, 146 m (or 0.146 km, or 480 ft). Assuming that each vehicle travels the length of the road once per day, 5 days per week for a total of 6 months, the total fleet vehicle kilometers traveled would be:

$$\sum VKT = 30 vehicles \times 0.146 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/yr \times 5 days/wk = 1096 km/day \times 50 wks/wk = 1096 km/day \times 50 wks/$$

The  $PM_{10}$  concentration estimated for the construction scenario is 954 ug/m<sup>3</sup> based on the above assumptions for soil exposure. For ditch soil exposure, the  $PM_{10}$  concentration calculated for SEAD-121I was used. The ambient air EPC for the construction worker exposed to surface and subsurface soil at SEAD-121C is presented in **Tables 6-7**; and the ambient air EPC for ditch soil is presented in **Table 6-8C.** 

## PM<sub>10</sub> Concentrations for Construction Worker at SEAD-121I

During construction activities, construction workers may be exposed to chemicals in site soils via inhalation. Construction activities, such as excavation, have the potential to create dust, or suspended particulate matter (PM), originating from the soils being removed. This dust would contain the chemicals present in the soil. Construction workers in the construction area would breathe the fugitive dust in the ambient air. Access to SEAD-121I is limited to existing paved roads and additional access roads are unlikely to be built since an extensive roadway system is already in place within the warehousing area. However, dust generated from excavation is expected to be produced from construction activities at SEAD-121I. An excavation scenario was evaluated for SEAD-121I to assess the risk to construction workers from dust generated by ditch soil in the ambient air.

Concentrations of site COPCs in the air were estimated for this exposure pathway using excavation models recommended in the EPA's "Models for Estimating Air Emission Rates from Superfund Remedial Actions" (EPA 451/R-93-001). Particulate emissions from soil excavation and loading into trucks were estimated with the following equation:

$$E = \frac{k (0.0016) (M) [U/2.2]^{1.3}}{[X/2]^{1.4}}$$

Where:

E = emissions(g)

k = particle size multiplier (unitless)

0.0016 = empirical constant (g/Kg)

M = mass of soil handled (Kg)

U = mean wind speed (m/sec)

2.2 = empirical constant (m/sec)

X = percent moisture content (%)

The construction worker receptor is assumed to work at a site for a one-year period. To conservatively estimate potential particulate emissions from construction activities during this period, it was assumed that an area equivalent to the site area (approximately 16 acres, or a 65,000 square meter area) is excavated to a depth of 2 meters over the course of one year as part of the site construction.

This results in the following mass of soil removed:

# $Mass = Area \times Depth \times Soil Bulk Density$

```
= 65,000 square meters x 2 meters x 1.5 g/cm<sup>3</sup> x 10^6 cm<sup>3</sup>/m<sup>3</sup>
```

= 2.0 x 10<sup>11</sup> grams

 $= 2.0 \times 10^8 \text{ Kg}$ 

Other parameter values for the model are as follows:

```
k = 0.35 for PM_{10} (USEPA 1993c)
```

U = 4.4 m/sec, average wind speed for Syracuse, NY (USEPA 1985)

X = 10%, recommended default (USEPA 1993c)

With these values for M, k, U and X, the emission rate (E) from excavation activities is calculated 29,000 grams of  $PM_{10}$  over the course of a year. This emission rate would be representative if all top two meters of soil at the site were excavated, and if local climatic factors did not suppress emissions. For example, precipitation, snow cover and frozen soil in the winter will minimize emissions. To account for these

climatic/seasonal factors, it was assumed that emissions occur only for half of the construction time. This results in a representative emission rate (E) of 14,500 grams/year. This is equivalent to an average emission rate of 58 g/day, 7.3 g/hr or 2 mg/sec, assuming emissions occur only during work days: 250 days/yr, 8 hr/day.

Much greater short-term emissions are estimated for site grading with a bulldozer or tractor. This type of activity is assumed to occur for 90 work days (8-hour day) over the course of a year. The model equation for grading emissions is:

$$E = \frac{0.094 (s)^{1.5}}{X^{1.4}}$$

Where:

E = emission rate (g/sec) 0.094 = empirical constant (g/sec) s = percent silt content (%) X = percent moisture content (%)

Assuming the USEPA-recommended default values of 8% for s, and 10% for X, the emission rate (E) from grading is calculated as 0.085 g/sec. Averaged over the course of a year with 90, 8-hour days of grading emissions, the result is 38 g/hr or 11 mg/sec of PM<sub>10</sub> emissions, assuming all emissions occur during working hours.

Total annual average emissions from excavation and grading are estimated as 2 mg/sec + 11 mg/sec = 13 mg/sec.

Localized exposure concentrations for construction workers are estimated with a simple box model. The model treats a defined surface area as a uniform emission source over the time period of interest. The box, or mixing volume, is defined by this surface area and an assumed mixing height. The emitted  $PM_{10}$  is assumed to mix uniformly throughout the box, with dilution from surface winds.

The general model equation is:

$$C = \frac{E}{(U)(W)(H)}$$

Where:

E = emission rate, mg/sec U = wind speed, m/sec

W = crosswind width of the area source, m

H = mixing height, m

E and U are the same as defined or calculated above. To determine W, the construction activity is assumed to be confined to approximately 260 square meters at any time. This area is assumed to be square, and W is the square root of 260 m<sup>2</sup>, or 16 meters. H is assumed to be the height of the breathing zone, or 1.75 meters.

With these values, the  $PM_{10}$  exposure concentration for a construction worker is calculated as 0.11 mg/m<sup>3</sup>. All of this  $PM_{10}$  was assumed to be airborne soil released from the site as represented by surface soil and ditch soil. This value was also used as an estimate for  $PM_{10}$  associated with SEAD-121C ditch soil.

The ambient air EPCs for surface soil for a construction worker at SEAD-121I are presented in **Table 6-6C**; and the ambient air EPCs for ditch soil are presented in **Table 6-8D**.

# PM<sub>10</sub> Concentrations for Industrial Workers and Adolescent Trespassers

Ambient air normally contains particulate matter derived from various natural sources, including soil erosion, fuel burning, automobiles, etc. Dust generated from ditch soil may contain particular matter derived from various natural and SEDA activities sources. The  $PM_{10}$  concentrations were measured at four locations in SEDA over a four-month period (April-July) in 1995. A summary of the data collected in this air sampling program is shown in **Table 6-10**.

For this assessment, the highest 4-month average  $PM_{10}$  concentration measured at any of the four monitoring stations (16.9  $\mu g/m^3$ , rounded to 17  $\mu g/m^3$ ) was assumed to represent ambient air at SEAD-121C and SEAD-121I. The entire particulate loading was assumed to be airborne soil released from the site as represented by the surface soil and ditch soil EPCs for each site.

The concentration of particulate-associated chemicals in ambient air was calculated with the same equation used for the construction worker, above.

$$EPC_{qir} = EPC_{soil} \times PM_{10} \times C$$

Where:

 $EPC_{air}$  = Exposure point concentration of chemicals in air associated with fugitive dust  $(mg/m^3)$ ;

EPC<sub>soil</sub> = Exposure point concentration of chemicals in soil (mg/Kg);

PM<sub>10</sub> = Concentration of particulate matter less than 10μm aerodynamic diameter in air  $(\mu g/m^3)$ ;

C = Conversion factor,  $10^{-9}$  Kg/µg.

The ambient air EPCs from surface soil and ditch soil for the industrial worker and adolescent trespasser at SEAD-121C are presented in **Tables 6-6A** and **6-8A**. The ambient air EPCs for surface soil and ditch soil for the industrial worker and adolescent trespasser at SEAD-121I are presented in **Tables 6-6B** and **6-8B**.

# 6.5.3.2 Incidental Ingestion of Soil

The equation for intake via incidental ingestion of soil is as follows (adjusted from USEPA 1989):

# Intake (mg/Kg-day) = $\frac{EPC_{soil} \times IR \times CF \times FI \times EF \times ED}{BW \times AT}$

Where:

 $EPC_{soil} = Soil exposure point concentration (mg/Kg)$ 

IR = Soil ingestion rate (mg/day)

CF = Conversion factor  $(1 \text{ Kg}/10^6 \text{ mg})$ 

FI = Fraction ingested from contaminated source (unitless)

EF = Exposure frequency (days/years)

ED = Exposure duration (years)

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

# **6.5.3.3 Dermal Contact with Soils**

The equation for the absorbed dose from dermal exposure is as follows, based on guidance in USEPA (2004a):

Absorbed Dose (mg/Kg-day) = 
$$\underline{DA_{event} \times EF \times ED \times EV \times SA}$$
  
BW x AT

$$DA_{event} = EPC_{soil} \times CF \times AF \times ABS_d$$

Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup>-event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

EPC<sub>soil</sub> = Exposure point concentration in soil (mg/Kg)

EV = Event frequency (events/day)

SA = Skin surface area available for contact  $(cm^2)$ 

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

 $CF = Conversion factor (10^{-6} \text{ Kg/mg})$ 

AF = Soil to skin adherence factor (mg/cm<sup>2</sup>-event)

 $ABS_d$  = Dermal absorption factor (unitless)

#### 6.5.3.4 Groundwater Intake

No COPCs were identified in groundwater from SEAD-121C. However, for the Uncertainty Analysis all receptors were assumed to intake groundwater from SEAD-121C and SEAD-27 (Building 360). The equation for groundwater intake is as follows (USEPA, 1989):

# Intake (mg/Kg-day) = $\underline{EPC_{gw} \times IR \times EF \times ED}$ BW x AT

Where:

EPC<sub>gw</sub> = Exposure point concentration in groundwater (mg/liter)

IR = Groundwater intake rate (liters/day)

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

BW = Bodyweight (Kg)

AT = Averaging time (days)

# 6.5.3.5 Dermal Contact with Groundwater

No COPCs were identified in groundwater from SEAD-121C. However, for the Uncertainty Analysis a construction worker was assumed to have dermal contact to groundwater from SEAD-121C and SEAD-27 (Building 360). The equation for the absorbed dose, according to USEPA (2004a) is as follows:

# Absorbed Dose (mg/Kg-day) = $\underline{DA_{event} \times EF \times ED \times EV \times SA}$ $\underline{BW \times AT}$

Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup> - event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years) EV = Event frequency (events/day)

SA = Skin surface area available for contact (cm<sup>2</sup>)

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

The absorbed dose per event (DA) was calculated as described in EPA's "Supplemental Guidance for Dermal Risk Assessment," (USEPA, 2004a). For organics, a parameter, B was first calculated. This value attempts to characterize the relative contribution of each compound's specific permeability coefficient (Kp value) in the stratum corneum and the viable epidermis.

$$B = K_p \frac{\sqrt{MW}}{2.6}$$

Where:

ς<sub>p</sub> = Dermal permeability coefficient in water (cm/hr)

MW = Molecular weight (g/mole)

Once calculated, the B value was used to calculate time conditions associated with estimates of compound breakthrough time.

If 
$$B \le 0.6$$
, then  $t^* = 2.4\tau_{event}$   
If  $B > 0.6$ , then  $t^* = 6\tau_{event}(b - \sqrt{b^2 - c^2})$   
 $b = \frac{2(1+B)^2}{\pi} - c$   
 $c = \frac{1+3B+3B^2}{3(1+B)}$   
 $c = \frac{3(1+B)}{3(1+B)}$ 

Where:

Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (dimensionless)

\* = Time to reach steady-state (hr)

 $\tau_{event}$  = Lag time per event (hr/event)

Correlation coefficients which have been fitted to the Flynn's data b,c

uncertainty. Lag time and breakthrough time (t\*) for each organic COPC were from Exhibit B.3 of The lag time ( $\tau_{\rm event}$ ), is defined as the time it takes a chemical to penetrate to reach a steady-state condition during a dermal exposure in aqueous media. By properly defining the lag time, the permeability coefficient (Kp) can be more properly used in the risk calculation further reducing

the USEPA (2004a) Supplemental Guidance for Dermal Risk Assessment, or calculated using the above USEPA recommended equations.

If the exposure time per event  $(t_{event})$  is less than the breakthrough time  $(t^*)$  of steady-state conditions specific to each compound, then the absorbed dose is calculated as follows:

$$DA_{event} = 2FA \times K_p \times EPC_{gw} \times CF \times \sqrt{\frac{6\tau_{event} \times t_{event}}{\pi}}$$

If the exposure time is longer than t\*, then the absorbed dose is calculated using:

$$\mathbf{DA_{event}} = \mathbf{FA} \times \mathbf{K_p} \times \mathbf{EPC_{gw}} \times \mathbf{CFx} \left[ \frac{t_{event}}{1+B} + 2\tau_{event} \left( \frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where, for both equations:

FA = Fraction absorbed water (dimensionless), assumed as 1

K<sub>p</sub> = Dermal permeability coefficient (cm/hr)

 $EPC_{gw} = EPC$  Concentration in Water (mg/L)

ET = Exposure Time (hours)

CF = Volume Conversion Factor = 0.001L/cm<sup>3</sup>

For inorganics, DA was calculated by:

$$DA = K_p x EPC_{gw} x t_{event} x CF$$

Dermal permeability coefficients for a number of organic inorganic chemicals can be found in the USEPA (2004a) Supplemental Guidance for Dermal Risk Assessment. When no organic  $K_p$  value was available, a value was calculated using the following equation:

$$Log~K_p = -2.80 + 0.66~(log~K_{ow}) - 0.0056~(MW)$$

Where:

K<sub>OW</sub> = Octanol/water partition coefficient of the non-ionized species (dimensionless)

#### 6.5.3.6 Dermal Contact with Surface Water

The construction worker and adolescent trespasser may be exposed to surface water while at the sites. The equation for the absorbed dose, according to USEPA (2004a) is as follows:

# Absorbed Dose (mg/Kg-day) = $\underline{DA_{event}} \times EF \times ED \times EV \times SA$ BW x AT

Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup> - event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years) EV = Event frequency (events/day)

SA = Skin surface area available for contact (cm<sup>2</sup>)

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

The absorbed dose per event (DA) was calculated as described in USEPA's "Supplemental Guidance for Dermal Risk Assessment," (USEPA, 2004a).

# 6.5.3.7 Evaluation of Lead Exposure

Lead was considered to be a COPC in surface soil, subsurface soil, ditch soil, and surface water at SEAD-121C, and in surface water at SEAD-121I. For the industrial worker, risk associated with lead was evaluated using the Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil (USEPA, 2003b). This adult lead model provides an assessment of non-residential exposure by relating soil lead intake to blood lead concentrations in women of childbearing age. Thus, while adult exposure is addressed by USEPA's analysis, the most sensitive receptor (i.e., the fetus) is being protected. The methodology focuses on estimating fetal blood lead levels in women exposed to site soils. The adult lead model was used to evaluate exposure to SEAD-121C surface soil and ditch soil by the industrial worker. It should be noted that the adult lead model is based on the assumption of continuing long term exposure. As construction workers are expected to work at the sites in short-term (i.e., 1 year), risk associated with lead exposure is expected to be minor and therefore not evaluated in this risk assessment.

For an adolescent trespasser, the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) developed by USEPA was used to evaluate receptor lead level via exposure to surface soil and ditch soil at SEAD-121C. The IEUBK model results, based on residential exposure assumptions, were used as a screening tool to evaluate potential risks for adolescent trespasser. The IEUBK windows version software package was developed based on the USEPA (1994) IEUBK Guidance Manual. The model utilizes four interrelated modules (exposure, uptake, biokinetic, and probability distribution) to estimate blood lead (PbB) levels in children exposed to lead-contaminated media.

For both models, the site-specific EPCs and central tendency exposure factors were used along with the default assumptions presented in the models to derive the lead level estimation for the receptors. Surface water at both sites has elevated levels of lead; however quantification of dermal exposure to lead from surface water could not be completed since a model is not available at this time to quantify risk due to contact with surface water. The exposure to surface water is expected to be infrequent and therefore potential risks are expected to be minor.

#### 6.6 TOXICITY ASSESSMENT

The objective of the toxicity assessment is to weigh available evidence regarding the potential of the chemicals to cause adverse effects in exposed individuals, and to provide, where possible, an estimate of the relationship between the extent of exposure to a chemical and the increased likelihood and/or severity of adverse effects. The types of toxicity information considered in this assessment include the reference dose (RfD) and reference concentration (RfC) used to evaluate non-carcinogenic effects, and the slope factor and unit risk to evaluate carcinogenic potential. The toxicity values for this risk assessment were selected in accordance with the USEPA recommended human health toxicity value hierarchy. In a memorandum issued to Superfund Regions 1-10 National Policy Managers in December 2003, the USEPA Office of Solid Waste and Emergency Response (OSWER) provided a revised recommended human health toxicity value hierarchy as follows:

- Tier 1 USEPA's IRIS
- Tier 2 USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) developed by the Office of Research and Development / National Center for Environmental Assessment (NCEA) / Superfund Health Risk Technical Support Center (STSC).
- Tier 3 Other Toxicity Values from additional USEPA and non-EPA sources with priority given to those sources of information that are the most current, the basis for which is transparent and publicly available, and which have been peer reviewed.

For chemicals without toxicity values, it may be appropriate to generate a value by alternate methods. Such methods may include route-to-route extrapolation or use of toxicity values of chemicals that are related both chemically and toxicologically (e.g., evaluation of structure-activity relationships). For this assessment, no surrogate toxicity values were derived.

For the evaluation of carcinogenic PAHs, toxicity equivalency factors (TEFs) based on the toxicity of benzo(a)pyrene were used (USEPA 1993a). For cPAHs with incomplete toxicity data, slope factors were calculated using TEFs, which are values that compare the carcinogenic potential of a given chemical in a class to the carcinogenic potential of a chemical in the class that has a verified slope factor. USEPA has provided TEFs for cPAHs (USEPA, 1993a). TEF values are as follows:

| PAH                    | TEF   |
|------------------------|-------|
| Benzo(a)pyrene         | 1.0   |
| Benzo(a)anthracene     | 0.1   |
| Benzo(b)fluoranthene   | 0.1   |
| Benzo(k)fluoranthene   | 0.01  |
| Dibenzo(a,h)anthracene | 1.0   |
| Chrysene               | 0.001 |
| Indeno(1,2,3-cd)pyrene | 0.1   |

To calculate a slope factor for a given PAH the appropriate TEF value is multiplied by the slope factor for benzo(a)pyrene.

For the development of dermal toxicity values, information regarding gastrointestinal (GI) absorption efficiency for administered doses was used. Specifically, oral slope factors were converted to dermal slope factors by dividing by the GI absorption efficiency. Oral reference doses were converted to dermal reference doses by multiplying by the GI absorption efficiency. The derivation of the dermal toxicity values for this risk assessment is consistent with the USEPA (2004a) recommendation and the GI absorption efficiency recommended by USEPA in its Supplemental Guidance for Dermal Risk Assessment was used for the COPCs in this risk assessment. In the absence of any information on absorption for the substance or chemically related substances, an oral absorption efficiency of 100 percent was assumed in accordance with USEPA Region 2 guidance (personal communication between A. Schatz of Parsons and M. Maddeloni of EPA Region 2).

RfCs were converted to inhalation reference doses in units of milligrams of chemical per kilogram of body weight per day (mg/kg-day); similarly, inhalation unit risk factors were converted to inhalation slope factor in units of per milligrams of chemical per kilogram of body weight per day ((mg/Kg-day)<sup>-1</sup>). The conversion was made by assuming an inhalation rate of 20 m<sup>3</sup>/day and an adult body weight of 70 Kg. Thus:

Inhalation slope factor (mg/kg-day)<sup>-1</sup> = 
$$UnitRisk \left(\frac{ug}{m^3}\right)^{-1} \times \frac{day}{20m^3} \times 70kg \times \frac{1000ug}{mg}$$

Inhalation Reference Dose (mg/kg/day) = 
$$RfC\left(\frac{mg}{m^3}\right)x\left(\frac{20m^3}{day}\right)x\left(\frac{1}{70kg}\right)$$

Chronic RfDs and RfCs are ideally based on chronic exposure studies in humans or animals. Chronic exposure for humans is considered to be exposure of roughly seven years or more, based on exposure of rodents for one year or more in animal toxicity studies. Construction workers and adolescent trespassers at the sites were assumed to be exposed to the contaminants at the sites for 1 year and 6

years, respectively; therefore, subchronic RfDs and RfCs would be appropriate to evaluate the non-carcinogenic threshold effects. For this risk assessment, chronic RfDs and RfCs were used to conservatively assess risks for these receptors.

The toxicity factors used in this evaluation are summarized in **Tables 6-11A**, **6-11B**, **6-11C**, and **6-11D**.

#### 6.7 RISK CHARACTERIZATION

To characterize risk, toxicity and exposure assessments were summarized and integrated into quantitative expressions of risk. To characterize potential non-carcinogenic effects, comparisons were made between estimated intakes of substances and toxicity values. To characterize potential carcinogenic effects, probabilities that an individual will develop cancer over a lifetime of exposure were evaluated from estimated intakes and chemical-specific dose-response information.

# 6.7.1 Non-carcinogenic Effects

The potential for non-carcinogenic effects is evaluated by comparing an exposure level over a specified period with an RfD derived for a similar exposure period. This ratio of exposure to toxicity is called a hazard quotient according to the following equation:

Noncancer Hazard Quotient (HQ) = I/RfD

Where:

I = Intake or Absorbed Dose (mg/Kg-day)

RfD = Reference Dose (mg/Kg-day)

The non-cancer hazard quotient assumes that there is a level of exposure (i.e., an RfD) below which it is unlikely for even sensitive populations to experience adverse health effects. If the intake or absorbed dose exceeds the threshold (i.e., If I/RfD exceeds 1), there may be concern for potential non-cancer effects.

To assess the overall potential for non-carcinogenic effects posed by more than one chemical, a hazard index (HI) approach has been developed by the USEPA. This approach assumes that simultaneous sub-threshold exposures to several chemicals could result in an adverse health effect. It also assumes that the magnitude of the adverse effect will be proportional to the sum of the ratios of the subthreshold exposures to respective acceptable exposures.

This is expressed as:

$$HI = I_1/RfD_1 + I_2/RfD_2 + ... + I_i/RfD_i$$

Where:

 $I_i$  = the Intake or absorbed dose of the  $i^{th}$  COPC, and

 $RfD_i$  = the reference dose for the  $i^{th}$  COPC.

While any single chemical with an exposure level greater that the toxicity value will cause the HI to exceed one, for multiple chemical exposures, the HI can also exceed one even if no single chemical exposure exceeds its RfD. The assumption of dose additivity reflected in the HI is best applied to compounds that induce the same effects by the same mechanisms. Applying the HI to cases where the known compounds do not induce the same effect may overestimate the potential for effects. To assess the overall potential for non-carcinogenic effects posed by several exposure pathways, the total HI for chronic exposure is the sum of the HI's for each pathway, for each receptor.

# 6.7.2 Carcinogenic Effects

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen (i.e., excess individual lifetime cancer risk). The slope factor converts estimated daily intakes or absorbed dose averaged over a lifetime of exposure directly to incremental risk of an individual developing cancer. It can generally be assumed that the dose-response relationship will be linear in the low-dose portion of the multistage model dose-response curve. Under this assumption, the slope factor is a constant, and risk will be directly related to intake. Thus, the following linear low-dose equation was used in this assessment:

$$Risk = CDI \times SF$$

Where:

Risk = A unitless probability of an individual developing cancer, CDI = Chronic Daily Intake over 70 years (mg/Kg-day), and

 $SF = Slope Factor (mg/Kg-day)^{-1}$ 

For simultaneous exposure to several carcinogens, the USEPA assumes that the risks are additive. That is to say:

$$Risk_T = Risk_1 + Risk_2 + ... + Risk_i$$

Where:

Risk<sub>T</sub> = Total cancer risk, expressed as a unitless probability, and

 $Risk_i$  = Risk estimate for the  $i^{th}$  COPC.

Page 6-40

Addition of the carcinogenic risks is valid when the following assumptions are met:

- doses are low,
- no synergistic or antagonistic interactions occur, and
- similar endpoints are evaluated.

According to guidance in the National Contingency Plan, the target overall lifetime carcinogenic risks from exposures for determining clean-up levels should range from 10<sup>-6</sup>.

# 6.7.3 Risk Characterization for Lead Exposure

Risk characterization for lead exposure was conducted based on a comparison between the estimated blood lead level and the target PbB level of concern. Blood lead level was estimated based on the USEPA IEUBK model or the Adult Lead Model. The target PbB level of concern is 10.0 ug/dL for child (USEPA, 1994, 2003b).

## 6.7.4 Risk Summary

Human health risks were calculated for the construction worker, industrial worker, and adolescent trespasser from exposure to soil, ditch soil, and surface water at SEAD-121C, and from surface soil, ditch soil, and surface water at SEAD-121I. The risks via various exposure routes were summed up to represent the total risks for the receptors for the scenarios in the table below.

| Summary of the Exposure Scenarios |                       |  |  |
|-----------------------------------|-----------------------|--|--|
| Exposure                          |                       |  |  |
| Scenarios                         | Receptor              | Exposure Routes  |  |
| SEAD-121C                         | Industrial Worker     | Ingestion, inhalation, and dermal contact to soil; and intake of       |  |
| soil and                          |                       | groundwater  |  |
| groundwater                       | Construction Worker   | Ingestion, inhalation, and dermal contact to soil; intake of           |  |
| exposure                          |                       | groundwater; and dermal contact to groundwater                         |  |
|                                   | Adolescent Trespasser | Ingestion, inhalation, and dermal contact to soil; and intake of       |  |
|                                   |                       | groundwater  |  |
| SEAD-121C                         | Industrial Worker     | Ingestion, inhalation, and dermal contact to ditch soil; and intake of |  |
| ditch soil, surface               |                       | groundwater  |  |
| water, and                        | Construction Worker   | Ingestion, inhalation, and dermal contact to ditch soil; intake of     |  |
| groundwater exposure              |                       | groundwater; and dermal contact to groundwater and surface water       |  |
|                                   | Adolescent Trespasser | Ingestion, inhalation, and dermal contact to ditch soil; intake of     |  |
|                                   |                       | groundwater; and dermal contact to surface water                       |  |
| SEAD-121I                         | Industrial Worker     | Ingestion, inhalation, and dermal contact to soil                      |  |
| soil and groundwater              | Construction Worker   | Ingestion, inhalation, and dermal contact to soil                      |  |
| exposure                          | Adolescent Trespasser | Ingestion, inhalation, and dermal contact to soil                      |  |
| SEAD-121I                         | Industrial Worker     | Ingestion, inhalation, and dermal contact to ditch soil                |  |
| ditch soil, surface               | Construction Worker   | Ingestion, inhalation, and dermal contact to ditch soil; and dermal    |  |
| water, and                        |                       | contact to surface water   |  |
| groundwater exposure              | Adolescent Trespasser | Ingestion, inhalation, and dermal contact to ditch soil; and dermal    |  |
|                                   |                       | contact to surface water   |  |

The risk results for the above scenarios are presented in **Tables 6-12A** and **6-12B**. For each scenario, both the RME and CT values are presented. The risk calculation tables for each exposure route are presented in **Appendix E** for SEAD-121C soil, ditch soil, groundwater, and surface water exposure, and in **Appendix F** SEAD-121I surface soil, ditch soil, and surface water exposure. The following sections summarize the risk characterization results for SEAD-121C, SEAD-121I, and lead exposure.

## 6.7.4.1 SEAD-121C

Human health risks were calculated for the construction worker, industrial worker, and adolescent trespasser from exposure to soil, ditch soil, groundwater, and surface water at SEAD-121C. The potential risks due to the exposure pathways are summed up for each receptor (shown in **Table 6-12A**). For all receptors, risks were calculated for two exposure scenarios: 1) exposure to soil and groundwater, and 2) exposure to ditch soil, surface water (except industrial worker), and groundwater. The risks calculated for these two scenarios provide a range of potential risks resulted from any combinations of soil and ditch soil exposure at the site. **Table 6-12A** summarizes the cancer and non-cancer risks for all receptors and exposure routes corresponding to SEAD-121C soil, ditch soil,

groundwater, and surface water exposure. The results for both the RME and CT scenarios are presented. The risk calculation tables for each exposure route are presented in **Appendix E**.

At the DRMO Yard all total hazard indices calculated are less than 1, and the total cancer risks found for each receptor are less than 10<sup>-4</sup>. The hazard indices and cancer risks are summarized in **Table 6-12A** and in the table below.

| SEAD-121C RME Non-Cancer Hazard Index & Cancer Risk |                     |             |  |  |
|---|---------------------|-------------|--|--|
|   | Non-Cancer          |             |  |  |
| Receptor  | <b>Hazard Index</b> | Cancer Risk |  |  |
| Industrial Worker (Soil)                            | 0.4                 | 3.E-05      |  |  |
| Industrial Worker (Ditch Soil)                      | 0.02                | 1.E-06      |  |  |
| Construction Worker (Soil)                          | 0.8                 | 2.E-06      |  |  |
| Construction Worker (Ditch Soil)                    | 0.3                 | 7.E-07      |  |  |
| Adolescent Trespasser (Soil)                        | 0.03                | 3.E-07      |  |  |
| Adolescent Trespasser (Ditch Soil)                  | 0.03                | 1.E-07      |  |  |

The cancer risks for all receptors based on the RME scenario are below the USEPA upper limit of  $1x10^{-4}$ . The cancer risk values for the industrial worker and the construction worker are a result of ingestion of soil and dermal contact to soil, and the major contributors are cPAHs, most significantly benzo(a)pyrene, and arsenic.

Risk due to exposure to groundwater is not expected to be significant, since no COPCs were identified during the screening process.

The total cancer risks and non-cancer hazard indices based on the CT scenario for all receptors are within the EPA target range (i.e., total non-cancer hazard indices below 1 and total cancer risks below  $1 \times 10^{-4}$ ).

#### 6.7.4.2 SEAD-121I

**Table 6-12B** summarizes the cancer and non-cancer risks for all receptors and exposure pathways for both the RME and CT scenarios. The risk calculation tables for each exposure route are presented in **Appendix F**.

At SEAD-121I, the total non-cancer risks for the industrial worker and the construction worker are above the EPA limit of 1 as shown in **Table 6-12B** and in the summary table below.

| SEAD-121I RME Non-Cancer Hazard Index & Cancer Risk |                     |             |  |
|---|---------------------|-------------|--|
|   | Non-Cancer          |             |  |
| Receptor  | <b>Hazard Index</b> | Cancer Risk |  |
| Industrial Worker (Soil)                            | 30                  | 7.E-05      |  |
| Industrial Worker (Ditch Soil)                      | 3                   | 2.E-05      |  |
| Construction Worker (Soil)                          | 200                 | 8.E-06      |  |
| Construction Worker (Ditch Soil)                    | 20                  | 1.E-05      |  |
| Adolescent Trespasser (Soil)                        | 0.6                 | 9.E-07      |  |
| Adolescent Trespasser (Ditch Soil)                  | 0.08                | 1.E-06      |  |

The cancer risks for the RME scenario are below the USEPA upper limit of  $1x10^{-4}$  for all receptors. The hazard indices for the adolescent trespasser are within the USEPA limits. For the industrial worker and construction worker, the RME hazard indices for soil exposure are one order of magnitude greater than the hazard indices for ditch soil exposure, but both are above the USEPA limit.

The elevated hazard indices for the industrial worker were caused by inhalation of dust in ambient air from soil, ingestion of soil, and inhalation of dust in ambient air from ditch soil. For the construction worker the major pathways contributing to the hazard indices were inhalation of dust in ambient air from soil, ingestion of soil, dermal contact to soil, inhalation of dust in ambient air from ditch soil, and ingestion of ditch soil. The significant contributing COPC to all non-cancer risk for all receptors and exposure pathways is manganese. Arsenic also contributed to 27% of the non-cancer risk to the construction worker from ingestion of ditch soil. **Table 6-13** presents the contribution of major COPCs to hazard indices greater than 1.

#### 6.7.4.3 Lead Risk Characterization Results

At SEAD-121C, lead was identified as a COPC in surface soil, subsurface soil, ditch soil, and surface water. At SEAD-121I lead was retained as a COPC in surface water. This section presents the results of the quantitative and qualitative assessment of the risk via lead exposure at SEAD-121C and SEAD-121I.

#### SEAD-121C Soil

The central tendency exposure factors for industrial workers were used to evaluate potential risks associated with lead in soil. That is, the industrial worker was assumed to accidentally intake 50 mg soil each day while working at the site for 219 days each year. This assumption is consistent with the default assumptions used in the adult lead model (USEPA, 2003b).

Lead risk characterization results for surface soil exposure for the industrial worker at SEAD-121C are presented in **Table E-8A**. The 95<sup>th</sup> percentile PbB among fetuses of adult industrial workers are 7.8 and 9.8 ug/dL, assuming a homogeneous and a heterogeneous population, respectively. Both estimates are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, lead in SEAD-121C soil is not expected to pose potential risks to industrial workers or their fetuses, if any. It should be noted that the adult lead model is based on the assumption of continuing long term exposure. As construction workers are expected to work at the site in short-term (i.e., 1 year), risk associated with lead exposure is expected to be minor and therefore not evaluated in this risk assessment.

The IEUBK model results, based on residential child exposure assumptions, were used as a screening tool to evaluate potential risks associated with lead in SEAD-121C soil for adolescent trespassers. The results are presented in **Table E-8B**. It should be noted that the results can only be used as a screening tool as the exposure frequency for the adolescent trespasser is much less than the residential child. In addition, a child receptor is considered more sensitive than an adolescent receptor. As shown in **Table E-8B**, the 95<sup>th</sup> percentile PbB levels among residential children are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, it is concluded that lead in SEAD-121C surface soil does not pose a health risk to the adolescent trespasser receptor.

## **SEAD-121C Ditch Soil**

The lead risk characterization results for SEAD-121C ditch soil exposure are presented in **Tables E-9A** for the industrial worker. The 95<sup>th</sup> percentile PbB levels among fetuses of adult industrial worker are 5.2 and 6.8  $\mu$ g/dL, assuming a homogeneous and a heterogeneous population, respectively. Both estimates are below the USEPA target PbB level of concern (i.e., 10  $\mu$ g/dL). As the 95<sup>th</sup> percentile PbB levels among the industrial workers are below the USEPA target PbB level of concern (i.e., 10  $\mu$ g/dL), it is concluded that lead in SEAD-121C ditch soil does not pose a health risk to the industrial worker receptors. Although potential risks from lead in SEAD-121C ditch soil were not evaluated for construction workers, construction workers are expected to work at the site in short-term (i.e., 1 year). Therefore, risk associated with lead exposure is expected to be minor.

The IEUBK model results, based on residential child exposure assumptions, were used as a screening tool to evaluate potential risks associated with lead in SEAD-121C ditch soil for adolescent trespassers. The results are presented in **Table E-9B**. It should be noted that the results can only be used as a screening tool as the exposure frequency for the adolescent trespasser is much less than the residential child. In addition, a child receptor is considered more sensitive than an adolescent receptor. As shown in **Table E-9B**, the 95<sup>th</sup> percentile PbB levels among residential children are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, it is concluded that lead in SEAD-121C ditch soil does not pose a health risk to the adolescent trespasser receptor.

As mentioned in **Section 6.5.3.7**, a quantitative evaluation of dermal exposure to lead in surface water at SEAD-121C and SEAD-121I was not conducted as a reliable model is not available at this time to quantify risk due to contact with surface water. However, the ditches at the sites are dry most of the time and contact with surface water is not frequent by any receptors; therefore, risk associated with dermal exposure to lead in surface water is expected to be minor.

#### 6.8 UNCERTAINTY ANALYSIS

All risk assessments involve the use of assumptions and professional judgments to varying degrees. This results in uncertainty in the final estimates of risk. There are uncertainties associated with each component of the risk assessment from data collection through risk characterization. The qualitative evaluation of uncertainty associated with the four major steps (site characterization and data evaluation, exposure assessment, toxicity assessment, and risk characterization) of the risk assessment is discussed below in **Sections 6.8.1** through **6.8.4**. **Section 6.8.5** presents a quantitative evaluation of uncertainty associated with the COPC screening approach and specific exposure assumptions.

# 6.8.1 .Uncertainty in Site Characterization and Data Evaluation

The baseline human health risk assessment was conducted based on total soil, ditch soil, and surface water data available from SEAD-121C and SEAD-121I. Groundwater data collected using low flow sampling techniques at SEAD-121C was used in the human health risk assessment. At SEAD-121C, approximately 70 soil samples, ten ditch soil samples, six groundwater samples, and ten surface water samples were included in the baseline human health risk assessment. At SEAD-121I, over 50 surface soil and ditch soil samples, and eight surface water samples were included in the baseline human health risk assessment. The samples were collected biased toward overestimation of chemical concentrations at the sites. The size of the soil samples and the biased sampling approach indicate the uncertainty associated with site characterization is low.

Uncertainty in contaminant identification is considered low because generally full suite of CLP target compounds including VOCs, SVOCs, PCBs, pesticides, and metals were analyzed for the samples. Reasonable certainty also is assumed because of the sample data validation and quality assurance/quality control (QA/QC) procedures applied to sample analysis and data evaluation.

Chemicals were screened against USEPA Region 9 PRGs or other appropriate screening values and only those with the maximum detected concentrations exceeding the screening values were included in the risk characterization. As a conservative step, the Region 9 PRGs for the residential scenario were used for screening SEAD-121C and SEAD-121I data, even though the planned future use for both of these sites is industrial / office development and warehousing.

Region 9 PRGs are derived based on direct contact exposure (i.e., ingestion and dermal contact for soil and intake and inhalation for tap water) and a target cancer risk of  $1x10^{-6}$  or a target hazard

quotient of 1, whichever is lower. Therefore, the COPC screening conducted for this risk assessment might underestimate potential risks for the following reasons: 1) using a PRG corresponding to a hazard quotient of 1 may screen out COPCs that might contribute significantly to the total risks; and 2) using this approach may screen out COPCs that might contribute significantly to the total risks via exposure pathways not covered under the Region 9 PRG calculation. However, as the exposure pathways covered under the Region 9 PRG calculation are normally the most significant risk-contributing exposure pathways, this latter reason is not expected to significantly impact the results.

To evaluate the uncertainty associated with the first reason, the Army repeated the COPC screening process and compared the maximum detected concentrations with the Region 9 PRGs corresponding to a target cancer risk of  $1x10^{-6}$  or a target hazard quotient of 0.1, whichever is lower. Due to this modification, several additional COPCs, all metals, were identified for each affected medium. The risk calculation was re-performed to include the additional COPCs. The COPC screening and risk calculation results along with a detailed discussion of the risk results are presented in **Appendix I** and are summarized in **Section 6.8.5**, **below**. In summary, the revised COPC screening approach does not change the overall risk assessment conclusion for the sites.

# **6.8.2** Uncertainty in Exposure Assessment

Factors that can contribute to uncertainty in the exposure assessment include identification and evaluation of exposure pathways, assumptions for exposure scenario development, exposure parameters and derivation of exposure point concentrations.

The potential exposure pathways and receptors were identified based on the current and foreseeable future land use at the sites and other site-specific conditions. To the extent possible, receptors and exposure parameters were identified based on conservative (i.e., health protective) assumptions. For example, the future receptors were assumed to drink groundwater. Logically, it is extremely unlikely that this will occur since there is currently an acceptable potable water supply in the PID area that does not draw from the local groundwater. Further, data exists that suggests that the aquifer beneath the sites is not productive enough to supply the drinking water needs at the sites. Therefore, this assumption yields an overestimate of risk for this scenario.

Values assumed for exposure parameters (e.g., soil ingestion rate, inhalation rate, and exposure frequencies) used in calculations for intakes are based primarily on USEPA guidance. These assumptions may result in underestimating or overestimating the intakes for specific receptors, depending on the accuracy of the assumptions relative to actual site conditions and uses. For the scenarios in this risk assessment, upper bound values were selected for each exposure factor for the RME scenario. In the calculations of exposure, these multiple upper-bound exposure factor estimates compound to yield intakes and absorbed doses that likely overestimate exposure levels.

A 14 days/year exposure frequency was selected for the adolescent trespasser based on best professional judgment and knowledge of site-specific conditions. Specific factors considered included:

- the Depot is situated in a sparsely populated rural area;
- the Depot is fenced to limit access and is occasionally patrolled by site security personnel;
- the two sites are remotely located (300 5000 feet away) from the main entrance to the Depot;
- SEAD-121C and SEAD-121I are both located in close proximity to the Army's current office locations;
- SEAD-121I is located in an area where current warehousing operations are performed;
- both sites are typified as relatively open and generally flat; and,
- the setting of SEAD-121C/121I is generally similar to the surrounding areas and there are no specific features (e.g., vehicles, buildings, towers, culverts, etc.) that would attract special attention from potential adolescent trespassers.

Therefore, trespassing at SEAD-121C/121I is considered unlikely to occur frequently or for extended periods without individuals being challenged or noticed. On this basis, a 14 days/year exposure frequency is considered a reasonable assumption for the sites. Nonetheless, an elevated exposure frequency, 50 days/year (equivalent to two days a week for 25 weeks or approximately half a year), was also evaluated for the uncertainty analysis and is summarized in **Section 6.8.5.** In summary, even if the exposure frequency were increased from 14 days/year to 50 days/year, there would be no significant risks to the potential adolescent trespasser.

The exposure point concentrations used to calculate site-related risks were the 95% UCL, or other appropriate UCL recommended by USEPA, of the sample data's mean. This is a conservative approach which tends to overstate potential risks. The EPCs derived from the measured chemical concentrations are assumed to persist without change for the entire duration of each exposure scenario. It is likely that some degradation would occur over time, particularly for some of the organic compounds, which would reduce the current concentrations. Therefore, this steady state assumption tends to overestimate exposure levels.

A USEPA recommended model was used to calculate EPCs based on emissions from truck traffic on unpaved roads to estimate EPCs in ambient air from soil dust for a construction worker. The EPCs

estimated using this model may overestimate the EPCs as dust caused by wind erosion and other construction activities such as soil excavation and loading are expected to be lower than those caused by emission from truck traffic on unpaved roads.

The USEPA IEUBK model assuming a child resident was used as a screening tool for adolescent trespasser, who is exposed infrequently at the sites. The model results tend to overestimate potential risks for the adolescent trespasser and therefore were only used as a screening tool for the adolescent trespasser.

Default dermal absorption values recommended by USEPA (2004a) were used for this risk assessment. Because various factors affect the efficiency of dermal absorption, there is considerable uncertainty associated with these values. For example, some of the default dermal absorption values are based on studies of dermal absorption of metals in aqueous solutions; dermal uptake of metals in soil is likely to be lower. In addition, many compounds are only absorbed through the skin after a long exposure duration (i.e., >24 hours). Since most individuals bathe at least once each day, washing may remove any soil residues adhering to the skin before absorption can occur. Therefore, dermal absorption rates based on studies with long exposure durations may overestimate actual absorption. As an example, the default dermal absorption value for PAHs may overstate potential risks associated with dermal exposure to soil. In contrast with the default value of 13%, which is based on a single data set, the dermal absorption value of 2%, as recommended by Magee et al. (1996), is a point estimate based on four different data sets, including the in vivo data from Wester et al. (1990); human in vitro data also from Wester et al.; as well as in vivo and in vitro data in rats, from Yang et al., (1989, as cited in Magee et al., 1996). Because no single study is ideal for estimating dermal absorption, it seems appropriate to base dermal absorption on several data sets, each of which seem equally suited for a deriving dermal absorption factor.

#### **6.8.3** Uncertainty in Toxicity Assessment

Uncertainty is inherent in the toxicity values used in characterizing the carcinogenic and noncarcinogenic risks. Such uncertainty is chemical-specific and is incorporated into the toxicity value during its development. For example, an uncertainty factor may be applied for interspecies and intrahuman variability, for extrapolation from subchronic to chronic exposures, and/or for epidemiological data limitations. Most cancer slope factors are calculated using a model that extrapolates low dose effects from high dose animal studies. Because toxicity constants are generally based on the upper limit of the 95th-percentile confidence interval or incorporate safety factors to compensate for uncertainty, chemical-specific risks may be overestimated. In addition, chronic toxicity values were used to evaluate subchronic non-cancer risks in this baseline risk assessment due to the general lack of subchronic toxicity values. This practice will potentially overstate risks for the construction worker and the adolescent trespasser.

Toxicity values may not be available for some COPCs, thereby precluding their inclusion in the quantitative risk estimates. The resulting risk estimates will not include the chemical-specific risks from these chemicals, and, therefore, may underestimate risk. Risks associated with exposure to iron were assessed using the toxicity value (RfD) developed by USEPA National Center for Environmental Assessment (NCEA). The toxicity value has not yet been adopted by USEPA IRIS database or the PPRTV database. Risks associated with exposure to PAHs were assessed using the TEF approach. The potential hazards/risks associated with these chemicals may be uncertain.

Toxicity information was not available for dermal exposure. This is due to the lack of scientific studies available to quantify dermal toxicity and carcinogenic potential for the vast majority of priority pollutants and because chemical specific information needed to convert ingested dose to absorbed dose is not available. In accordance with the USEPA (2004a) guidance, oral toxicity values were used with adjustment to derive dermal toxicity values. The dermal toxicity value developed using this approach may result in over or under estimation of potential risks associated with dermal exposure.

# 6.8.4 Uncertainty in Risk Characterization

Some of the procedures used and uncertainties inherent in the human health risk characterization process may tend to underestimate or overestimate potential risk. The summing of hazard quotients (HQs) for all COPCs represents a conservative approach because the reference dose (or the reference concentration) for a given COPC for a given pathway is calculated for a certain toxicological endpoint (*e.g.*, liver, kidneys, etc.). To calculate an accurate estimate of potential non-carcinogenic health risks, HQs with the same toxicological endpoints should only be summed. Therefore, the risks calculated by summing the HQs for all COPCs are likely overstated. On the other hand, the assumption of additivity does not allow for potential synergistic or antagonistic effects of various chemicals, which may result in an underestimation or overestimation of risk, respectively.

On March 29, 2005 the EPA issued two final guidance documents: "Guidelines for Carcinogen Risk Assessment" and "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens". The new risk guidance reflects the EPA's current procedure for assessing cancer risk. The supplemental document deals specifically with assessing the health impact from early-life exposure. This final guidance document recommends adjusting the potency factor (e.g., cancer slope factor) for carcinogens acting through a mutagenic mode of action to address early-life exposure. A default 10-fold adjustment is proposed to apply for the first 2 years of life and a 3-fold adjustment is proposed to apply for ages after 2 through 16. According to the supplemental guidance, benzo(a)pyrene and dibenz(a,h)anthracene are associated with a mutagenic mode of action for carcinogenesis. For the uncertainty analysis, risks for trespasser (ages 11-16 yr) were evaluated based on the adjusted oral cancer slope factor for benzo(a)pyrene and dibenz(a,h)anthracene (i.e., three times of the value listed in IRIS). The cancer risks for the adolescent trespasser would still be less than 10<sup>-4</sup> if the adjusted cancer slope factor were used. Due to limited information of mode of action, default

adjustment was not conducted for the other carcinogens. As benzo(a)pyrene and dibenz(a,h)anthracene are the predominant cancer contributor at the site, the uncertainty associated with not adjusting for early-life exposure is not expected to impact the risk results.

## 6.8.5 Quantitative Uncertainty Analysis

The risk assessments were re-performed for SEAD-121C and SEAD-121I under the RME scenario with the following revised approach/assumptions to evaluate associated uncertainty.

- The COPC screening was conducted by comparing the maximum detected concentrations with Region 9 PRGs corresponding to a target cancer risk of 1x10<sup>-6</sup> or a target hazard quotient of 0.1, whichever is lower; and
- Risk assessment was repeated for an elevated exposure frequency of 50 days/year for the adolescent trespasser (ages 11-16 yr).

The modified risk results are presented and discussed in detail in **Appendix I**. This section summarizes the risk results and potential impact to the human health risk assessment conclusion caused by the COPC screening revision. In summary, the above approach and assumption revisions do not impact the overall risk assessment conclusions at the sites. Although elevated non-cancer risks were identified for construction workers exposed to COPCs in the impacted mediums at SEAD-121C, the risks were caused by background metal levels at the site and groundwater intake. Elevated non-cancer risks were identified for industrial workers, construction workers, and adolescent trespassers with elevated exposure frequency (i.e., 50 days/year) who may potentially be exposed to COPCs in the impacted mediums at SEAD-121I, the risks were caused by manganese and iron associated with the ore piles and background metal levels at the site. Once the strategic materials at SEAD-121I and their associated residues are removed by the DoD, and with the recommended institutional control (i.e., restriction of groundwater use and access and prohibition of residential housing, school, childcare facility and playground development) in place for the sites, the sites would not pose unacceptable risks to human health.

## 6.9 COC IDENTIFICATION

This section presents the COC identification based on the human health risk assessment results.

#### 6.9.1 SEAD-121C Soil, Groundwater, and Surface Water

As discussed in **Section 6.7.4.1**, the total cancer risks and non-cancer hazard indices based on the RME and CT scenarios for all receptors with exposure to SEAD-121C surface soil, ditch soil, and surface water are within the USEPA target range (i.e., total non-cancer hazard indices below 1 and

total cancer risks below 1x10<sup>-4</sup>). No COPCs were identified in groundwater at the DRMO Yard during the screening process. Therefore, no COCs were identified for any media at SEAD-121C.

Since concentrations detected in the groundwater at the DRMO Yard were below screening levels, risk due to exposure to groundwater is expected to be minimal. Data from SEAD-27 (Building 360), which is adjacent to the DRMO Yard, was collected from three sampling points (two wells and a Tsump) immediately upgradient of the DRMO Yard wells (refer to **Figures 4-19**). The risks identified at SEAD-27 (Building 360) are covered in a separate document, "Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004) and a groundwater use restriction has been placed on the groundwater at this site. Since SEAD-27 (Building 360) is in close proximity to the DRMO Yard, the potential risk due to intake of groundwater (for all receptors) and dermal contact to groundwater (for the construction worker) was calculated using the low flow groundwater data at SEAD-121C and SEAD-27 (Building 360). Table **6-14A** presents the risk from ingestion of groundwater at SEAD-27 (Building 360) and SEAD-121C. The hazard index for all three receptors is greater than 1 due to the presence of iron in the samples collected from the T-sump in Building 360. Table 6-14C shows that the potential risk due to dermal contact to groundwater has a hazard quotient less than 1 and a cancer risk value of 2 x 10<sup>-9</sup>. While risk from groundwater intake is identified for this combined data set, it is noted that the contaminants leading to this risk were detected at SEAD-27 (Building 360) and were absent from all permanent wells located in the DRMO Yard. This suggests that the contaminants and associated risk are limited to SEAD-27 (Building 360) and have not migrated to downgradient wells. The results of the risk calculation based on SEAD-27 (Building 360) and SEAD-121C low flow data confirms the need for a groundwater use restriction at SEAD-27 (Building 360), which is already in place as a result of the IC ROD (Parsons, 2004). In addition, risk to residential children due to contact with lead in the groundwater was evaluated using the IEUBK model, and the results indicated that there was no risk from lead exposure.

As discussed in **Section 6.7.4.4**, the lead levels in SEAD-121C surface soil and ditch soil do not pose a health risk to the receptors. Therefore, lead should not be considered as a COC at the site.

As stated previously, ditch soils were treated as surface soil, which assumed that the soils were dry. Site observations indicated that some of the drainage ditches at SEAD-121C was occasionally wet during portions of the year. Wet soils adhere to skin more than dry soil, so the exposure scenario would be different for dermal contact to soil. As a conservative estimate, Parsons reran the risk assessment assuming that all ditch soils were wet in order to evaluate potential risk in this worst-case scenario. At SEAD-121C potential risk due to dermal contact to ditch soils was re-calculated by adjusting the adherence factor to 1. A comparison of hazard quotients and cancer risk values for dermal contact to dry ditch soil and wet ditch soil is presented in **Table 6-15**. The table shows that even using the conservative and unrealistic assumption that all ditch soil is wet does not cause hazard quotients to exceed 1 or cancer risk values to exceed 10<sup>-4</sup>. Therefore, even in an unrealistic scenario where ditch soil at SEAD-121C was always wet, the potential for risk is below USEPA guidance levels.

#### 6.9.2 SEAD-121I Soil and Surface Water

As discussed in **Section 6.7.4.2**, the total cancer risks based on the RME and CT scenarios are below the USEPA upper target limit  $(1x10^{-4})$  for all the receptors with exposure to SEAD-121I surface soil, ditch soil, and surface water.

The total non-cancer hazard indices based on the RME for the industrial worker and construction worker are above the USEPA target limit of 1, due to inhalation, intake, and dermal exposure to surface soil or ditch soil. Inhalation of dust generated from surface soil or ditch soils posed the greatest hazard risk for the industrial worker and construction worker.

| SEAD-121I Contributing Pathways to Risk |                                 |                             |  |
|---|---------------------------------|-----------------------------|--|
|   |                                 | % Contributing to RME Total |  |
| Receptor                                | Pathway                         | Non-Cancer Hazard Index     |  |
| Industrial Worker                       | Inhalation of Dust (Soil)       | 82%                         |  |
|   | Ingestion of Soil               | 16%                         |  |
|   | Inhalation of Dust (Ditch Soil) | 94%                         |  |
| Construction Worker                     | Inhalation of Dust (Soil)       | 91%                         |  |
|   | Ingestion of Soil               | 9%                          |  |
|   | Dermal Contact to Soil          | 1%                          |  |
|   | Inhalation of Dust (Ditch Soil) | 86%                         |  |
|   | Ingestion of Ditch Soil         | 13%                         |  |

Manganese was the major contributor to the non-cancer risk. Strategic stockpiles of ferrous-manganese ore are staged at SEAD-121I. The levels of manganese detected at SEAD-121I are associated with the ore piles. Once the time when the Strategic Stockpiles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles. Therefore, manganese is not considered a COC at SEAD-121I.

# 6.10 COMPARISON OF CHEMICALS DETECTED IN SITE SAMPLES TO ARARS

USEPA (1989) guidance dictates that all chemicals detected in site media be compared to applicable or relevant and appropriate requirements (ARARs) at a site. Although a contaminant may not be identified as a COC from the risk assessment, it may exceed an ARAR and, therefore, should be evaluated in the HHRA. A discussion of the ARARs and TBCs identified for the sites is presented in **Section 4**. No ARARs were identified for soil and NYSDEC (1998 with addendum) Ambient Water Quality Standards [Technical Operating Guidance (TOGS), 1.1.1, Class GA Standards] were

identified as ARARs for groundwater and surface water at the sites. The NYSDEC TAGMs were identified as TBC for soil at the sites. An evaluation of the data compared with the ARARs and TBCs is presented in **Section 4** of this report. In brief, PAH concentrations in soil exceeded the TAGM values in various sample locations. Concentrations of various metals in soil were above the TAGM values. Various metals in groundwater had concentrations above the NYS Groundwater Standards. None of these constituents were identified as COCs based on the baseline human health risk assessment. That is, the concentrations of these constituents in soil did not result in a derived risk or hazard greater than the USEPA target limits.

#### 6.11 SUMMARY AND CONCLUSIONS

Risks to the three receptors identified for SEAD-121C and SEAD-121I based on the current and future use of the sites (i.e., industrial worker, construction worker, and adolescent trespasser) via exposure to surface soil, subsurface soil, ditch soil, groundwater, and surface water at SEAD-121C; and exposure to surface soil, ditch soil, and surface water at SEAD-121I were evaluated in accordance with the USEPA RAGS. The baseline risk assessment results associated with exposure to the following scenarios are summarized in this section:

#### **SEAD-121C**

- exposure to surface soil (inhalation, ingestion, and dermal contact) for all receptors; and subsurface soil (inhalation, ingestion, and dermal contact) for the construction worker.
- exposure to ditch soil (inhalation, ingestion, and dermal contact) and dermal contact to surface water for the construction worker and adolescent trespasser.
- exposure to surface water via dermal contact was evaluated for the construction worker and adolescent trespasser.
- exposure to groundwater was not evaluated since no COPCs were identified.

## **SEAD-121I**

- exposure to surface soil (inhalation, ingestion, and dermal contact) for all receptors.
- exposure to ditch soil (inhalation, ingestion, and dermal contact) and dermal contact to surface water for the construction worker and adolescent trespasser.
- exposure to surface water via dermal contact was evaluated for the construction worker and adolescent trespasser.
- exposure to groundwater was not evaluated since no COPCs were identified.

#### 6.11.1 SEAD-121C Soil and Surface Water Exposure

A summary of the risk assessment results for exposure to SEAD-121C surface and subsurface soil, ditch soil, and surface water is presented below.

| Risks Based on RME Scenario   |          |          |                |        |
|---|----------|----------|----------------|--------|
| SEAD-121C Soil and Surface Water Exposure Hazard Index Cancer Risk Hazard Index Cancer Risk |          |          |                |        |
| Receptor  | for Soil | for Soil | for Ditch Soil |        |
| Industrial Worker   | 0.4      | 3.E-05   | 0.02           | 1.E-06 |
| Construction Worker   | 0.8      | 2.E-06   | 0.3            | 7.E-07 |
| Adolescent Trespasser   | 0.03     | 3.E-07   | 0.03           | 1.E-07 |

USEPA target limits:

cancer risk of  $10^{-6} - 10^{-4}$ ; hazard index of 1

The total cancer risks and non-cancer hazard indices based on the RME and CT scenarios for all receptors were within the USEPA target range (i.e., cancer risks below 10<sup>-4</sup> and hazard indices below 1), summarized in **Table 6-12A**. In addition, lead in surface soil and ditch soil is not expected to pose significant risks to the receptors at the sites. Therefore, media at SEAD-121C pose no risks to potential human receptors and no COCs were identified for soils, ditch soils, groundwater, or surface water at SEAD-121C.

## 6.11.2 SEAD-121I Soil and Surface Water Exposure

A summary of the risk assessment results for receptors exposed to SEAD-121I surface soil, ditch soil, and surface water is presented below.

| Risks Based on RME Scenario SEAD-121I Soil and Surface Water Exposure                            |     |        |      |        |
|--|-----|--------|------|--------|
| Receptor Hazard Index Cancer Risk Hazard Index Cancer For Soil for Soil for Ditch Soil for Ditch |     |        |      |        |
| Industrial Worker  | 30  | 7.E-05 | 3    | 2.E-05 |
| Construction Worker  | 200 | 8.E-06 | 20   | 1.E-05 |
| Adolescent Trespasser  | 0.6 | 9.E-07 | 0.08 | 1.E-06 |

USEPA target limits:

cancer risk of  $10^{-6} - 10^{-4}$ ; hazard index of 1

The total cancer risk based on the RME and CT scenarios for all receptors exposed to surface soil, ditch soil, and surface water at SEAD-121I are within the EPA target range. The total non-cancer risk based on the RME and CT scenarios for the industrial worker and construction worker are above the USEPA target range, summarized in **Table 6-12B**. Exposure to dust generated from either the surface soil or ditch soil may pose a non-cancer hazard to the industrial worker and construction worker. Manganese is the COPC contributing to the elevated hazard index. **Table 6-13** summarizes the contributing COPCs and exposure route that generate risk to human health. The manganese detected in the soils was a result of the strategic ferrous-manganese ore piles. Therefore, manganese

is not a COC and no other COCs have been identified in the risk assessment for surface soil, ditch soil, groundwater, or surface water at SEAD-121I.

In addition, lead in SEAD-121I surface soil or ditch soil does not pose a health risk to the receptors. Therefore, the surface soil and ditch soil do not pose significant risks to potential human receptors.

#### 6.11.3 Conclusion

The Army intends to place institutional controls in the form of land use restrictions on the PID parcel and these restrictions would eventually apply to SEAD-121C and SEAD-121I. As described in the Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004), signed on September 28, 2004 by USEPA, these restrictions are as follows:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.
- Prevent access to or use of groundwater until the Class GA Groundwater Standards are met.

Based upon the planned future land use for the sites, no COCs were identified for any affected media at SEAD-121C or SEAD-121I. Chemicals associated with the release at the sites do not pose a health risk to potential receptors at the sites.

At SEAD-121C, the cancer and non-cancer risks are within the USEPA limits. Any contamination causing risk at SEAD-27 is not impacting the DRMO Yard. No actions will be necessary at SEAD-121C based on the baseline human health risk assessment.

At SEAD-121I, the cancer risks are within the USEPA limits, while there is a potential for non-cancer risk due to the presence of manganese in soils and ditch soils. All non-cancer risks are caused by the presence of manganese, which are related to the storage of strategic ore piles. The Army is consolidating the Strategic Stockpiles and the ore piles on site will be removed in the future when any cleanup of the ore pile area will be handled under a different cleanup project.

Based on the above discussion, it is the Army's position that soil, ditch soil, surface water, and groundwater at SEAD-121C and SEAD-121I do not pose a health risk to potential receptors at the sites and no further action is warranted at SEAD-121C or SEAD-121I based on the human health baseline risk assessment.

#### 7.0 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

A screening-level ecological risk assessment (SLERA) was performed for the Defense Reutilization and Marketing Office (DRMO) Yard (SEAD-121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I) at the Seneca Army Depot Activity in Romulus, New York to evaluate whether contaminants at the sites have the potential to cause adverse effects to ecological resources. This section provides a description of the methodology and a summary of the SLERA results. Complete exposure calculation tables are provided in **Appendix G**.

#### 7.1 INTRODUCTION

This SLERA was conducted in accordance with several USEPA and NYSDEC guidance documents including Ecological Risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997c), Guidelines for Ecological Risk Assessment (USEPA, 1998b), Fish and Wildlife Impact Analysis (NYSDEC, 1994b), and The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments (USEPA, 2001a).

The current USEPA (1997c) ecological risk assessment paradigm includes eight general steps:

- 1. Screening-Level Problem Formulation and Ecological Effects Evaluation;
- 2. Screening-Level Exposure Estimate and Risk Calculation;
- 3. Baseline Risk Assessment Problem Formulation;
- 4. Study Design and Data Quality Objective (DQO) Process;
- 5. Field Verification of Sampling Design;
- 6. Site Investigation and Analysis Phase;
- Risk Characterization; and
- 8. Risk Management.

The ecological risk assessment presented in this section includes a screening-level ecological risk assessment (SLERA, Steps 1 and 2) and further refinement of chemicals of concern (COCs) (Step 3.2). Step 3.2, COC refinement, was performed in accordance with the USEPA's ERAGS (1997c) and the supplemental guidance of ERAGS (USEPA, 2001a). The SLERA process is summarized in **Figure 7-1**.

Upon completion of screening-level Ecological Risk Assessment (ERA) Step 2, there is a Scientific Management Decision Point (SMDP) with four possible decisions according to the ERAGS (USEPA, 1997c) and the supplemental guidance (USEPA, 2001a):

- There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risks;
- The information is not adequate to make a decision at this point and the ERA process should continue to a baseline ERA;
- The information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted; or
- It may be preferable to cleanup the site to the screening values for some sites of relatively small size or where the contamination has a sharply defined boundary rather than to spend time and resources determining a less conservative cleanup number.

The results of the SLERA indicate which contaminants found at the site can be eliminated from further consideration and which should be evaluated further. The refinement of COCs helps streamline the overall ERA process by considering additional components early in the baseline ERA. The results of the ecological risk assessment presented will be used to determine the need for further study. The baseline ERA, if conducted, will further evaluate potential or actual adverse ecological effects associated with site-related contaminants and results will be used to develop appropriate remedial measures, if required.

#### 7.2 STEP 1A: SCREENING-LEVEL PROBLEM FORMULATION

This step considers environmental characteristics of the sites, contaminants present, potential fate and transport processes, and potential receptor categories and exposure pathways. A brief ecological characterization is provided, contaminants of potential concern are identified, and a preliminary conceptual site model is presented.

#### 7.2.1 Environmental Setting

Information of the sites is provided in **Sections 1** through **5** of the report: general site information is presented in **Section 1.0**; all investigations conducted for the sites are summarized in **Sections 2.0** and **3.0**; nature and extent of impact is discussed in **Section 4.0**; and the fate and transport of contaminants is presented in **Section 5.0**. This section provides a brief introduction of SEAD-121C (**Section 7.2.1.1**) and SEAD-121I (**Section 7.2.1.2**) and a habitat and ecological community characterization for the sites (**Section 7.2.1.3**).

#### **7.2.1.1 SEAD-121C – The DRMO Yard**

SEAD-121C is comprised of a triangularly-shaped gravel lot located in the east-central portion of the Depot (**Figure 1-3**), roughly 4,000 ft. (0.75 miles) southwest of the Depot's main entrance off of State Route 96. Several buildings (Buildings 360, 316, and 317) are located adjacent and east of the site, and one building (Building T-355) is located within the site boundaries. Building T-355 is located in the central part of the DRMO Yard and is used for storage. The DRMO Yard is surrounded by a chain-linked fence and access into the site is limited by a single gate that is normally locked and that is located south of Building 360.

The surface of the DRMO Yard is graded to allow surface water to drain toward the man-made ditches that bound the site on the north and south sides. The major pathway of surface water flow out of SEAD-121C is to these drainage ditches, which then flow to the west towards a wetland area and the headwaters of Kendaia Creek in the former munitions storage area.

Bedrock is encountered at less than 8 feet below the ground surface (bgs) in most locations at SEAD-121C. The geologic units commonly encountered were till, brown silt or clay, fill material (in a few locations), and weathered shale above competent shale. Groundwater was encountered at less than 2 feet above competent shale (approximately 5-6 feet below grade) and flows to the southwest.

In addition to Building T-355, several other man-made features are prominent within the DRMO Yard; these features include: a ladled-shaped, earthen-bottomed, storage cell in the southwest corner of the site; a rectangular-shaped, earthen-bottomed, storage cell immediately adjacent to, and located halfway along the northwest perimeter fence of the site; and a multi-chambered, concrete-bottomed, storage cell adjacent to the east perimeter fence, near the northern-most point of the DRMO Yard. Each of the storage cells is bounded horizontally on three sides by concrete (jersey) barriers. Common debris, including scrap metal, wood debris, ordnance components, batteries, tiles, oil filters, auto parts, paint cans, tires, and other miscellanies, were found in the concrete-bottomed, multichambered storage cell. During site visits in 2002, 2003, and 2004, Parsons observed that scrap metal, military items, and old machines were stored in the earthen-bottomed storage cell located along the northwest fence, while the ladle-shaped earthen-bottomed cell was empty, except for small quantities of metal shavings. A silo-like structure was also found inside the fence of the DRMO Yard, adjacent to the northern edge of Building 360. Furthermore, a large crane was located in the northern portion of the Yard, north of the silo-like structure and Buildings 360 and 316. East of the DRMO Yard, a dielectric transformer box was observed between Building 317 and First Street. Train tracks were also observed to approach the DRMO Yard from the north, with one spur ending at Building 317, a second ending at Building 316, while a third spur extended to the area between Building 316 and Building 360.

## 7.2.1.2 SEAD-121I - The Rumored Cosmoline Oil Disposal Area

The site-wide physical characteristics of SEAD-121I (Rumored Cosmoline Oil Disposal Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-121I there are two rows of buildings that are actively used for warehousing. Buildings 331 and 329, located to the west and across Avenue C, receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-121I is overland flow to ruts located along the sides of the roadways, to catch basins, and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1,000 feet) west of SEAD-121I. From that point, surface water flow either infiltrates into the ground, or during high flow periods it may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake at a location north of Pontius Point and the SEDA's Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-121I may move easterly toward Cayuga Lake.

Subsurface conditions at SEAD-121I are governed by shallow bedrock, as the site is located near the top of a geological divide. The site is located on the western slope of this divide and therefore, regional groundwater flow is expected to be primarily westward towards Seneca Lake. Bedrock is typically encountered at a depth of 6 inches to 2 ft. bgs across the entire site, and it is composed mainly of weathered shale and glacial till.

Two ferrous-manganese ore piles are located within the site; one ore pile is in the first (north to south) block and the other ore pile is in the third (north to south) block. These ore piles are part of Strategic Stockpile. The ore piles are exposed to the weather and run off surface water is collected by the existing storm water collection system within the Planned Industrial/Office Development (PID) area. The ore piles are expected to be removed from SEAD-121I at a future time.

#### 7.2.1.3 Habitat and Ecological Community Characterization

Site-specific ecological evaluations of the plant and animal habitats and communities at SEAD-121C and SEAD-121I have not been conducted. Characterizations of the habitat and ecological communities present at the sites are based on general observations made during the 1998 Environmental Baseline Survey (EBS) and the 2002 Remedial investigation (RI), and on the results of the ecological evaluations and assessment that have been conducted at other solid waste management units at the Depot (e.g., SEADs-4, 12, 16, 17, 25 and 26, and the Open Burning (OB) Grounds) as

part of the remedial investigations. The results and findings of the ecological characterizations completed at the other SWMUs were used along with observations made at the sites to characterize the ecological settings at SEAD-121C and SEAD-121I. Key aspects of these characterizations relevant to this risk assessment are presented below.

Ecological site characterizations conducted for other SWMUs at the Depot are based on compilation of existing ecological information and on-site reconnaissance activities. The methods used to characterize the ecological resources included site-walkovers for the evaluation of existing wildlife and vegetative communities; interviews with local, state, and SEDA resource personnel; and review of environmental data obtained from previous Army reports. SEDA has a strong wildlife management program that is reviewed and approved by the New York Fish and Game Agency. The Depot manages an annual white-tailed deer (*Odocoileus virginiana*) harvest and has constructed a large wetland called the "duck pond" in the northeastern portion of the facility to provide a habitat for migrating waterfowl.

The NYSDEC Natural Heritage Program Biological and Conservation Data System identifies no known occurrences of federal- or state-designated threatened or endangered plant or animal species within a 2-mile radius of the sites. No species of special concern are documented within the Depot property.

The only significant terrestrial resource known to occur at SEDA is the population of white-pelaged white-tailed deer, which inhabits the fenced portion of the Depot. Annual deer counting conducted at the Depot indicates that the size of the deer herd is approximately 600 animals of which approximately one-third (i.e., 200) are white-pelaged. Since the Depot is totally enclosed, the white-pelaged deer is thought to result from inbreeding within the herd. The Depot maintains the herd through an annual hunting season to prevent overgrazing and starvation of the deer. The management plan of the herd is conducted by the New York State Division of Fish and Wildlife (DFW). The normal brown-pelaged deer are also common. White-tailed deer are not listed as a rare or endangered species.

Agricultural crops and deciduous forests comprise the vegetative resources used by humans near SEDA. Although no crops are grown at the Depot, farmland is the predominant land use of the surrounding private lands. Crops including corn, wheat, oats, beans and hay mixtures, are grown primarily for livestock feed. Deciduous forestland on the Depot and surrounding private lands is under active forest management. Timber and firewood are harvested from private woodlots that surround the Depot, but timber harvesting does not occur on the Depot.

Vegetation across the Depot consists of successional old field, successional shrub, and successional hardwoods. The NYSDEC Natural Heritage Program Biological and Conservation Data System identifies no known occurrences of federal- or state-designated threatened or endangered plant. No species of special concern are documented within the Depot property. No rare or endangered species were observed during the site assessment.

Several wildlife species are hunted and trapped on private lands near SEDA. Game species hunted include the eastern cottontail, white-tailed deer, ruffed grouse, ring-necked pheasant, and various waterfowl. Gray squirrel and wild turkey are hunted to a lesser extent. At the Depot, deer, waterfowl, and small game hunting is allowed. Trapping is also permitted on the Depot.

Animals that have been identified at the Depot during various ecological surveys include the beaver, eastern coyote, deer, red and gray fox, eastern cottontail rabbit, muskrat, raccoon, gray squirrel, striped skunk, and the woodchuck. Bird species that have been identified include the bluejay, black-capped chickadee, American crow, mourning dove, northern flicker, ruffed grouse, ring-billed gull, red-tailed hawk, northern junco, American kestrel, white breasted nuthatch, ring-necked pheasant, American robin, eastern starling, turkey vulture, and pileated woodpecker.

There are no permanent lakes, ponds, streams or wetlands in either SEAD-121C or SEAD-121I. Surface water only exists intermittently in man-made drainage ditches; thus, it does not directly support aquatic life.

No signs of stressed or altered terrestrial biota (vegetation and wildlife species) were observed at either SEAD-121C or SEAD-121I. There were no indications of unnatural die-off or stunted vegetation.

# 7.2.2 Preliminary Ecological Conceptual Site Model

A preliminary Conceptual Site Model (CSM) was developed for the sites and presented in **Figure 7-2**. The CSM provides an overall assessment of the primary and secondary sources of contamination at the sites, and the corresponding release mechanisms and affected media. Potential sources of contamination, potentially complete exposure pathways, and ecological receptors are depicted in the CSM. Sources, release mechanisms, affected media, contaminant fate and transport, and current and future foreseeable land use of the sites are discussed in **Section 6.0** of the report. Potentially complete exposure pathways and potential ecological receptors are further discussed below.

A complete exposure pathway consists of a source and mechanism of contaminant release, a transport mechanism for the released contaminants, a point of contact, and a route of contaminant entry into the receptor. If any of these elements is missing, the pathway is incomplete. In addition, potential receptors were identified to allow evaluation of potentially complete pathways.

The CSM identifies exposure to surface soils (0-2 ft. bgs), ditch soil, and surface water at SEAD-121C and SEAD-121I as complete exposure pathways (current and future) for ecological receptors. Pathways evaluated in the SLERA are presented in **Figure 7-2**. Pathways evaluated in the SLERA include direct exposure (ingestion, dermal, and inhalation) and ingestion of contaminated biota. Various prey items such as plants and animals are consumed by receptors and serve as indirect exposure routes for contaminants. Receptors also incidentally ingest media during foraging activities. While terrestrial receptors are exposed to air, uncertainties associated with inhalation exposures to

chemicals inhibit assessment of the impacts from exposure to this medium. Similarly, dermal exposure to chemicals is difficult to quantify due to a lack of toxicity data. Given these factors, the SLERA for SEAD-121C and SEAD-121I quantitatively assesses exposure to contaminants in the mediums (soil, ditch soil, and surface water) and biota through ingestion.

For most terrestrial receptors, soil exposure intervals are limited to the upper 2 feet of the soil column. For purposes of this SLERA, surface soil was defined as the 0-2 ft. bgs. Surface and subsurface soil (0-4 ft. bgs, hereafter referred to as total soil) may be uncovered during excavation activities in the future and therefore may result in contaminants in the soil becoming available for contact. Therefore, exposure to total soil (0-4 ft. bgs) was also evaluated in this SLERA.

Ecological receptors are not directly exposed to contaminants in groundwater. As shown in **Figure 7-2**, exposure to groundwater was considered an incomplete pathway at SEAD-121C and SEAD-121I.

There are no permanent lakes, ponds, streams or wetlands in either SEAD-121C or SEAD-121I. Man-made drainage ditches at SEAD-121C and SEAD-121I are dry most of the time during the year and are not expected to support any balanced aquatic community. Exposure to ditch soil and surface water was evaluated for wildlife receptors identified for the SLERA.

## 7.2.3 Identification of Ecological COPCs

Chemicals of potential concern (COPCs) were identified by comparing the maximum detected concentrations in each impacted medium to ecological risk-based screening values. The data used for the ecological risk assessment are the same as those used for the human health risk assessment. The data are presented in **Appendix C** of this report, and the sample locations are shown in **Figure 3-1** and **Figure 3-2**. All analytical data were validated prior to inclusion in the SLERA. A discussion of the data used in both the baseline human health risk assessment and the SLERA is presented in **Section 6.3.1**. The following seven data sets were used for the screening-level ecological risk assessment:

- 1. SEAD-121C surface soil (0-2 ft. bgs.);
- 2. SEAD-121C total soil (0-4 ft. bgs,);
- 3. SEAD-121C ditch soil (0-2 ft. bgs.);
- 4. SEAD-121C surface water;
- 5. SEAD-121I soil (0-2 ft. bgs.);
- 6. SEAD-121I ditch soil (0-2 ft. bgs.); and
- 7. SEAD-121I surface water.

For each data set, the maximum detected concentration was compared with the ecological screening value. For soil, the maximum detected concentration of all sample results (including surface and subsurface soil results) was used for the screening purposes, and the COPCs identified were used for both the surface soil and the total soil data sets. The ecological screening values are based on conservative (i.e., environmentally protective) generic values derived by various agencies. In brief, the following sources (cited in order of preference) were consulted for screening value selection for soil:

- USEPA (2000b, 2003c, 2005b) Ecological Soil Screening Levels;
- USEPA Region III (1995) Biological Technical Assistance Group (BTAG) Screening Levels;
- USEPA Region 5 (2003) Ecological Screening Levels;
- Oak Ridge National Laboratory (ORNL) Screening Benchmarks for Soil and Litter Invertebrates and Heterotrophic Process (Efroymson et al., 1997a), and Terrestrial Plants (Efroymson et al., 1997b);
- Canadian Environmental Quality Guidelines developed by the Canadian Council of Ministers of the Environment (2003); and
- Circular on Target Values and Intervention Values for Soil Remediation developed by the Netherlands (2000)

For surface water, the New York State Ambient Water Quality Standards (NYS AWQC) and Guidance Values for Class C water and the National Recommended Water Quality Criteria (USEPA, 2002c) (whichever is lower) were used as screening values. If screening values are not provided by either of the above documents, the USEPA Region III (1995) BTAG screening levels were used for the screening. Screening values for certain metals (cadmium, chromium, copper, lead, nickel, and zinc) are dependent on the hardness in surface water. For the screening purposes, the screening values for these metals were calculated at a hardness of 217 mg/L (CaCO<sub>3</sub>), which was the average surface water hardness for SEDA using data from two upstream surface water samples: 232 mg/L at SW-801 from the Ash Landfill remedial investigation and 201 mg/L at SW0196 from the OB Grounds remedial investigation.

Constituents with the maximum detected concentrations exceeding the corresponding screening values were retained as COPCs. With the exception of the nutrients (i.e., calcium, magnesium, potassium, and sodium), constituents with no screening values available were retained as COPCs. In addition, all bioaccumulative compounds identified by USEPA (2000a) in its report Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment as important bioaccumulative compounds were retained as COPCs as a conservative approach, which is consistent with the ecological risk assessment guidance set forth by USEPA for the Mid-Atlantic Hazardous Site Cleanup program.

Results of the screening process are summarized in **Tables 7-1A**, **7-1B**, and **7-1C** for SEAD-121C soil, ditch soil, and surface water, respectively. **Tables 7-2A**, **7-2B**, and **7-2C** summarize the screening results for SEAD-121I soil, ditch soil, and surface water, respectively.

Aluminum in soil was not retained as a COPC as USEPA recommends that aluminum be considered as a COPC only at sites where the soil pH is less than 5.5 (USEPA, 2003c). The basis for this is as follows:

- Total aluminum in soil is not correlated with toxicity to the tested plants and soil invertebrates.
- Aluminum toxicity is associated with soluble aluminum.
- Soluble aluminum and not total aluminum is associated with the uptake and bioaccumulation of aluminum from soil into plants.
- The oral toxicity of aluminum compounds in soil is dependant upon the chemical form. Insoluble aluminum compounds, such as aluminum oxides, are considerably less toxic compared to the soluble forms.

The pH of soil at SEDA is generally between 7 and 8 (Soil pH for SEADs 38, 39, & 40 were presented in the Action Memorandum and Decision Document Removal Actions, Three VOC Sites (Parsons, 2001)). Consequently, aluminum was not retained as a COPC in accordance with the USEPA guidance (USEPA, 2003c).

Iron is essential for plant growth and is generally considered to be a micronutrient (Thompson and Troeh, 1973, cited from USEPA, 2003c). According to USEPA (USEPA, 2003c), currently, identifying a specific benchmark for iron in soils is difficult since iron's bioavailability to plants and resulting toxicity are dependent upon site-specific soil conditions (pH, Eh, soil-water conditions). In well-aerated soils between pH 5 and 8, the iron demand of plants is higher than the amount available (Römheld and Marschner, 1986, cited from USEPA 2003c). Because of this limitation, plants have developed various mechanisms to enhance iron uptake (Marschner, 1986, cited from USEPA 2003c). Under these soil conditions, iron is not expected to be toxic to plants. Based on the fact that soil pH at the sites is generally between 7 and 8 and surface soil at the sites is expected to be well aerated, iron in soil was not retained as a COPC in accordance with the USEPA guidance (USEPA, 2003c).

COPCs identified for soil at the sites include volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, and inorganics. COPCs identified for ditch soil at the sites include semivolatile organic compounds (SVOCs) (predominantly PAHs) and inorganics. COPCs identified for surface water at the sites include one SVOC (bis(2-ethylhexyl)phthalate) and metals. Ecotoxicity associated with these types of contaminants includes the effects associated with direct as well as indirect exposures.

# 7.2.4 Selection of Assessment Endpoints

Ecological risks should be expressed in terms of a definite endpoint, which is defined as an environmental value to be protected. Assessment endpoints are "explicit expressions of the actual environmental value that is to be protected" (USEPA 1998b). The assessment endpoints provide a transition between broad management, or policy goals, and the specific measures used in the assessment.

The proposed assessment endpoints for the SLERA are the survival and reproduction of wildlife populations (associated with suitable habitat) that may be affected by previous site operations. Specifically, assessment endpoints are provided for populations at two trophic levels: small mammals and ground-feeding birds and higher trophic level predators. The assessment endpoints are addressed through the survival and reproduction of mammal and bird populations at the sites. The proposed policy goals, ecological assessment endpoints, and measurement endpoints are summarized in **Table 7-3**.

## 7.2.5 Selection of Receptor Species

This section presents the receptor species identified for the sites. Ecological receptors evaluated include wildlife that may reasonably be expected to reside or regularly forage in areas affected by site contaminants, given current and anticipated future site conditions.

Guidelines considered in selecting receptors from the potentially exposed community include the following:

- relationship to the assessment endpoint;
- limited home range;
- role in local food chains;
- potential high abundance and wide distribution at the sites;
- relatively long-lived to provide chronically exposed individuals;
- sufficient toxicological information available in the literature for comparative and interpretive purposes;
- sensitivity to COPCs;
- likely current and future occurrence; and
- suitability for long-term monitoring, if necessary.

The selected receptor species have either been observed at, or are likely to be present in the vicinity of the Depot, given habitat conditions.

When selecting representative receptor species, it is important that sufficient toxicological information is available in the literature on the receptor species, or a closely-related species. While the ecological communities at the individual sites may have species with desirable characteristics for use as receptor species, not all of these species have been extensively used for toxicological testing.

The receptors were also selected to represent the trophic levels and characteristics of the area being assessed. Based on available information, specific receptor species were selected to be representative of ecological populations potentially exposed to COPCs at the sites. These representative receptor species were evaluated according to the measurement endpoints selected for the site. These measurement endpoints in turn evaluate the assessment endpoints and policy goals that were ultimately evaluated in the ecological assessment.

Consideration was given to special-concern (i.e., threatened or endangered) species potentially present at the sites when selecting receptor species. There are no known occurrences of federal- or state-designated threatened or endangered plant or animal species within a 2-mile radius of the Depot. No species of special concern are documented within the Depot property.

Vegetation across the Depot consists of successional old field, successional shrub, and successional hardwoods. In the absence of special-concern plant species or sensitive plant communities at the Depot, plants were evaluated as an exposure medium (i.e., food source) for wildlife receptors, and not as individual receptors. Likewise, invertebrates, such as insects, were evaluated as potential indirect exposure media. Therefore, no primary producer or detritivore receptor species were identified for qualitative evaluation. The general health of these populations in areas affected by site contamination was evaluated qualitatively in the ecological site characterization. The plant assemblages representing the dominant cover types present at the site and general invertebrate group were evaluated as biotransfer media, assuming that all forage plants and soil invertebrates have the capacity to take up contaminants from soils within the root zone or from dermal contact (dust).

The terrestrial indicator species identified for the SLERA are the deer mouse, short-tailed shrew, and meadow vole as representative of first-order consumer/prey species with a relatively small foraging range, the American robin for maintained grass cover type, and the red fox was evaluated for potential bioaccumulation/biomagnification of soil COPCs by a second-order consumer (higher trophic level predator). A higher trophic level bird raptor, such as a red-tailed hawk (*Buteo jamaicensis*), was initially considered as a potential receptor for this SLERA. However, the home range of a hawk, approximately 1,800 acres or more (USEPA 1993b), is much greater than the area of the sites considered in this assessment, approximately 21 acres altogether. Therefore, it is unlikely that a hawk would derive a significant portion of its diet from prey at any one of the sites evaluated. Consequently, the raptor was not evaluated further in this SLERA.

The selected species are considered to be representative of current and/or future ecological receptors at the site and are discussed below.

Small mammal populations likely to be present at SEAD-121C and SEAD-121I include mice, shrews, and other rodents. The deer mouse (*Peromyscus maniculatus*) was selected as the resident species with the niche best met by conditions present at the sites. These are one of the vertebrate receptors most likely to be maximally exposed to contaminants in soil at the site. They represent a significant component of the food chain, feeding on seeds and berries and soil invertebrates and providing prey for predators.

A second terrestrial receptor, the short-tail shrew (*Blarina brevicauda*), was also evaluated. The shrew was selected because more of its diet is derived from soil invertebrates and less is derived from seeds and berries than the deer mouse. The shrew may be directly exposed to contaminants during burrowing activities and indirectly through prey. Therefore, the shrew may be more susceptible than the mouse to the effects of COPCs that bioaccumulate in soil biota. For this reason, the shrew was used to evaluate potential risk for small carnivorous mammals.

Although not observed at SEDA, the meadow vole (*Microtus pennsylvanicus*) was selected as the herbivorous mammalian receptor for the purposes of the screening-level risk assessment. The meadow vole subsists almost entirely on vegetative matter. The vole may be directly exposed to contaminants during burrowing activities and indirectly through consumption of contaminated plant materials.

The American robin (*Turdus migratorius*) has been identified at SEDA during site reconnaissance visits and has been selected as an appropriate avian receptor species for soil. Birds are frequently more sensitive to specific chemicals (e.g., pesticides and phthalates) than terrestrial mammalian species. The American robin was selected because a large portion of its diet is derived from soil invertebrates that would make it more susceptible to the effects of COPCs that bioaccumulate in soil biota. Additionally, its home range is roughly comparable to those of both the deer mouse and shrew.

The red fox (*Vulpes vulpes*) has been identified at SEDA during site reconnaissance visits and has been selected as an appropriate receptor species for potential bioaccumulation/biomagnification of soil. It should be noted that the home range of a red fox, approximately 200 acres or more (USEPA 1993b), is much greater than the area of any of the sites considered in this assessment (approximately 21 acres altogether for SEAD-121C and SEAD-121I). Therefore, it is unlikely that a fox would derive a significant portion of its diet from prey at any one of the sites evaluated. Nonetheless, as a conservative approach, the red fox was identified for potential bioaccumulation/biomagnification of soil.

As discussed in **Section 7.2.2**, the drainage ditch systems at the sites are not wetlands and are not regulated as wetlands. They do not support aquatic life. Therefore, the ecological receptors selected for the site soil (deer mouse, short-tailed shrew, meadow vole, red fox, and American robin) will be

used for the drainage ditch system at SEAD-121C and SEAD-121I. In addition, a higher trophic level wetland bird - the great blue heron (*Ardea herodias*) was selected to evaluate potential exposure to contaminants in water and ditch soil via ingestion of ditch soil and water and ingestion of contaminants that bioaccumulate in prey. It should be noted that the great blue heron feeds primarily on aquatic animal life and is adapted for wading in shallow water (USEPA, 1993b); therefore, the ditch systems at SEAD-121C and SEAD-121I are not suitable habitats for the great blue heron. Nonetheless, as a conservative approach, the great blue heron was selected for the screening-level risk assessment to evaluate potential exposure to ditch soil and surface water. Great blue heron prey includes primarily crustaceans, amphibians, and small fish that could be exposed to contaminated sediment or surface water. For the SLERA, the great blue heron was assumed to prey small animals.

# 7.2.6 Characterization of Exposure Pathways

Potentially completed pathways were identified for SEAD-121C and SEAD-121I in the CSM (**Figure 7-2**). Potential ecological receptors identified for the sites (i.e., deer mouse, short-tailed shrew, meadow vole, red fox, American robin, and great blue heron) are potentially exposed to COPCs in soil, ditch soil, and surface water via direct intake and biota intake. The primary potential ecological receptor exposure interval for which characterization data were collected is shallow soils (0 to 2 ft. bgs). This interval was considered appropriate for the evaluation of soil contaminant exposures to surface-foraging and shallow-burrowing wildlife and to many forage plants (e.g., grasses and forbs). To assess both potential future burrowing and/or deep-rooted plant site conditions, the deeper soil interval (0 to 4 ft. bgs) was also evaluated. Animals may be exposed directly to site-related contaminants through ingestion, dermal contact, and inhalation. In addition, animals may be exposed indirectly to site-related contaminants through ingestion of biota (plants, invertebrates, and animals) that have bioaccumulated contaminants. Because analysis of biological tissue is not proposed for these sites, the potential for exposure via completed pathways was inferred based on estimated contaminant uptake and assimilation by vegetation and prey species, and on the bioaccumulation and biomagnification properties of the contaminants.

While ecological receptors are exposed to air, uncertainties associated with inhalation exposures to chemicals inhibit assessment of the impacts from exposure to this medium. Similarly, dermal exposure to chemicals is difficult to quantify due to a lack of toxicity data. Given these factors, the dermal and inhalation exposure pathways were not quantitatively assessed.

#### 7.3 STEP 1B: SCREENING-LEVEL EFFECTS EVALUATION

The SLERA for mammalian and avian receptors was conducted by comparing potential exposures to COPCs to screening ecotoxicity values (SEVs). SEVs for those analytes identified as COPCs were derived from studies reported in the literature, in the absence of site-specific data, by establishing data selection criteria such that SEVs would be as relevant as possible to assessment endpoints at the sites. In accordance with USEPA guidance (1997c), the lowest available, appropriate toxicity values were

used with modifying factors to ensure a conservative (i.e., health protective) screening-level evaluation.

Using the relevant toxicity information, receptor-specific SEVs were calculated for each of the COPCs. SEVs represent no-observed-adverse-effect-level (NOAELs) and lowest-observed-adverseeffect-level (LOAELs) with conversion values incorporated for toxicity information derived from studies other than no-effect or lowest-effect studies. The order of taxonomic preference when choosing SEVs was data from studies using (1) native species potentially present at the site, or (2) proxy species, such as commonly studied laboratory species. The preferred toxicity test was the lowest appropriate chronic NOAEL or LOAEL for non-lethal or reproductive effects. Values based on chronic studies were preferred. If NOAEL data were not available for a contaminant, the next preferred endpoints for SEV derivation were chronic or subchronic LOAEL, then acute endpoints including LD50 (median lethal dose) in diet, or an LC50 (median lethal concentration). SEVs were calculated using conversion factors to adjust the reported effects doses to a final SEV. Two factors are used to convert other types of study results into SEVs comparable to NOAEL and LOAEL studies. The factors are 1) study duration, and 2) endpoint (e.g. LD50 or LC50). These factors were multiplied together to derive the total conversion factor. The reported effects dose was divided by the total conversion factor to account for potential uncertainties in extrapolation from one endpoint to another. These factors are presented in **Table 7-4**. For chemicals for which toxicity data were not available for the site-specific receptor, but toxicity data were available for another test organism, the toxicity data were adjusted for difference in body size for mammals. For COPCs without chemicalspecific SEVs, the SEV for a surrogate chemical was used based on the chemical structure of the compounds and in a conservative approach. As an example, the SEV for benzo(a)pyrene, the most toxic PAH, was used as SEVs for the other PAHs without chemical-specific SEVs.

NOAEL and LOAEL SEVs and information used to derive them including test organisms, effect dose, and study duration, are summarized in **Tables 7-5** and **7-6**, respectively.

#### 7.4 STEP 2A: SCREENING-LEVEL EXPOSURE ESTIMATE

To compare potential wildlife exposures to adverse effect levels, an estimate of contaminant exposures, expressed as daily dose ingested of contaminated food items (i.e., plants, invertebrates, and animals) and media, was calculated. COPC daily dose ingested (expressed as the mass of COPC ingested per kilogram body weight per day) depends on the COPC concentration in food items and media, the receptor's trophic level, the trophic level of food items, and the receptor's ingestion rate of each food item and media. The daily dose of COPC ingested by a receptor, considering all food items and media ingested, can be calculated from the following generic equation (USEPA, 1999b):

$$DD = \sum IR_F \cdot C_i \cdot P_i \cdot F_i + \sum IR_M \cdot C_M \cdot P_M$$

#### Where:

DD = Daily dose of COPC ingested (mg COPC/Kg BW-day);

 $IR_F = Receptor food ingestion rate (Kg/Kg BW-day);$ 

C<sub>i</sub> = COPC concentration in i<sup>th</sup> food item (mg COPC/Kg);

P<sub>i</sub> = Proportion of i<sup>th</sup> food item that is contaminated (unitless);

 $F_i$  = Fraction of diet consisting of food item i (unitless);

 $IR_M = Receptor media ingestion rate (Kg/KgBW-day);$ 

C<sub>M</sub> = COPC concentration in media (mg/Kg for soil and mg/L for water); and

P<sub>M</sub> = Proportion of ingested media that is contaminated (unitless).

Based on this algorithm, the daily dose equation for each receptor is as follows:

Deer mouse, meadow vole, and American robin average daily exposure dose (mg/Kg-day) =

$$[[(C_s \times SP \times I_p \times CF) + (C_s \times BAF_i \times I_{in}) + (C_s \times I_s \times ST) + (C_w \times WR)] * SFF] / BW$$

#### Where:

 $C_s$  = Exposure point concentration in the appropriate soil matrix (surface soil/deeper soil/ditch soil) (mg COPC/Kg dry soil);

 $C_w = Exposure point concentration in surface water (mg/L);$ 

SP = Soil-to-plant uptake factor ((mg COPC/Kg dry tissue)/(mg COPC/Kg dry soil));

I<sub>p</sub> = Receptor-specific ingestion rate of plant material (Kg wet tissue/day)

$$I_p = PDF * FR$$

Where PDF = Plant dietary fraction;

and FR = Feeding rate (Kg wet food/day);

CF = Dry weight to wet weight plant matter conversion factor, 0.2 (unitless);

 $BAF_i$  = Constituent-specific soil-to-invertebrate bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

I<sub>in</sub> = Receptor-specific ingestion rate of soil invertebrate (Kg wet tissue/day);

```
I_{in} = FR * IDF
```

Where IDF = Invertebrate dietary fraction;

and FR = Feeding rate (Kg wet food/day);

For meadow vole, soil invertebrate intake is negligible and I<sub>in</sub> was assumed to be 0.

 $I_s$  = Receptor-specific ingestion rate of soil (Kg dry/day);

ST = Bioavailability factor for constituents ingested in soil (assumed to be 1 for all constituents) (unitless);

WR = Water intake rate (L/day)

SFF = Site foraging frequency - ratio of site exposure area to receptor foraging range (unitless), assumed to be 1; and

BW = Average adult body weight (Kg).

# Short-tailed shrew, red fox, and great blue heron average daily exposure dose (mg/Kg-day) =

$$\left[ \left[ \left( C_s * SP * I_p * CF \right) + \left( C_s * BAF_i * I_{in} \right) + \left( C_s * BAF_a * I_a \right) + \left( C_s * I_s * ST \right) + \left( C_w x WR \right) \right] * SFF \right] / BW$$

Where:

 $C_s$  = Exposure point concentration in the appropriate soil matrix (surface soil/deeper soil/ditch soil) (mg COPC/Kg dry soil);

 $C_w$  = Exposure point concentration in surface water (mg/L);

SP = Soil-to-plant uptake factor ((mg COPC/Kg dry tissue)/(mg COPC/Kg dry soil));

I<sub>p</sub> = Receptor-specific ingestion rate for plant material (Kg wet tissue/day);

 $I_p = PDF * FR$ 

Where PDF = Plant dietary fraction;

and FR = Feeding rate (Kg wet food/day);

CF = Dry weight to wet weight plant matter conversion factor, 0.2 (unitless);

I<sub>in</sub> = Receptor-specific ingestion rate for invertebrates (Kg wet/day);

 $I_{\mathsf{in}} = FR \, * \, IDF$ 

Where IDF = Invertebrate dietary fraction;

and FR = Feeding rate (Kg wet food/day);

 $BAF_i$  = Constituent-specific soil-to-invertebrate bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

 $I_a = Receptor$ -specific ingestion rate for animal material (Kg wet tissue/day);

 $I_a = ADF * FR$ 

Where ADF = Animal dietary fraction;

and FR = Feeding rate (Kg wet food/day);

BAF<sub>a</sub> = constituent-specific soil-to-small mammal bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

 $I_s$  = Receptor-specific ingestion rate of soil (Kg dry/day);

ST = Bioavailability factor for constituents ingested in soil (assumed to be 1 for all constituents) (unitless);

WR = Water intake rate (L/day)

SFF = Ratio of site exposure area to average receptor foraging range (unitless), assumed to be 1; and

BW = Average adult body weight (Kg).

USEPA (1993b, 1999b, and 2005b) has provided a variety of exposure information for a number of avian and mammalian species. Data are directly available for body weights of various species. Similarly, information regarding feeding rates, and dietary composition, including incidental soil ingestion, are also available for many species. Such exposure parameters were compiled for the selected receptor species (deer mouse, short-tailed shrew, meadow vole, red fox, American robin, and great blue heron). Feeding rates for receptors were based upon USEPA (1999b, 2005b) or allometric

equations presented in Nagy (1999). Literature values for diet fraction and body weights were taken from USEPA (1993b, 1999b, 2005b). Great blue herons fish in shallow waters (up to 0.5 m) with a firm substrate (USEPA, 1993b). They capture fish by thrusting the beak into the fish's side or back (Eckert and Karalus, 1983; as cited in TAMS, 2000). Based on the great blue heron's fishing technique, a value of 2% of the food ingestion rate (on a dry weight basis) was applied based on incidental ingestion during feeding and grooming. This value is used in the Phase 2 Report of Further Site Characterization and Analysis, Volume 2E - Revised Baseline Ecological Risk Assessment, Hudson River PCBs Reassessment (TAMS, 2000) prepared for USEPA Region 2 and USACE Kansas City District.

For the screening-level exposure estimate, site foraging frequency factors for all receptors were assigned as 1, in accordance with the USEPA (1997c) guidance. That is, all receptors were assumed to be exposed 100% of the time to the COPCs at the sites. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods. As an example, the red fox has much larger foraging range compared to the size of SEAD-121C and SEAD-121I (i.e., over 200 acres vs. approximately 21 acres). This factor will be considered in the COC refinement step (Section 7.6).

The soil-to-plant uptake factors and soil-to-soil invertebrate uptake factors were obtained from the USEPA Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities (1999b). Small mammal bioaccumulation factors were from published literature or were calculated based on chemical-specific partitioning coefficients from the literature.

The exposure point concentration (EPC) evaluated for each soil COPC was determined based on the maximum detected concentration, in accordance with the USEPA (1997c) guidance. The EPCs are summarized in **Tables 7-7A**, **7-7B**, and **7-7C** for SEAD-121C soil, ditch soil, and surface water, respectively. EPCs for SEAD-121I soil, ditch soil, and surface water are summarized in **Tables 7-8A**, **7-8B**, and **7-8C**, respectively.

Receptor food intake rate and dietary fraction information is presented in **Table 7-9**. The uptake parameters are presented in **Appendix G**, **Table G-1**. The exposure calculation sheets are presented in **Appendix G** (**Tables G-2A** through **G-2E** for exposure to SEAD-121C soil and surface water, **Tables G-3A** through **G-3F** for exposure to SEAD-121C ditch soil and surface water, **Tables G-4A** through **G-4E** for exposure to SEAD-121I soil and surface water, and **Tables G-5A** through **G-5F** for exposure to SEAD-121I ditch soil and surface water).

#### 7.5 STEP 2B: SCREENING-LEVEL RISK CALCULATION

For wildlife receptors, the risk calculation step uses the results of the wildlife exposure and toxicity effects assessments to calculate a hazard quotient for each COPC. A hazard quotient (HQ) is a ratio of the estimated exposure dose (for mammal and bird receptors) of a contaminant to the SEV.

Generally, the greater this ratio, or quotient, the greater the likelihood of an effect. An HQ less than 1 indicates that the contaminant alone is unlikely to cause adverse ecological effects. Because conservative (i.e., health protective) estimates of potential chronic exposures and toxicity were used, screening-level HQs tend to overestimate actual risks. Cumulative effects of COPCs were not quantitatively evaluated in this SLERA. For metals, there is no evidence of clearly additive effects in ecological systems. For PAHs, the uncertainty associated with the cumulative effects is discussed in the uncertainty section (Section 7.5.2). Calculated HQs for mammal and bird receptors are reviewed below.

For all identified receptors, HQs were calculated based on the NOAEL SEVs, the maximum detected concentrations for the COPCs, and a site foraging frequency factor of 100% in accordance with the USEPA (1997c) guidance. A site foraging frequency factor of 100% assumes the receptor is present at the site and does not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods.

# 7.5.1 Summary of Risk Results and Preliminary COC Identification

HQ results for the identified receptors based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-10A** for SEAD-121C soil and surface water exposure, **Table 7-10B** for SEAD-121C ditch soil and surface water exposure, **Table 7-11A** for SEAD-121I soil and surface water exposure, and **Table 7-11B** for SEAD-121I ditch soil and surface water exposure.

The results are discussed in the following subsections for potential risks associated with SEAD-121C surface water, SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I surface water, SEAD-121I soil, and SEAD-121I ditch soil, respectively. All COPCs with HQs greater than or equal to 1 for one or more receptors based on the maximum detected concentrations and the NOAEL SEVs were identified as preliminary COCs. A further discussion of the preliminary COCs and a refinement of the COCs is presented in **Section 7.6**.

# 7.5.1.1 SEAD-121C Surface Water

HQ results for the identified receptors exposed to COPCs in SEAD-121C soil, ditch soil, and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Tables 7-10A** and **7-10B** for soil and ditch soil exposure, respectively. Estimated exposures based on the maximum detected concentrations of the COPCs for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-2A** through **G-3F**.

Surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. With the exception of aluminum and iron, the COPCs in soil and ditch soil contribute significantly (more than 90%) to the elevated HQs at or above 1. As aluminum and iron were not identified as soil COPCs, exposure to aluminum and iron in surface water is the sole source of HQs for aluminum and iron. Therefore, only aluminum and iron were retained as preliminary COCs in surface water.

The HQs associated with exposure to the maximum detected concentration of aluminum in surface water at SEAD-121C are below 1 for all the receptors with the exception of meadow vole. The HQ associated with exposure to aluminum in SEAD-121C surface water is at 1 for the meadow vole.

Exposure to the maximum detected concentration of iron in SEAD-121C surface water results HQs greater than 1 based on the NOAEL SEVs for all identified receptors with the exception of the American robin and great blue heron. The HQs are approximately 20 for the deer mouse, short-tailed shrew, and meadow vole and 10 for the red fox.

# 7.5.1.2 **SEAD-121C Soil**

HQ results for the identified receptors exposed to COPCs in SEAD-121C soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-10A**. Estimated exposures based on the maximum detected concentrations of the COPCs in surface water and soil (0-2 ft. bgs soil and 0-4 ft. bgs soil) at SEAD-121C for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are presented in **Tables G-2A** through **G-2E**.

Soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include one VOC (meta/para xylene), two PAHs (phenanthrene and pyrene), one PCB (Aroclor-1254), one pesticide (4,4'-DDT), and several metals (aluminum, antimony, barium, cadmium, copper, iron, lead, silver, thallium, and zinc). With the exception of aluminum and iron, these COPCs were identified as preliminary COCs in SEAD-121C soil and were further evaluated in **Section 7.6**. As discussed in the previous section, aluminum and iron were identified as preliminary COCs in SEAD-121C surface water.

**Table 7-10A** indicates that exposure to the maximum detected concentrations of meta/para xylene (total soil only), Aroclor-1254, and several metals (antimony, barium, cadmium, copper, lead, silver, and zinc) in SEAD-121C soil by the deer mouse results in HQs greater than 1 based on the NOAEL SEVs. All the other HQs for the deer mouse were below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121C soil with the exception of Aroclor-1254, 4,4'-DDT, and several metals (barium, cadmium, copper, lead, and zinc). The HQ for the American robin exposed to lead in

SEAD-121C soil is approximately 100 and the HQ for the 4,4'-DDT exposure is approximately 20. The HQs associated with exposure to all the other COPCs are below 10. An antimony SEV was not identified for birds and therefore, risks to the American robin were not quantified for exposure to antimony.

Exposure to the maximum detected concentrations of meta/para xylene (total soil only), pyrene, Aroclor-1254, and several metals (antimony, barium, cadmium, copper, lead, silver, thallium – total soil only, and zinc) in SEAD-121C soil by the short-tailed shrew results HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of phenanthrene in soil are at 1 for the short-tailed shrew. The HQs resulting from the maximum detected concentrations of all the other COPCs in SEAD-121C soil are all below 1.

**Table 7-10A** indicates that exposure to the maximum detected concentrations of meta/para xylene (total soil only), phenanthrene, pyrene, and several metals (antimony, barium, cadmium, copper, lead, silver, and zinc) in SEAD-121C soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121C soil with the exception of meta/para xylene in total soil (0-4 ft. bgs) and antimony, copper, and lead in surface soil and total soil.

#### 7.5.1.3 SEAD-121C Ditch Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121C ditch soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-10B**. Estimated exposures based on the maximum detected concentrations of the COPCs in SEAD-121C ditch soil and surface water for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-3A**, **G-3B**, **G-3C**, **G-3D**, **G-3E**, and **G-3F**, respectively.

Using the maximum detected concentrations and the NOAEL SEVs, COPCs in ditch soil and surface water that generated HQs greater than or equal to 1 for one or more identified receptors include cyanide and several metals (aluminum, antimony, cadmium, copper, iron, lead, selenium, and zinc). With the exception of aluminum and iron, these COPCs were identified as preliminary COCs in SEAD-121C ditch soil and were further evaluated in **Section 7.6**. As discussed in **Section 7.5.1.1**, aluminum and iron were identified as preliminary COCs in SEAD-121C surface water.

**Table 7-10B** indicates that exposure to the maximum detected concentrations of antimony, cadmium, and copper in SEAD-121C ditch soil by the deer mouse results HQs greater than 1 based on the NOAEL SEVs. All the other HQs for the deer mouse are below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121C ditch soil with the exception of cadmium, cyanide, and lead. The HQ for the American robin exposed to zinc in SEAD-121C ditch soil is at 1.

Exposure to the maximum detected concentrations of antimony, cadmium, and copper in SEAD-121C ditch soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentrations of lead and selenium in ditch soil are at 1 for the short-tailed shrew. The HQs resulting from the maximum detected concentrations of all the other COPCs in SEAD-121C ditch soil are all below 1.

**Table 7-10B** indicates that exposure to the maximum detected concentrations of antimony, cadmium, copper, and lead in SEAD-121C ditch soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121C ditch soil.

HQs based on the NOAEL SEVs are below 1 for the great blue heron exposed to all COPCs in SEAD-121C ditch soil with the exception of cyanide and lead. The HQ associated with exposure to the maximum detected concentration of cyanide and lead in ditch soil is at 1 for the great blue heron.

## 7.5.1.4 SEAD-121I Surface Water

HQ results for the identified receptors exposed to COPCs in SEAD-121I soil, ditch soil, and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Tables 7-11A** and **7-11B**. Estimated exposures based on the maximum detected concentrations of the COPCs for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-4A** through **G-4F**.

Surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. HQs associated with exposure to aluminum and iron in SEAD-121I surface water are below 1 for all receptors; therefore, no preliminary COCs were identified for SEAD-121I surface water.

#### 7.5.1.5 SEAD-121I Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121I soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-11A**. Estimated exposures based on the maximum detected concentrations of the COPCs in surface water and soil (0-2 ft. bgs soil and 0-4 ft. bgs soil) at SEAD-121I for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are presented in **Tables G-4A**, **G-4B**, **G-4C**, **G-4D**, and **G-4E**, respectively.

Soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene), one pesticide (4,4'-DDT), cyanide, and several metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, selenium, silver, thallium, and vanadium). These COPCs were identified as preliminary COCs in SEAD-121I soil and were further evaluated in **Section 7.6**.

**Table 7-11A** indicates that exposure to the maximum detected concentrations of two PAHs (phenanthrene and pyrene) and several metals (antimony, arsenic, cadmium, cobalt, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the deer mouse results in HQs greater than or equal to 1 based on the NOAEL SEVs. All the other HQs for the deer mouse were below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121I soil with the exception of 4,4'-DDT, cyanide, and several metals (cadmium, chromium, manganese, selenium, thallium, and vanadium). The HQ for the American robin exposed to manganese in SEAD-121I soil is approximately 100 and the HQs for selenium and thallium are approximately 30 and 50, respectively. The HQs associated with exposure to all the other COPCs are below 10.

Exposure to the maximum detected concentrations of two PAHs (phenanthrene and pyrene) and several metals (antimony, arsenic, cadmium, cobalt, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of several PAHs (benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, and chrysene) and silver in soil are at 1 for the short-tailed shrew. The HQs resulted from the maximum detected concentrations of all the other COPCs in SEAD-121I soil are all below 1.

**Table 7-11A** indicates that exposure to the maximum detected concentrations of several PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene) and several metals (antimony, arsenic, cobalt, copper, lead, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121I soil with the exception of manganese, selenium, and thallium.

#### **7.5.1.6 SEAD-121I Ditch Soil**

HQ results for the identified receptors exposed to COPCs in SEAD-121I ditch soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-11B**. Estimated exposures based on the maximum detected concentrations of the COPCs

in surface water and ditch soil at SEAD-121I for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-5A**, **G-5B**, **G-5C**, **G-5D**, **G-5E**, and **G-5F**, respectively.

Ditch soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include six PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, vanadium, and zinc). These COPCs were identified as preliminary COCs in SEAD-121I ditch soil and were further evaluated in **Section 7.6**.

**Table 7-11B** indicates that exposure to the maximum detected concentrations of several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the deer mouse results in HQs greater than or equal to 1 based on the NOAEL SEVs. All the other HQs for the deer mouse are below 1. The HQ for the deer mouse exposed to thallium in SEAD-121I ditch soil is approximately 10. All the other HQs for the deer mouse are below 10.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121I ditch soil with the exception of several metals (arsenic, manganese, selenium, thallium, and zinc). The HQ associated with exposure to zinc in ditch soil is at 1. The HQs associated with exposure to all the other COPCs are below 1.

Exposure to the maximum detected concentrations of several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of two PAHs (benzo(b)fluoranthene and benzo(k)fluoranthene) in ditch soil are at 1 for the short-tailed shrew. The HQs resulted from the maximum detected concentrations of all the other COPCs in SEAD-121I ditch soil are all below 1.

**Table 7-11B** indicates that exposure to the maximum detected concentrations of several PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121I ditch soil except that the HQ for thallium is slightly above 1 at a value of 2.

HQs based on the NOAEL SEVs are below 1 for the great blue heron exposed to all COPCs in SEAD-121I ditch soil except that the HQs associated with exposure to manganese and thallium in ditch soil are at 1.

# 7.5.2 Uncertainties for ERA Steps 1 and 2

For this aspect of the SLERA, a qualitative analysis was made of the uncertainties associated with the various components of the assessment, including the problem formulation and screening of contaminants and criteria used, toxicity and exposure characterization, and characterization of risk. This analysis identifies the potential magnitude of underestimating or overestimating the potential for adverse effects to organisms.

# 7.5.2.1 Uncertainty in Screening-Level Problem Formulation

The preliminary problem formulation step of the SLERA may have some degree of uncertainty regarding the selection of COPCs, identification of potential exposure pathways, and the selection of receptor species.

The assessment and measurement endpoints were selected according to the USEPA guidance (1997c and 1998b). The screening criteria used for the selection of ecological COPCs were derived from various sources. Most of these criteria are recommended for screening of site contaminants and are developed by the USEPA and various USEPA regions. Uncertainties associated with the sources and derivation of the criteria could possibly underestimate or overestimate the number of site COPCs.

In order to determine the potential exposure to ecological receptors to site-related constituents, the presence of constituents in environmental media must first be established. The magnitude at which these constituents are present also greatly influences resulting exposure estimates. The SLERA was conducted based on all data available for the sites. As discussed in **Section 6.8**, the size of the soil samples and the biased sampling approach indicate the uncertainty associated with site characterization is low. In addition, uncertainty in contaminant identification is considered low because generally full suite of Contract Laboratory Program (CLP) target compounds including VOCs, semivolatile organic compounds, PCBs, pesticides, and metals were analyzed for the samples. Reasonable certainty also is assumed because of the sample data validation and quality assurance/quality control procedures applied to sample analysis and data evaluation.

Receptors were selected based on several factors, including their known or potential occurrence in the vicinity of the Depot, as well as their level of sensitivity to contaminants. These decisions are based on best professional judgment and recommendations by USEPA (1997c and 1999b) regarding wildlife exposure parameters and calculations. Limitations regarding the determination of receptor species include the availability of exposure and toxicity information, abundance versus sensitivity, and ecological relevance. The potential for overestimation or underestimation exists when using receptor species and extrapolating calculated risks to other species within that trophic level.

# 7.5.2.2 Uncertainty in Screening-Level Ecological Effect Evaluation

The evaluation of ecological effects involves the derivation of ecological SEVs for comparison to the calculated exposures (e.g., daily dose). Because toxicity information is limited for many chemicals,

SEVs from similar or related chemicals were sometimes used. The use of surrogate toxicity values may underestimate or overestimate risk. For other chemicals, analytical results may not distinguish between different isomers or forms of a chemical although available toxicity information does, or vice versa. The absence of isomer specific toxicity values or isomer specific analytical data for some chemicals may tend to overestimate or underestimate risks. The SEV selection process may overestimate risk since overall the most conservative (and scientifically defensible) SEV is chosen rather than a range of or median SEV(s). In addition, the toxicity values used are chemical-specific and are incorporated into the SEV by use of conversion factors. For example, a conversion factor may be applied for the extrapolation from LD50 to chronic exposures. The use of conversion factors may overestimate or underestimate risk for a particular COPC. Toxicity studies for species other than the receptor species of concern are often used in the development of SEVs. The use of related species to estimate toxicity to a representative receptor species may overestimate or underestimate risk due to different species sensitivity to particular toxicants.

SEVs may not be available for some COPCs, thereby precluding their inclusion in the quantitative risk estimates. The resulting risk estimates will not include the chemical-specific risks from these chemicals and therefore, may underestimate risk. For this assessment, toxicity data were available for all of the identified COPCs with the exception of antimony, benzene, and ethylbenzene. No SEVs of antimony, benzene, and ethylbenzene were identified for avian receptors (the American robin and great blue heron). Benzene and ethylbenzene were detected in only three out of 68 soil samples at SEAD-121C. There is no evidence that benzene and ethylbenzene are associated with any historical release at the site. In addition, due to the high volatility of benzene and ethylbenzene, exposure to these chemicals in surface soil is expected to be minimal. Therefore, risks associated with benzene and ethylbenzene are expected to be minor. A further evaluation of antimony in soil is presented in Section 7.6.

For many COPCs, especially metals, the form of the compound has a direct affect on its toxicity. For this screening ERA, the most toxic form of the COPC was utilized to derive the SEVs. NOAELs or estimated NOAELs were always utilized as the SEVs for the screening level ERA. However, LOAELs may be better for estimating risk since LOAELs are the lowest concentrations at which a receptor demonstrates adverse effects. Thus, HQs can be generated utilizing LOAELs in lieu of NOAELs to represent the concentration at which receptors start showing effects due to exposure to the COPCs.

# 7.5.2.3 Uncertainty in Screening-Level Exposure Assessment

Factors that can contribute to uncertainty in the exposure assessment include identification and evaluation of exposure pathways, intake parameters, and EPCs.

The identification of potential exposure pathways and receptors was based on site-specific reasonable current use and future ecological habitat. Site-specific receptors were identified to the extent possible

and exposure parameters tailored to these receptors to minimize uncertainty in the defined scenarios and exposure assessments.

Values assumed for exposure parameters (e. g., feeding rates and dietary intake) used in calculations for intakes are based on Nagy (1999) and USEPA (1993b, 1997c, and 1999b) guidance. These assumptions may result in underestimating or overestimating the intakes calculated for specific receptors, depending on the accuracy of the assumptions relative to actual site conditions and uses. Since conservative assumptions were used to select intake rates, bioaccumulation factors and site utilization factors, the estimated risk to the receptors is generally overestimated.

Exposure and toxicity information are generally not available for dermal or inhalation exposure; hence, the lack of quantitative evaluation may underestimate risk. On-site exposure of COPCs to receptors may occur via dermal and inhalation pathways. Although intake of contaminants from these additional pathways may occur, these exposure routes are expected to be negligible compared to exposure via ingestion routes. Therefore, the impact to the overall contaminant exposure is expected to be minor.

Another source of exposure estimation uncertainty is that contamination is assumed to remain constant over time. Fate and transport mechanisms, which would result in the degradation and loss of some COPCs from the environment, may not be considered in the exposure evaluation for ecological receptors. In addition, the use of the maximum detected concentration as the EPC may overestimate risk since the receptor is actually exposed to a broader range of contaminant concentrations rather than the maximum detected concentrations. Exposure would occur throughout the site at various levels, including the EPC. Thus, actual risks may be lower than those presented in the assessment.

Estimations of uptake and retention of COPCs using bioaccumulation factors (BAFs) often do not account for the depuration of COPCs from the organism's system over time. BAFs are also reflective of the most contaminated source of the organism's diet fraction. For example, a receptor's invertebrate diet may consist largely of insects, yet for most COPCs, the invertebrate BAF used was reflective of earthworm bioaccumulation since the earthworm BAFs are generally more conservative than other invertebrate BAFs.

Metals in environmental media, particularly solid matrices, are frequently bound to particles or complexed with other elements, making them less available to biological organisms. Metals such as lead can react with anions in water, such as hydroxides, carbonates, sulfates, and phosphates that have low water solubilities, and will precipitate out of the water column, or occur as sorbed ions or surface coatings on sediment mineral particles (ATSDR, 2003). Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc, resulting in the enrichment of zinc in suspended and bed sediments (ATSDR, 2003). These complexes would limit the bioavailability of chemicals of potential ecological concern to receptors. Extraction and analysis of total metals in samples does not differentiate between the bioavailable and non-bioavailable fraction (complexed with other compounds present in bulk sediment samples) of

metals in soil. This would result in an overestimation of hazard for the ecological receptors exposed to metals in soil.

Biota uptake is a major exposure pathway evaluated in the SLERA. The USEPA recommended food chain models have been used in the analysis. However, no biota sampling has been conducted to validate the model. If a further evaluation (i.e., a baseline ecological risk assessment) is warranted, a biota sampling would provide site-specific information and improve the understanding of the ecological impacts to the site habitat.

A conservative site foraging frequency factor of 1 was used for all mammalian receptors. A site utilization factor of 100% assumes the receptor is present at the site and does not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods.

# 7.5.2.4 Uncertainty in Screening-Level Risk Characterization

The screening level risk characterization step may result in some degree of uncertainty for the SLERA results. Uncertainties in the risk characterization are compounded under the assumption of dose additivity or non-additivity for multiple substance exposure. For this assessment, it was assumed that the potential toxic effects of the COPCs were non-additive. This assumption may result in the underestimation of risk since concurrent exposure to several contaminants might have synergistic toxic effects. The risk characterization of metals does not include additive effects since there is no evidence of clearly additive effects in ecological systems. For PAHs in SEAD-121C and SEAD-121I soil, although the sum of the HQs exceeded 1 for the deer mouse, short-tailed shrew, and meadow vole, the SEVs are based on the SEV for benzo(a)pyrene, the most toxic chemical among the PAHs. In addition, the sum of the HQs would be below or at 1 if LOAEL SEVs were used. Therefore, PAHs in SEAD-121C and SEAD-121I soil are not expected to pose significant risk to the environment.

In summary, identification and evaluation of exposure pathways, intake parameters, and EPCs can all contribute to uncertainty in the SLERA. Overall, the HQs calculated from conservative SEVs, the maximum detection exposure concentrations, and 100% site utilization factor for mammals were intended to provide confidence that the risk assessment yields reasonably conservative estimates of the potential risk of adverse ecological effects on the assessment endpoints.

#### 7.6 FURTHER REFINEMENT OF CHEMICALS OF CONCERN

For the screening level ERA, NOAEL toxicity values, the maximum detected COPC concentrations, and conservative exposure assumptions were used to calculate screening level HQs. Due to the conservative nature of these assumptions, additional evaluation is required to refine the contaminants of concern. The refinement of COCs streamlines the overall ERA process to determine if further

evaluation is warranted. This section presents the results of further refinement of chemicals of concern conducted in accordance with the USEPA's ERAGS supplemental guidance (USEPA, 2001a).

Lines of evidence (COC refinement) evaluated include:

- COC detection frequency;
- risk results based on reasonable site average concentration and/or LOAEL SEVs;
- size of site relative to foraging area of receptors;
- site risk relative to background risk;
- relative uncertainties of SLERA results;
- sufficiency and quality of literature toxicity data and experimental designs;
- strength of cause/effect relationships; and
- quality of habitat for receptors.

Alternative toxicity values and mean exposures based on mean concentrations were considered for the refinement of COCs. Utilizing the mean concentration instead of the maximum concentration presents a more realistic approach to evaluate exposure for a receptor that comes into contact with a COPC. The receptor is likely to range over the entire site and not be continuously exposed to the maximum concentration at all times. Thus, the mean is more representative of the actual exposure concentration for a receptor to contact on a continual basis. This additional risk characterization performed as part of the ERA Step 3, together with the other lines of evidence, is discussed in Sections 7.6.2 through 7.6.7 for SEAD-121C surface water, SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I surface water, SEAD-121I soil, and SEAD-121I ditch soil, and can be used to refine the COCs and support a decision for either additional evaluation or no further evaluation of environmental risk.

# 7.6.1 Overall Conservative Evaluation of Ecological Risks in Steps 1 and 2

In accordance with the USEPA (1997c) ERAGS, this SLERA was conducted using highly conservative assumptions. Therefore, the SLERA in general leads to an overestimation of the risks to the ecosystem. This section discusses three major parameters for which conservative estimations were used: the relative bioavailability, the site foraging frequency factor, and the NOAEL/LOAEL multiplier.

# **Relative Bioavailability**

Although the relative bioavailability of contaminants at the sites was assumed to be 100 % for the SLERA, contaminants in environmental media are generally less available to biological organisms compared with the same contaminants in the experimental medium (i.e., diet, water, etc.). For example, most of the soil COPCs identified in the initial screening level ERA are PAHs and metals. The following factors should be considered in the refinement of PAH and metal COCs:

- Metals in soil are frequently bound to particles or complexed with other elements, making them less available to biological organisms. These tendencies would tend to limit the bioavailability of metal to ecological receptors.
- Metal toxicity is generally associated with the soluble fraction.
- Soluble metal, not total metal, is associated with the uptake and bioaccumulation of metal from soil into plants.
- The oral toxicity of metal compounds in soil is dependant upon the chemical form. Insoluble compounds are considerably less toxic compared to the soluble forms. The soil pH observed at the site (7 to 8) favors formation of insoluble fractions.
- Although bioaccumulation has been observed for some metals (e.g., Cd, Pb, etc.), biomagnification is not reported for these metals.

Although there are some interaction effects between certain metals (for example, lead may enhance cadmium absorption (ATSDR, 1999), the overall conservative assumptions (100% bioavailability) tend to overestimate the risks.

Over time (e.g., months or years), an organic compound can enter the microscopic pores on the surface of soil particles and become sequestered into the solid portion by binding tightly to the organic content in soil, thereby making it less bioavailable (Alexander, 2000). Extensive scientific data now exist to support the concepts that the longer the chemicals remain in soil, (1) the less readily they are removed by solvents, including water, (2) the less available they become to microorganisms, (3) the less toxic they become to organisms such as earthworms, and (4) the less they are ingested by organisms such as earthworms. This reduction in availability of the chemicals reduces the risk associated with their presence in the soil (GRI, 1997, as cited in Nakles et al., 2002). For example, the toxicity of DDT declined by 25~80% for animals (including fruit flies, houseflies, and cockroaches) after 90 days of aging (Nakles, et al., 2002). The assumption that COPCs are completely bioavailable, given the age and history of the site, is likely to overestimate systemic absorption of these COPCs.

Chemical-specific bioavailability factors are discussed in the following sections where appropriate on a case-by-case basis.

# Site Foraging Frequency Factor

The site foraging frequency factors (or area-use factors) were assumed to be 1 for the mammalian receptors at the sites. That is, the receptors were assumed to be present at the site and do not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods. As an example, the red fox has much larger foraging range (i.e., over 200 acres) compared to the size of SEAD-121C or SEAD-121I (5 acres and 16 acres, respectively). Site foraging frequency factors of 0.025 and 0.08 would be more appropriate for the red fox for SEAD-121C and SEAD-121I.

For the avian receptors, a site foraging frequency factor of 100% was assumed. This is an overly conservative assumption. American robins in the northern portions of the range that complete full migration leave the breeding grounds from mid-August through mid-October and arrive on their northern breeding grounds in April and May (Whitefish Point Bird Observatory, 2005). Although there are partially migratory populations and sedentary populations, during winter these populations are not likely to be exposed to soil or earthworms, the predominant contaminated diet items contributing to the total daily dose of contaminants. In addition, only part of the site has been impacted by the contaminants. Therefore, a site foraging frequency factor of 0.5 would be a more appropriate estimate for the American robin. Similarly, the great blue herons are seasonal residents in around half year New York State. spending the at the site (http://www.mbrpwrc.usgs.gov/bbs/anim/h1940.html). Therefore, a foraging factor of 0.5 is a more reasonable estimate.

# **NOAEL/LOAEL Multiplier**

A NOAEL is preferred to a LOAEL as a screening ecotoxicity value to ensure that risk is not underestimated (USEPA, 1997c). However, NOAELs currently are not available for many groups of organisms and many chemicals. When a LOAEL value, but not a NOAEL value, is available from the literature, a standard practice is to multiply the LOAEL by a NOAEL/LOAEL multiplier (0.1) and to use the product as the NOAEL for the screening evaluation. Although a NOAEL/LOAEL multiplier of 0.1 was used, the true NOAEL may be only slightly lower than the experimental LOAEL, particularly if the observed effect is of low severity (Sample et al., 1996). The data review referred to in the ERAGS that is used to support the use of 0.1 as the NOAEL/LOAEL multiplier indicates that 96% of chemicals included in the review had a NOAEL/LOAEL multiplier no less than 0.2. Therefore, using a default NOAEL/LOAEL multiplier of 0.1 may result in an overestimation of the HQs. LOAEL values were used in Step 3.2 as alternative SEV values.

# **Maximum Detected Concentration**

The use of the maximum detected concentration as the EPC may overestimate risk since the receptor is actually exposed to a broader range of contaminant concentrations rather than the maximum

detected concentrations. Exposure would occur throughout the site at various levels, including the EPC. Thus, actual risks may be lower than those presented in the assessment. Mean concentrations for preliminary COCs (as presented in **Tables 7-12A/B** and **7-13A/B**) were used in Step 3.2 as the alternative values for EPCs.

#### 7.6.2 Identification of COCs in SEAD-121C Surface Water

Only aluminum and iron were retained as preliminary COCs in surface water. The HQ associated with exposure to aluminum in SEAD-121C surface water is at 1 for the meadow vole. If the LOAEL was used, the HQ would be below 1 (**Table 7-14A**).

The HQs associated with exposure to iron in SEAD-121C surface water are approximately 20 for the deer mouse, short-tailed shrew, and meadow vole, and 10 for the red fox. The maximum concentration detected at SWDRMO-2 (110 mg/L) is much higher than the iron concentrations detected in other surface water samples (ranging from not detected to 17.2 mg/L). The average iron concentration detected in surface water at SEAD-121C is 12 mg/L. If the second highest iron concentration (17.2 mg/L) were used, the HQs for all receptors would be at or below 3. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are at 1 or 2 (**Table 7-14A**). Further, it should be noted that as no iron toxicity information was available for ecological receptors, the dietary reference intake for a child (Wright, 2001) was used as the SEV for iron. This is an overly conservative assumption.

Based on the above discussion, aluminum and iron in surface water were not retained as final COCs. As a result, no COCs were identified for SEAD-121C surface water.

#### 7.6.3 Identification of COCs in SEAD-121C Soil

Based on the calculated risk estimates for the screening level ERA, one VOC (meta/para xylene), two PAHs (phenanthrene and pyrene), one PCB (Aroclor-1254), one pesticide (4,4'-DDT), and several metals (antimony, barium, cadmium, chromium, copper, lead, silver, thallium, and zinc) were identified as preliminary COCs in SEAD-121C soil as the associated HQs were at least 1 for one or more receptors (see **Table 7-10A**). This section presents further evaluation of the preliminary COCs identified in SEAD-121C soil based on the SLERA results. Upon the refinement described in this section, no COPC was identified for SEAD-121C soil.

# Meta/para xylene

For meta/para xylene, the HQs for the deer mouse, short-tailed shrew, meadow vole, and red fox exposed to total soil (0-4 ft. bgs) are above 1. The HQs for all receptors exposed to surface soil (0-2 ft. bgs) and the American robin exposed to total soil are below 1.

Meta/para xylene and ortho xylene were detected infrequently in SEAD-121C soil (four out of 56 samples and two out of 56 samples, respectively). The maximum meta/para xylene concentration

(130 mg/Kg) was detected in SBDRMO-9 at 2-6 ft. bgs. The meta/para xylene concentration detected in SBDRMO-9 at 0-2 ft. bgs was 4.4 mg/Kg. Meta/para xylene was not detected in any of the adjacent locations (SBDRMO-6, SBDRMO-12, and SSDRMO-8). Therefore, the maximum detected concentration of meta/para xylene, 130 mg/Kg, at 2-6 ft. bgs, is an isolated hit and does not represent the average EPC in soil. If the average meta/para xylene concentration were used, the HQs for all identified receptors would be below 1 (as shown in **Table 7-14B**). In addition, the HQs based on the maximum detected concentration and the LOAEL are below 1 for all receptors (**Table 7-14A**). Based on the infrequent detection of meta/para xylene, the high volatility of xylene, and the relatively low (i.e., below 1) HQs based on the alternative assumptions (LOAEL used as SEV and/or average concentration used as EPC) for all receptors, meta/para xylene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC in SEAD-121C soil.

# **Phenanthrene**

For phenanthrene, the HQs for the short-tailed shrew exposed to surface and total soil are at 1; the HQs for the meadow vole exposed to surface and total soil are approximately 2; and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene. The alternative HQs based on the maximum detected concentration and the LOAEL value for benzo(a)pyrene are all below 1 (as shown in **Table 7-14A**). The alternative HQs based on the NOAEL SEV and the mean concentration of phenanthrene in surface and total soil for the shrew and vole are at least one magnitude below 1 (as shown in **Table 7-14B**). The alternative HQs based on the LOAEL SEV and the mean concentration of phenanthrene in surface and total soil for the shrew and vole are at least two magnitudes below 1 (as shown in **Table 7-14C**). Due to the fact that the HQs based on the SLERA are at 1 or 2 for the shrew and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for phenanthrene), phenanthrene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### **Pyrene**

For pyrene, the HQs for the short-tailed shrew exposed to surface and total soil are approximately 2; the HQs for the meadow vole exposed to surface and total soil are approximately 3; and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene. The alternative HQs are based on the maximum detected concentration and the LOAEL values for benzo(a)pyrene are all below 1 (as shown in **Table 7-14A**). The alternative HQs based on the NOAEL SEVs and the mean concentrations of pyrene in surface and total soil for the shrew and vole are approximately 0.1 (as shown in **Table 7-14B**). The alternative HQs based on the LOAEL SEV and the mean concentrations of pyrene in surface and total soil for the shrew and vole are approximately 0.01 (as shown in **Table 7-14C**). Due to the fact that the HQs based on the SLERA are slightly above 1 for the shrew and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative

assumptions (e.g., SEV for benzo(a)pyrene was used for pyrene), pyrene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Aroclor-1254**

For Aroclor-1254, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to surface and total soil are slightly above 1 (i.e., ranging from 2 to 3) and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The NOAEL SEV for the robin was derived from the LOAEL value for the ring-necked pheasant. Aroclor-1254 was detected in nine out of 68 soil samples and was only detected in surface soil (i.e., 0-2 ft. bgs).

The alternative HQs based on the maximum detected concentration and the LOAEL value are all below 1 (as shown in **Table 7-14A**). The alternative HQs based on the NOAEL SEVs and the mean concentration of Arcolor-1254 in surface and total soil for the mouse, robin, and shrew range from 0.1 to 0.2 (as shown in **Table 7-14B**). The alternative HQs based on the LOAEL SEV and the mean concentration of Aroclor-1254 in surface and total soil are at least two magnitudes below 1 (as shown in **Table 7-14C**). Due to the fact that the HQs based on the SLERA are slightly above 1 for the mouse, robin, and shrew and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions, Aroclor-1254 is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# 4,4'-DDT

For 4,4'-DDT, the HQs for the American robin exposed to surface and total soil are above 1 at approximately 20. The HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEV derived from the LOAEL value for the brown pelican. It should be noted that the NOAEL SEV identified for the SLERA may overstate potential risks associated with 4,4'-DDT exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control Human and Ecological Risk Division (HERD) range from 0.009 mg/Kg-day to 1.5 mg/Kg-day for birds. The NOAEL SEV identified for this SLERA was 0.0028 mg/Kg-day for birds. Therefore, the NOAEL SEV identified for 4,4'-DDT is a conservative estimate and may overstate potential risks. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are 2 for the American robin (as shown in **Table 7-14A**). The alternative HQs based on the NOAEL SEV and the mean concentration of 4,4'-DDT in surface and total soil are at 1 for the American robin (as shown in **Table 7-14B**). The alternative HQs based on the LOAEL SEV and the mean concentration of 4,4'-DDT in surface and total soil are 0.1 for the American robin (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are below 1 for all the mammalian receptors and that the alternative HQs for the robin are close to 1 (ranging from 0.1 to 2), and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs for birds),

4,4'-DDT is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Antimony**

For antimony, the HQs for all identified receptors exposed to surface and total soil are above 1. An antimony SEV was not identified for birds and therefore, risks to the American robin were not quantified for exposure to antimony. The HQs for the mammalian receptors are based on the maximum detected concentrations and the NOAEL SEVs. The SEVs for antimony are based on the LOAEL value from a drinking water study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Therefore, bioavailability of antimony is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs and the mean concentration of antimony in surface and total soil for all receptors are at 1 as shown in Table 7-14C. Due to the fact that the alternative HQs are based on the LOAEL SEVs and the mean concentrations of antimony are at 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), antimony is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Barium

For barium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface and total soil are slightly above 1 (ranging from 2 to 5) and the HQs for the red fox are below 1. The alternative HQs based on the mean concentrations of barium in surface and total soil are all below 1 (as shown in **Table 7-14B** and **Table 7-14C**). The alternative HQs based on the LOAEL SEV and the maximum barium concentrations in surface and total soil are below 1 for the mouse, shrew, and vole, and are at 3 for the American robin (as shown in **Table 7-14A**). Due to the fact that the HQs based on the SLERA are slightly above 1 (ranging from 2 to 5) for the mouse, robin, shrew, and vole and that all the alternative HQs based on the mean barium concentrations are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), barium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### **Cadmium**

For cadmium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface and total soil are above 1 (ranging from 3 to 10), and the HQs for the red fox are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are below or at 1 (as shown in **Table 7-14A**). The alternative HQs based on the LOAEL SEV and the mean concentrations of cadmium in surface and total soil are all below 1 (as shown in **Table 7-14C**).

The alternative HQs based on the NOAEL SEV and the mean cadmium concentrations in surface and total soil are below or at 1 for the mouse, robin, and vole and are at 2 for the shrew (as shown in **Table 7-14B**). All the alternative HQs are below or at 1 except that the HQs based on the NOAEL SEV, and the mean cadmium concentrations are slightly above 1 (2) for the shrew. Further, the SLERA results are based on conservative assumptions (e.g., 100% bioavailability). Therefore, cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Copper

For copper, the HQs for all identified receptors are above 1 (ranging from 4 to approximately 70). The SLERA results are based on the maximum copper concentrations, the NOAEL SEVs, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQs based on the mean copper concentrations are below 1 or slightly above 1 (ranging from 0.1 to 4 as shown in **Table 7-14B** and **Table 7-14C**). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that the alternative HQs based on the mean copper concentrations are below 1 or slightly above 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Lead

For lead, the HQs for all identified receptors are above 1 (ranging from 5 to approximately 200). The SLERA results are based on the maximum lead concentrations, the NOAEL SEVs, and the 100% bioavailability. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQs based on the mean lead concentration and the LOAEL SEV are below 1 for all receptors (as shown in **Table 7-14C**). Due to the fact that the alternative HQs based on the mean concentrations and the LOAEL SEVs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# <u>Silver</u>

For silver, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to surface and total soil are above 1 (6, 7, and 6, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The alternative

HQs based on the maximum detected concentration and the LOAEL SEV are below 1 for the mouse, shrew, and vole (as shown in **Table 7-14A**). The alternative HQs based on the NOAEL SEVs and the mean concentrations of silver in surface and total soil are below 1 for the mouse, shrew, and vole (as shown in **Table 7-14B**). The alternative HQs based on the LOAEL SEVs and the mean concentrations of silver in surface and total soil are below 1 for the mouse, shrew, and vole (as shown in **Table 7-14C**). Due to the fact that the HQs based on the SLERA are at 1 for the short-tailed shrew and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Thallium**

For thallium, the HOs for all receptors are below 1 except that the HO for the short-tailed shrew exposed to total soil is slightly above 1 at 2. The HOs are based on the maximum detected concentrations and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in Section 7.6.1, the NOAEL/LOAEL multiplier is likely to overstate potential risks. It should be noted that the NOAEL SEV identified for the SLERA (0.16 mg/Kg-day for the shrew) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQ based on the maximum detected concentration in total soil and the LOAEL SEV for the shrew is 0.09 (as shown in Table 7-14A). The alternative HQ based on the NOAEL SEV and the mean concentration of thallium in total soil for the shrew is 0.3 (as shown in **Table 7-14B**). The alternative HQ based on the LOAEL SEV and the mean concentration of thallium in total soil for the shrew is 0.03 (as shown in **Table 7-14C**). Due to the fact that the HQs based on the SLERA are slightly above 1 and all the alternative HQs are below 1, and the fact that SLERA results are based on conservative assumptions (e.g., conservative SEV), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Zinc

For zinc, the HQs for the red fox exposed to SEAD-121C surface and total soil are below 1 at 0.6. The HQs for the meadow vole are at 1 and the HQs for the other receptors are above 1 at 4, 7, and 6 for the deer mouse, American robin, and short-tailed shrew, respectively. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs based on the maximum zinc concentrations and the LOAEL SEVs are 2, 7, 3, and 0.7 for the mouse, robin, shrew, and vole, respectively (as shown in **Table 7-14A**). The alternative HQs based on the mean zinc concentrations are below 1 for all receptors (as shown in **Tables 7-14B** and **7-14C**). Zinc is not expected to have any significant impacts on ecological receptors at the site and was

not identified as a COC based on the following facts: 1) the alternative HQs based on the mean concentrations are below 1 for all receptors; 2) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability); and 3) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

Based upon the above discussions and the factors presented in **Section 7.6.1**, no COCs were identified for SEAD-121C surface and total soil.

# 7.6.4 Identification of COCs in SEAD-121C Ditch Soil

Based on the calculated risk estimates for the SLERA, cyanide and several metals (antimony, cadmium, copper, lead, selenium, and zinc) were identified as preliminary COCs in SEAD-121C ditch soil. This section presents further evaluation of the preliminary COCs identified in SEAD-121C ditch soil based on the SLERA results. Upon the refinement described in this section, no COPC was identified as COCs for SEAD-121C ditch soil.

## **Antimony**

For antimony, the HQs for all mammalian receptors exposed to SEAD-121C ditch soil are above 1 except the HQ for the red fox, which is 0.2. Antimony SEV was not identified for birds and therefore, risk to the American robin or great blue heron was not quantified for exposure to antimony. The HQs are based on the maximum detected concentration and the NOAEL SEVs. For mammals, the antimony SEVs are based on the LOAEL value from a drinking water study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Therefore, bioavailability of antimony is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs for all mammalian receptors are below 1 as shown in **Table 7-15A** and **Table 7-15C**. Due to the fact that the alternative HQs based on the LOAEL SEVs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), antimony is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Cadmium**

For cadmium, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to SEAD-121C ditch soil are above 1 (4, 4, and 6, respectively). The HQ for the meadow vole exposed to cadmium in ditch soil is at 1, and the HQs for the red fox and great blue heron are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-15A**). The alternative HQs based on the LOAEL SEV and the mean concentration of cadmium in ditch soil are all below 1 (as shown in **Table 7-15C**). The alternative HQs based on the NOAEL SEV and the mean cadmium concentrations in ditch soil are

below or at 1 for all receptors (as shown in **Table 7-15B**). Further, the SLERA results are based on conservative assumptions (e.g., 100% bioavailability). Therefore, cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Copper

For copper, the HQs for deer mouse, short-tailed shrew, and meadow vole are above 1 (3, 3, and 9, respectively) and the HQs for the American robin, red fox, and great blue heron are below 1. The SLERA results are based on the maximum copper concentration, the NOAEL SEVs, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQs based on the mean copper concentrations are below 1 or at 1 for all receptors (as shown in **Table 7-15B** and **Table 7-15C**). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that the alternative HQs based on the mean copper concentration are below or at 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Lead

For lead, the HQs for the American robin and meadow vole are above 1 (3 and 4, respectively). The HQs for the short-tailed shrew and great blue heron are at 1, and the HQs for all the other receptors are below 1. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQs based on the LOAEL SEVs are below 1 for all receptors (as shown in **Tables 7-15A** and **7-15C**). Due to the fact that the HQs based on the SLERA are slightly above 1 for the robin and vole and the alternative HQs based on the LOAEL SEVs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Selenium

The HQs for all receptors exposed to selenium to SEAD-121C ditch soil are below 1 except the HQ for the short-tailed shrew, which is at 1. The HQs are based on the maximum detected concentration, the NOAEL SEV, and 100% bioavailability. The alternative HQs for the shrew are all below 1 (**Tables 7-15A**, **7-15B**, and **7-15C**). Due to the fact that the HQs based on the NOAEL SEVs and the maximum selenium concentration are below or at 1 for all receptors and the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100%)

bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Zinc

The HQs for all receptors exposed to zinc to SEAD-121C ditch soil are below 1 except the HQ for the American robin, which is at 1. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs are all below or at 1 for the American robin (as shown in **Tables 7-15A**, **7-15B**, and **7-15C**). Zinc is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC based on the following facts: 1) the HQs based on the NOAEL SEVs and the maximum detected concentration were below or at 1 for all receptors; 2) the alternative HQs are below or at 1 for all receptors; 3) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and a foraging factor of 1); and 4) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

Based upon the above discussions and the factors presented in **Section 7.6.1**, no COCs were identified for SEAD-121C ditch soil.

# 7.6.5 Identification of COCs in SEAD-121I Surface Water

As discussed in Section **7.5.1.4**, surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. HQs associated with exposure to aluminum and iron in SEAD-121I surface water are below 1 for all receptors; therefore, no COCs were identified for SEAD-121I surface water.

#### 7.6.6 Identification of COCs in SEAD-121I Soil

Based on the calculated risk estimates for the SLERA, nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene), one pesticide (4,4'-DDT), cyanide, and several metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, selenium, silver, thallium, and vanadium) were identified as preliminary COCs in SEAD-121I soil as the associated HQs were at least 1 for one or more receptors (see **Table 7-11A**). This section presents further evaluation of the preliminary COCs identified in SEAD-121I soil based on the SLERA results. Upon the refinement described in this section, no COPCs were identified as soil COCs for SEAD-121I soil.

# **PAHs**

The HQs for the American robin and red fox exposed to PAHs in SEAD-121I soil are all below 1. The HQs for the deer mouse are below 1 for all PAHs except that the HQs for the mouse exposed to

phenanthrene and pyrene are slightly above 1 at 2. For the short-tailed shrew, the HOs associated with exposure to benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, and chrysene are at 1 and the HQs associated with exposure to phenanthrene and pyrene are slightly above 1 at 3. For the meadow vole, the HQs for nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, phenanthrene, and pyrene) are at 1 or slightly above 1 (ranging from 1 to 5). These HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene, the most toxic PAH. The NOAEL was developed by applying a NOAEL/LOAEL multiplier of 0.1 to the LOAEL. The conservative estimate of the NOAEL/LOAEL multiplier may result in overestimate of potential risks. In addition, Magee et al. (1996) recommended a PAH bioavailability value of 0.29 for the soil oral exposure route based on a review of available studies. Further, the alternative HQs based on the maximum detected concentrations and the LOAEL value for benzo(a)pyrene are below 1 for all receptors exposed to the nine PAHs identified as preliminary COCs (as shown in **Table 7-16A**). The alternative HQs based on the mean concentrations in soil for all receptors are below 1 (as shown in **Tables 7-16B** and **7-15C**). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the mouse, shrew, and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for other PAHs, 100% bioavailability), PAHs were not expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

# 4,4'-DDT

For 4,4'-DDT, the HQ for the American robin is above 1 at 7, and the HQs are below 1 for all the other receptors. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEV for the American robin was based on the LOAEL value for the brown pelican. It should be noted that the NOAEL SEV identified for the SLERA may overstate potential risks associated with 4,4'-DDT exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.009 mg/Kg-day to 1.5 mg/Kg-day for birds. The NOAEL SEV identified for this SLERA was 0.0028 mg/Kg-day for birds. Therefore, the NOAEL SEV identified for 4,4'-DDT is a conservative estimate for birds and may overstate potential risks. The alternative HQ based on the maximum detected concentration and the LOAEL SEV is below 1 for the American robin (as shown in **Table 7-16A**). The alternative HQs based on the mean concentration of 4,4'-DDT in soil are below 1 for the American robin (as shown in **Table 7-16B** and **Table 7-16C**). Due to the fact that the alternative HQs are below 1 for all receptors, and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), 4,4'-DDT is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### **Antimony and Arsenic**

For antimony and arsenic, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-121I surface soil are above or at 1, and the HQs for all the other receptors are below 1.

Antimony SEV was not identified for birds and therefore, risks to the American robin was not quantified for exposure to antimony. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The SEVs for antimony are based on the LOAEL value from a drinking water study, and the SEVs for arsenic are based on a drinking water (plus incidental food intake) study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Numerous studies of the oral bioavailability of soil-bound arsenic have been conducted (reviewed in Valberg et al., 1997; Ruby et al., 1999). The mean bioavailability of arsenic in soil ranged from 0.03 to 0.48. Therefore, bioavailability of antimony and arsenic is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs and the mean concentrations of antimony and arsenic in surface soil for all receptors are below 1 as shown in Tables 7-16C. Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentrations are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), neither antimony nor arsenic are expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

#### **Cadmium**

For cadmium, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to surface soil are above 1 (2, 2, and 3, respectively), and the HQs for the meadow vole and red fox are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are below 1 for the mouse, robin, and shrew (as shown in **Table 7-16A**). The alternative HQs based on the mean concentration of cadmium in surface soil are all below 1 (as shown in **Tables 7-16B** and **7-16C**). Due to the fact that the HQs based on the NOAEL SEV and the maximum detected concentration are either below 1 or slightly above 1 and the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Chromium

For chromium, the HQ for the American robin is slightly above 1 at 3 and the HQs for all the other receptors are below 1. The alternative HQ for the robin based on the maximum detected concentration and the LOAEL SEV is 2 (as shown in **Table 7-16A**). The alternative HQ based on the NOAEL SEV and the mean concentration of chromium in surface soil for the robin is 0.2 (as shown in **Table 7-16B**). The alternative HQ based on the LOAEL SEV and the mean concentration of chromium in surface soil is 0.1 (as shown in **Table 7-16C**). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the identified receptors and that the alternative HQs based on the mean chromium concentration are below 1, and the fact that the SLERA results are based on

conservative assumptions (e.g., foraging factor of 1 for the robin), chromium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Cobalt**

For cobalt, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (5, 8, and 9, respectively) and the HQs for the American robin and red fox are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in **Section 7.6.1**, the NOAEL/LOAEL multiplier is likely to overstate potential risks. Further, the alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for the mouse, shrew, and vole (as shown in **Table 7-16A**). The alternative HQs based on the mean concentration of cobalt in surface are all below 1 for the mouse, shrew, and vole (as shown in **Table 7-16B** and **Table 7-16C**). Due to the fact that all the alternative HQs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEV), cobalt is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Copper**

For copper, the HQ for the meadow vole is slightly above 1 at 2 and the HQs for all the other receptors are below 1. The SLERA results are based on the maximum copper concentration, the NOAEL SEV, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQ based on the maximum detected concentration and the LOAEL SEV is at 1 for the vole (as shown in **Table 7-16A**). The alternative HQs based on the mean copper concentrations are below 1 (as shown in **Table 7-16B** and **Table 7-16C**). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that all alternative HQs are below or at 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Cyanide**

For cyanide, the HQ for the American robin is slightly above 1 at 2 and the HQs for all the other receptors are below 1. The alternative HQ for the robin based on the maximum detected concentration and the LOAEL SEV is 0.07 (as shown in **Table 7-16A**). The alternative HQ based on the NOAEL SEV and the mean concentration of cyanide in surface soil for the robin is 0.4 (as shown in **Table 7-16B**). The alternative HQ based on the LOAEL SEV and the mean concentration of cyanide in surface soil is 0.01 (as shown in **Table 7-16C**). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the identified receptors and that the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., foraging

factor of one for the robin), cyanide is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Lead

For lead, the HQ for the meadow vole exposed to SEAD-121I surface soil is at 1 and the HQs for all the other receptors are below 1. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQ based on the maximum lead concentrations and the LOAEL SEV is 0.1 for the vole (as shown in **Table 7-16A**). The alternative HQs based on the mean lead concentration are below 1 for the vole (as shown in **Tables 7-16B** and **7-16C**). Due to the fact that the HQs based on the SLERA are below or at 1 for all receptors and all alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Manganese**

For manganese, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I surface soil are above 1 (ranging from 10 to approximately 300). The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. In humans and animals, manganese is an essential nutrient that plays a role in bone mineralization, protein and energy metabolism, metabolic regulation, cellular protection from damaging free radical species, and the formation of glycosaminoglycans (ATSDR, 2000). The alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for the robin and fox and are at 1, 2, and 4 for the mouse, shrew, and vole, respectively (as shown in **Table 7-16C**). Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), manganese is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC. Further discussion of the source of manganese at the site is presented in **Section 7.7.3**.

#### Selenium

The HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are above 1 (ranging from 5 to 80). The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. The alternative HQs based on the mean selenium concentration and the LOAEL SEVs are below 1 or slightly above 1 (the highest at 2) for all receptors (as shown in **Table 7-16C**). The alternative HQs based on the mean selenium concentration and the NOAEL

SEVs are below or slightly above 1 (the highest at 3) for all receptors (as shown in **Table 7-16B**). Due to the fact that the alternative HQs based on the mean selenium concentration are below or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Silver**

For silver, the HQ for the short-tailed shrew is at 1, and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The alternative HQ based on the maximum detected concentration and the LOAEL SEV is 0.1 for the short-tailed shrew (as shown in **Table 7-16A**). The alternative HQs based on the mean concentration of silver in surface soil are below 1 for the shrew (as shown in **Tables 7-16B** and **7-16C**). Due to the fact that the HQs based on the SLERA are below or at one for all receptors and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Thallium**

For thallium, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I surface soil are above 1 (ranging from 10 to approximately 100). The HQs are based on the maximum detected concentration and the NOAEL SEVs derived from the LOAEL value (for mammals) or lethal dose value (for birds). It should be noted that the NOAEL SEVs identified for the SLERA for mammals (0.11-0.16 mg/Kg-day) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQs based on the mean concentration and the LOAEL SEVs are below or at 1 for all receptors (as shown in **Table 7-16C**). The alternative HQs based on the NOAEL SEVs and the mean concentration of thallium in surface soil are below 1 or slightly above 1 (ranging from 2 to 5) for all receptors (as shown in **Table 7-16B**). Due to the fact that the alternative HQs based on the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Vanadium**

For vanadium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (4, 2, 6, and 3, respectively), and the HQ for the red fox is below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The assumption of 100% bioavailability used in the risk assessment might result in overestimate of

potential risks. For vanadium, bioavailability is very low, usually found to be less than 1% of an administered dose (<a href="http://www.tjclarkinc.com/minerals/vanadium.htm">http://www.tjclarkinc.com/minerals/vanadium.htm</a>). Further, the alternative HQs based on the mean concentration are below or at 1 for all receptors (as shown in **Table 7-16B** and **Table 7-16C**). Due to the fact that the alternative HQs based on the mean concentration are below or at 1 and the fact that SLERA results are based on conservative assumptions (e.g., 100% bioavailability), vanadium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

Based upon the above discussions and the factors presented in **Section 7.6.1**, no COCs were identified for SEAD-121I surface soil.

#### 7.6.7 Identification of COCs in SEAD-1211 Ditch Soil

Based on the calculated risk estimates for the SLERA, six PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, vanadium, and zinc) were identified as preliminary COCs in SEAD-121I ditch soil as the associated HQs were at least 1 for one or more receptors (see **Table 7-11B**). This section presents further evaluation of the preliminary COCs identified in SEAD-121I ditch soil based on the SLERA results. Upon the refinement described in this section, no COPCs were identified as COCs for SEAD-121I ditch soil.

# **PAHs**

The HQs for the deer mouse, American robin, red fox, and great blue heron exposed to PAHs in SEAD-121I ditch soil are all below 1. The HQs for the short-tailed shrew are below 1 for all PAHs except for the HQs for the shrew exposed to benzo(b)fluoranthene and benzo(k)fluoranthene, which For the meadow vole, the HQs associated with exposure to benzo(a)anthracene, benzo(a)pyrene, and pyrene are at 1 and the HQs associated with exposure to benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene are slightly above 1 at 2. These HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene, the most toxic PAH. The NOAEL was developed by applying a NOAEL/LOAEL multiplier of 0.1 to the LOAEL. The conservative estimate of the NOAEL/LOAEL multiplier may result in overestimate of potential risks. In addition, Magee et al. (1996) recommended a PAH bioavailability value of 0.29 for the soil oral exposure route based on a review of available studies. Further, the alternative HQs based on the maximum detected concentrations and the LOAEL value for benzo(a)pyrene are below 1 for all receptors exposed to the six PAHs identified as preliminary COCs (as shown in **Table 7-17A**). The alternative HOs based on the mean concentrations in soil for all receptors are below 1 (as shown in **Tables 7-17B** and **7-17C**). Due to the fact that the HQs based on the SLERA are at 1 or slightly above 1 for the shrew and vole and all the alternative HOs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for other

PAHs, 100% bioavailability), PAHs were not expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

# Arsenic

For arsenic, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (ranging from 3 to 7), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The SEVs for arsenic are based on a drinking water (plus incidental food intake) study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Numerous studies of the oral bioavailability of soil-bound arsenic have been conducted (reviewed in Valberg et al., 1997; Ruby et al., 1999). The mean bioavailability of arsenic in soil ranged from 0.03 to 0.48. Therefore, bioavailability of arsenic is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the mean concentrations of arsenic in ditch soil for all receptors are below or at 1 as shown in **Tables 7-17B** and **7-17C**. Due to the fact that the alternative HQs based on the mean concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), arsenic is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Cobalt

For cobalt, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-121I ditch soil are above 1 (2, 4, and 4, respectively) and the HQs for the American robin, red fox, and great blue heron are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in **Section 7.6.1**, the NOAEL/LOAEL multiplier is likely to overstate potential risks. Further, the alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for the mouse, shrew, and vole (as shown in **Table 7-17A**). The alternative HQs based on the mean concentration of cobalt in ditch soil are all below 1 for the mouse, shrew, and vole (as shown in **Table 7-17B** and **Table 7-17C**). Due to the fact that all the alternative HQs are all below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEV), cobalt is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# **Manganese**

For manganese, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to SEAD-121I ditch soil are above 1 (ranging from 5 to approximately 10). The HQ for the great blue heron is at 1, and the HQ for the red fox is below 1. The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. In humans and animals, manganese is an essential nutrient that plays a role in bone mineralization, protein and energy

metabolism, metabolic regulation, cellular protection from damaging free radical species, and the formation of glycosaminoglycans (ATSDR, 2000). The alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17C**). Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentration are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), manganese is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC. Further discussion of the source of manganese at the site is presented in **Section 7.7.3.** 

#### Selenium

The HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole are above 1 (ranging from 4 to 10), and the HQs for the red fox and great blue heron are below 1. The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. The alternative HQs based on the mean selenium concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17C**). The alternative HQs based on the mean selenium concentration and the NOAEL SEVs are below or at 1 for all receptors (as shown in **Table 7-17B**). Due to the fact that the alternative HQs based on the mean selenium concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### Silver

For silver, the HQs for the deer mouse, short-tailed shrew, and meadow vole are slightly above 1 (3, 4, and 3, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17A**). The alternative HQs based on the NOAEL SEV and the mean concentration of silver in ditch soil are below or at 1 for all receptors (as shown in **Table 7-17B**). The alternative HQs based on the LOAEL SEVs and the mean concentration of silver in ditch soil are below 1 for all receptors (as shown in **Table 7-17C**). Due to the fact that the HQs based on the SLERA are below or slightly above 1 for the receptors and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

#### **Thallium**

For thallium, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I ditch soil are above 1 (ranging from 2 to approximately 20). The HQ for the great blue heron is at 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs derived from the LOAEL value (for mammals) or lethal dose value (for birds). It

should be noted that the NOAEL SEVs identified for the SLERA for mammals (0.11-0.16 mg/Kg-day) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17C**). The alternative HQs based on the NOAEL SEVs and the mean concentration of thallium in ditch soil are below 1 or slightly above 1 (ranging from 1 to 2) for all receptors (as shown in **Table 7-17B**). Due to the fact that the alternative HQs based on the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Vanadium

For vanadium, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-121I ditch soil are at 1 or slightly above 1 (1, 2, and 1, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The assumption of 100% bioavailability used in the risk assessment might result in overestimate of potential risks. For vanadium, bioavailability is very low, usually found to be less than 1% of an administered dose (<a href="http://www.tjclarkinc.com/minerals/vanadium.htm">http://www.tjclarkinc.com/minerals/vanadium.htm</a>). Further, the alternative HQs based on the mean concentration are below or at 1 for all receptors (as shown in Table 7-17B and Table 7-17C). Due to the fact that the SLERA HQs are below 1 or slightly above 1 and the alternative HQs based on the mean concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), vanadium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

# Zinc

The HQs for all receptors exposed to zinc to SEAD-121I ditch soil are below 1 except for the HQ for the American robin, which is at 1. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs are all below or at 1 for the American robin (as shown in **Table 7-17A**, **Table 7-17B**, and **Table 7-17C**). Zinc is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC based on the following facts: 1) the HQs based on the NOAEL SEVs and the maximum detected concentration were below or at 1 for all receptors; 2) the alternative HQs are below or at 1 for all receptors; 3) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and a foraging factor of 1); and 4) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

Based upon the above discussions and the factors presented in **Section 7.6.1**, no COCs were identified for SEAD-121I ditch soil.

# 7.7 RISK MANAGEMENT

This risk management section presents the Army's position on whether further evaluation of ecological risks is warranted based on the evaluation presented above as well as other site-specific factors, such as future use of the sites, site background comparison, and site contaminant source management. Impact to habitat based on the future use of the sites is presented in **Section 7.7.1**. A comparison of the site concentrations to background was conducted for the preliminary inorganic COCs as the rationale supporting the Army's proposal that no additional assessment is needed for the preliminary COCs identified in Step 2B. Comparison of the site data to background data is presented in **Section 7.7.2**. **Section 7.7.3** presents the site contaminant source management.

# 7.7.1 Impact to Habitat Based on Future Site Use

SEAD-121C and SEAD-121I are located in the Planned Industrial/Office Development (PID) parcel. That is, the planned future land use for SEAD-121C and SEAD-121I is industrial development. Based on the future use of the sites, the sites are not expected to support, sustain, or attract ecological receptors and therefore are not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use. Therefore, it is the Army's position that no further action is warranted at SEAD-121C or SEAD-121I to mitigate potential risks to ecological receptors.

#### 7.7.2 Comparison of Site Data with Background Data

A streamlined evaluation was conducted to compare the concentrations of the preliminary inorganic COCs identified in Step 2B in SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I soil, and SEAD-121I ditch soil to the corresponding SEDA background levels. A discussion of the SEDA background data is provided in **Section 6.3.2**. **Tables 7-18A**, **7-18B**, **7-19A**, and **7-19B** summarize the comparison of the descriptive statistics between the site data and SEDA background data for SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I soil, and SEAD-121I ditch soil, respectively.

For SEAD-121C soil, as shown in **Table 7-18A**, the site arithmetic mean concentrations of chromium and thallium are comparable with the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background data (25 mg/Kg vs. 22 mg/Kg for chromium and 0.4 mg/Kg vs. 0.32 mg/Kg for thallium). Therefore, chromium and thallium levels in SEAD-121C soil are considered to be consistent with background levels.

For SEAD-121C ditch soil, as shown in **Table 7-18B**, the site maximum detected concentration of antimony is below the SEDA maximum detected background concentration and the site arithmetic mean concentration of antimony is below the 95% upper confidence limit of the arithmetic mean of

the SEDA background value. Therefore, antimony level in SEAD-121C ditch soil is consistent with background levels.

For SEAD-121I soil, as shown in **Table 7-19A**, the site arithmetic mean concentrations of antimony, cadmium, and vanadium are below the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background (2.5 mg/Kg vs. 3.3 mg/Kg for antimony, 0.65 mg/Kg vs. 0.74 mg/Kg for cadmium, and 21 mg/Kg vs. 22.9 mg/Kg for vanadium). The site arithmetic mean concentrations of cyanide and lead are comparable with the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background (0.36 mg/Kg vs. 0.30 mg/Kg for cyanide and 30 mg/Kg vs. 27.6 mg/Kg for lead). Therefore, antimony, cadmium, cyanide, lead, and vanadium levels in SEAD-121I soil are considered to be consistent with background levels.

For SEAD-121I ditch soil, as shown in **Table 7-19B**, the site arithmetic mean concentration of vanadium is below the 95% upper confidence limit of the arithmetic mean of the SEDA background (21 mg/Kg vs. 22.9 mg/Kg). Therefore, vanadium level in SEAD-121I ditch soil is consistent with background levels.

In summary, the concentrations of several preliminary inorganic COCs identified in Step 2B are consistent with SEDA background levels. As discussed in **Section 7.6**, these preliminary COCs are not expected to pose significant impact to the ecological receptors at the sites.

# 7.7.3 Contaminant Source Management

The contaminant sources at SEAD-121I are from activities involving the loading and unloading of materials at the site and in the surrounding buildings. The source of the metal contamination is the strategic stockpiles of ferrous-manganese ore stored in two of the four blocks at the site. The Army is consolidating the Strategic Stockpiles and the ore piles on site will be removed. In addition, the highest concentrations of metals are localized to the area surrounding the ore piles. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles.

#### 7.8 SUMMARY

In accordance with the USEPA guidance (USEPA, 1997c), a SLERA was performed to evaluate potential ecological risks associated with exposure to contaminants in SEAD-121C soil, SEAD-121C ditch soil, SEAD-121C surface water, SEAD-121I soil, SEAD-121I ditch soil, and SEAD-121I surface water. Exposure to groundwater is considered an incomplete exposure pathway; therefore, groundwater at the sites poses no potential risks to the environment. This SLERA was completed in the following steps.

For Steps 1 and 2, NOAEL toxicity values and conservative exposure assumptions were used to calculate screening level HQs. The maximum detected concentrations were compared to screening criteria to identify COPCs (Step 1). Potential exposures and effects resulting from the maximum

detected concentrations of COPCs were then evaluated by estimating potential direct and indirect exposures for wildlife receptors - deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron (for ditch soil only) and comparing exposures to NOAEL toxicity values (Step 2).

Due to the conservative nature of the assumptions used in Step 1 and Step 2, additional evaluation (Step 3.2) was performed to further characterize potential ecological risks and determine if further evaluation is warranted. Step 3.2, COC refinement, was performed in accordance with the USEPA ERAGS (1997c) and the supplemental guidance of ERAGS (USEPA, 2001a). Some of the additional information used to help characterize risks included using alternative HQ values based on mean concentrations and LOAEL-based SEVs and analysis of factors that may result in potential overestimation of risks.

Upon completion of ERA Steps 1 and 2, there is a SMDP with four possible decisions:

- There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risks;
- The information is not adequate to make a decision at this point and the ERA process should continue to a baseline ERA;
- The information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted; or
- It may be preferable to cleanup the site to the screening values for some sites of relatively small size or where the contamination has a sharply defined boundary rather than to spend time and resources determining a less conservative cleanup number.

No COCs were identified for SEAD-121C soil, SEAD-121C ditch soil, SEAD-121C surface water, SEAD-121I soil, SEAD-121I ditch soil, or SEAD-121I surface water and the rationales are summarized below.

- 1. No preliminary COCs were identified for SEAD-121I surface water. Although preliminary COCs were identified for SEAD-121C soil, ditch soil, and surface water and SEAD-121I soil and ditch soil, the alternative HQs calculated during the refinement of COCs (Step 3.2), especially the HQs based on the mean concentrations and LOAEL SEVs are either below 1 or close to 1 (with the highest at 5). Therefore, no final COCs were identified for any medium at SEAD-121C or SEAD-121I.
- 2. The planned future land use for SEAD-121C and SEAD-121I is industrial development. The sites are not expected to support, sustain, or attract ecological receptors and therefore are not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally

April 2006 Page 7-51

curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use.

- 3. The concentrations of several preliminary COCs identified in Step 2B (chromium and thallium in SEAD-121C soil; antimony in SEAD-121C ditch soil; antimony, cadmium, cyanide, lead, and vanadium in SEAD-121I soil; and vanadium level in SEAD-121I ditch soil) are consistent with SEDA background.
- 4. The source of the metal contamination at SEAD-121I is the strategic stockpiles of ferrous-manganese ore stored at the site. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles.

Based on the above discussion, it is the Army's position that soil, ditch soil, surface water, and groundwater at SEAD-121C and SEAD-121I are not expected to significantly impact ecological receptors at the site and no further action is warranted at SEAD-121C or SEAD-121I based on the ecological risk assessment.

April 2006 Page 7-52

#### 8.0 CONCLUSIONS AND RECOMMENDATIONS

#### 8.1 CONCLUSIONS

#### 8.1.1 SEAD-121C: The Defense Reutilization and Marketing Office (DRMO) Yard

There are two discrete areas where materials have been stored in the past, which have impacted the surface soil with metals. There is no indication of a systemic or wide-spread release of organic compounds across the site. The media at SEAD-121C do not pose a risk to future industrial receptors at the site. Additionally, the ecological risk assessment indicates that the residual chemicals identified at the site are not expected to significantly impact ecological receptors at the site. Therefore, a risk-based action will not be necessary at the DRMO Yard.

#### 8.1.2 SEAD-121I: Rumored Cosmoline Oil Disposal Area

There is no evidence of a systematic release of hazardous waste or materials at SEAD-121I. The media at SEAD-121I do not pose a risk to future industrial receptors at the site. Additionally, the ecological risk assessment indicates that the residual chemicals identified at the site are not expected to significantly impact ecological receptors at the site. Therefore, a risk-based action will not be necessary at the Rumored Cosmoline Oil Disposal Area.

#### 8.2 **RECOMMENDATIONS**

Based on the baseline risk assessment and the screening level ecological risk assessment, a risk-based action will not be necessary at SEAD-121C or SEAD-121I. Institutional controls (ICs) in the form of land use restrictions have been imposed on the greater PID Area in the Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004), signed on September 28, 2004 by USEPA. These restrictions are as follows:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.
- Prevent access to or use of groundwater until the Class GA Groundwater Standards are met.

The Army recommends that these restrictions remain in effect for SEAD-121C and SEAD-121I until additional data are developed and evaluated to substantiate their removal at either or both of the sites.

April 2006 Page 8-1

TABLE 1-1 Climatological Data for Seneca Army Depot Activity SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

| Month     |         | Temperature (1), o | F    | Mean Precip-                 | Mean Relative | Percent  | Me    | an Number of Days | (4)    |
|-----------|---------|--------------------|------|------------------------------|---------------|----------|-------|-------------------|--------|
|           | Maximum | Minimum            | Mean | itation <sup>(1)</sup> , in. | Humidity (%)  | Sunshine | Clear | Partly Cloudy     | Cloudy |
| January   | 30.9    | 14.0               | 22.5 | 1.88                         | 70            | 35       | 3     | 7                 | 21     |
| February  | 32.4    | 14.1               | 23.3 | 2.16                         | 70            | 50       | 3     | 6                 | 19     |
| March     | 40.6    | 23.4               | 32.0 | 2.45                         | 70            | 50       | 4     | 7                 | 20     |
| April     | 54.9    | 34.7               | 44.8 | 2.86                         | 70            | 50       | 6     | 7                 | 17     |
| May       | 66.1    | 42.9               | 54.5 | 3.17                         | 70            | 50       | 6     | 10                | 15     |
| June      | 76.1    | 53.1               | 64.6 | 3.70                         | 70            | 60       | 8     | 10                | 12     |
| July      | 80.7    | 57.2               | 69.0 | 3.46                         | 70            | 60       | 8     | 13                | 10     |
| August    | 78.8    | 55.2               | 67.0 | 3.18                         | 70            | 60       | 8     | 11                | 12     |
| September | 72.1    | 49.1               | 60.7 | 2.95                         | 70            | 60       | 7     | 11                | 12     |
| October   | 61.2    | 39.5               | 50.3 | 2.80                         | 70            | 50       | 7     | 8                 | 16     |
| November  | 47.1    | 31.4               | 39.3 | 3.15                         | 70            | 30       | 2     | 6                 | 22     |
| December  | 35.1    | 20.4               | 27.8 | 2.57                         | 70            | 30       | 2     | 5                 | 24     |
| Annual    | 56.3    | 36.3               | 46.3 | 34.33                        | 70            | 50       | 64    | 101               | 200    |

| Period             | Mixing                    | Wind           |
|--------------------|---------------------------|----------------|
|                    | Height <sup>(2)</sup> , m | Speed (2), m/s |
| Morning (Winter)   | 900                       | 8              |
| Morning (Spring)   | 700                       | 6              |
| Morning (Summer)   | 500                       | 5              |
| Morning (Autumn)   | 600                       | 5              |
| Morning (Annual)   | 650                       | 6              |
| Afternoon (Winter) | 900                       | 8              |
| Afternoon (Spring) | 1600                      | 8              |
| Afternoon (Summer) | 1800                      | 7              |
| Afternoon (Autumn) | 1300                      | 7              |
| Afternoon (Annual) | 1400                      | 7              |

Mean Annual Pan Evaporation (3), inches: 35 Mean Annual Lake Evaporation (3), inches: 28

Number of episodes lasting more than 2 days (2), (No. of episode-days):

Mixing Height < 500 m, wind speed < 2 m/s : 0 (0) Mixing Height < 1000 m, wind speed < 2 m/s : 0 (0)

Number of episodes lasting more than 5 days (2), (No. of episode-days):

Mixing Height < 500 m, wind speed < 4 m/s: 0 (0)

Notes:

- 1) Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell University, NY.
- 2) Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972.
- 3) Climate Atlas of the United States. U.S. Department of Commerce, 1983.
- 4) Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.

# TABLE 2-1 SUMMARY OF WELL DEVELOPMENT CRITERIA

# SEAD-121C AND SEAD-121I RI REPORT

| Water Quality Indicator Parameter                 | SEAD-121C                    |  |  |  |  |  |  |
|---|------------------------------|--|--|--|--|--|--|
|   | Development Criteria         |  |  |  |  |  |  |
| Water Volume Removed                              | At least three well volumes* |  |  |  |  |  |  |
| Dissolved Oxygen                                  | Not Applicable               |  |  |  |  |  |  |
| PH  | ± 10 %                       |  |  |  |  |  |  |
| Specific Conductance                              | ± 10 %                       |  |  |  |  |  |  |
| Temperature                                       | ± 10%                        |  |  |  |  |  |  |
| Turbidity   | Preferably < 50 NTUs         |  |  |  |  |  |  |
| * unless well pumped to dryness and low recharge. |                              |  |  |  |  |  |  |

## TABLE 2-2 SUMMARY OF SOIL SAMPLE ANALYSES

# SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity – Romulus, New York

| Sample Analysis                 | SEAD-121C | SEAD-121C | SEAD-121I | SEAD-121I |
|---------------------------------|-----------|-----------|-----------|-----------|
|                                 | ESI       | RI        | ESI       | RI        |
| TCL* volatile organic compounds | •         | •         | •         | •         |
| by Method 8260B                 |           |           |           |           |
| TCL* semivolatile organic       | •         | •         | •         | •         |
| compounds by Method 8270C       |           |           |           |           |
| TCL* pesticides by Method 8081  | •         | •         | •         | •         |
| and PCBs by Method 8082         |           |           |           |           |
| TAL* metals by EPA Method 6010  | •         | •         | •         | •         |
| Cyanide by EPA SW846 Method     |           | •         |           | •         |
| 9012                            |           |           |           |           |
| Total Petroleum Hydrocarbon by  |           | •         |           | •         |
| EPA Method 418.1                |           |           |           |           |
| Total Organic Carbon by Lloyd   |           | •         |           | •         |
| Kahn Method                     |           |           |           |           |

<sup>\*</sup> TCL = Target Compound List

ESI = Expanded Site Investigation

RI = Remedial Investigation

TAL = Target Analyte List

# TABLE 2-3 SUMMARY OF SURFACE WATER SAMPLE ANALYSES

# SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity – Romulus, New York

| Analysis                                      | SEAD | SEAD |
|---|------|------|
|   | 121C | 121I |
| Volatile organic compounds by Method 524.2    | •    | •    |
| TCL* semivolatile organic compounds by NYSDEC | •    | •    |
| CLP   |      |      |
| TCL* pesticides/PCBs according the NYSDEC CLP | •    | •    |
| SOW   |      |      |
| TAL* metals and cyanide by NYSDEC CLP         | •    | •    |
| Cyanide (total and amenable) by SW846 9012    | •    | •    |
| Total Petroleum Hydrocarbon by EPA Method     | •    | •    |
| 418.1   |      |      |
| * TCL = Target Compound List                  |      |      |
| TAL = Target Analyte List                     |      |      |
|   |      |      |

# TABLE 2-4 SUMMARY OF DITCH SOIL SAMPLE ANALYSES

# SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity – Romulus, New York

| Analysis                                      | SEAD | SEAD |
|---|------|------|
|   | 121C | 121I |
| TCL* volatile organic compounds by NYSDEC     | •    | •    |
| CLP   |      |      |
| TCL* semivolatile organic compounds by NYSDEC | •    | •    |
| CLP   |      |      |
| TCL* pesticides/PCBs according the NYSDEC CLP | •    | •    |
| SOW   |      |      |
| TAL* metals and cyanide by NYSDEC CLP         | •    | •    |
| Cyanide (total and amenable) by SW846 9012    | •    | •    |
| Total Petroleum Hydrocarbon by EPA Method     | •    | •    |
| 418.1   |      |      |
| Total Organic Carbon by Lloyd Kahn            | •    | •    |
| * TCL = Target Compound List                  |      | -    |
| TAL = Target Analyte List                     |      |      |
|   |      |      |

# TABLE 2-5 SUMMARY OF GROUNDWATER SAMPLE ANALYSES

# SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity – Romulus, New York

| Analysis  | SEAD-121C |    |    |  |  |
|---|-----------|----|----|--|--|
|   | EBS       | R1 | R2 |  |  |
| TCL* volatile organic compounds by NYSDEC ASP     | •         |    |    |  |  |
| Volatile organic compounds by EPA Method SW846    |           | •  |    |  |  |
| 8260B   |           |    |    |  |  |
| Volatile organic compounds by EPA Method 524.2    |           |    | •  |  |  |
| TCL* semivolatile organic compounds by EPA SW846  | •         | •  | •  |  |  |
| Method 8270C                                      |           |    |    |  |  |
| TCL* pesticides/PCBs according the NYSDEC CLP SOW | •         | •  | •  |  |  |
| TAL* metals by EPA Method 6010B                   | •         | •  | •  |  |  |
| Total Petroleum Hydrocarbon by EPA Method 418.1   |           | •  | •  |  |  |

TCL = Target Compound List

TAL = Target Analyte List

ESI = Expanded Site Investigation

R1 = Round 1 of Remedial Investigation

R2 = Round 2 of Remedial Investigation

Table 3-1 Summary of Survey Data: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|                              |           |               | <b>Ground Surface</b> |                      |                                 |
|------------------------------|-----------|---------------|-----------------------|----------------------|---------------------------------|
| Location                     | Northing  | Easting       | Elevation             | <b>PVC Elevation</b> | <b>Top of Protective Casing</b> |
| Identification (NAD 83 - ft) |           | (NAD 83 - ft) | (NAVD 88 - ft)        | (NAVD 88 - ft)       | Elevation (NAVD 88 - ft)        |
|                              | /         | /             | ,                     | ,                    | ,                               |
| Surface Soil Location        | ons       |               |                       |                      |                                 |
| SSDRMO-10                    | 996979.99 | 749845.55     | 729.787               |                      |                                 |
| SSDRMO-11                    | 996973.27 | 749677.57     | 731.542               |                      |                                 |
| SSDRMO-12                    | 997083.39 | 749644.32     | 733.004               |                      |                                 |
| SSDRMO-13                    | 996890.19 | 749719.71     | 730.811               |                      |                                 |
| SSDRMO-14                    | 996863.35 | 749438.48     | 730.492               |                      |                                 |
| SSDRMO-15                    | 996781.68 | 749440.86     | 721.836               |                      |                                 |
| SSDRMO-16                    | 996836.69 | 749605.78     | 722.562               |                      |                                 |
| SSDRMO-17                    | 997030.18 | 749381.86     | 727.098               |                      |                                 |
| SSDRMO-18                    | 997378.1  | 749795.19     | 728.871               |                      |                                 |
| SSDRMO-19                    | 997551.16 | 749950.74     | 728.419               |                      |                                 |
| SSDRMO-20                    | 996839.49 | 750051.42     | 730.837               |                      |                                 |
| SSDRMO-21                    | 997631.71 | 750195.56     | 731.43                |                      |                                 |
| SSDRMO-22                    | 997437.44 | 750143.35     | 733.244               |                      |                                 |
| SSDRMO-23                    | 996766.4  | 749792.29     | 723.86                |                      |                                 |
| SSDRMO-24                    | 997409.47 | 749923.52     | 730.505               |                      |                                 |
| SSDRMO-5                     | 997220.91 | 749915.22     | 730.849               |                      |                                 |
| SSDRMO-6                     | 997044.64 | 749908.68     | 730.113               |                      |                                 |
| SSDRMO-7                     | 996847.89 | 750221.31     | 734.765               |                      |                                 |
| SSDRMO-8                     | 996870.74 | 749882.54     | 728.736               |                      |                                 |
| SSDRMO-9                     | 997121.1  | 749788.9      | 731.807               |                      |                                 |
| Soil Borings Locati          | ons       |               | <u> </u>              |                      |                                 |
| SBDRMO-10                    | 996990.44 | 749577.77     | 732.214               |                      |                                 |
| SBDRMO-11                    | 997052.79 | 749709.09     | 732.515               |                      |                                 |
| SBDRMO-12                    | 996871.54 | 749767.39     | 730.348               |                      |                                 |
| SBDRMO-13                    | 996936.58 | 749456.42     | 731.156               |                      |                                 |
| SBDRMO-14                    | 996875.84 | 749671.6      | 730.688               |                      |                                 |
| SBDRMO-15                    | 996827.45 | 749547.31     | 728.93                |                      |                                 |
| SBDRMO-16                    | 996838.91 | 750135.15     | 731.232               |                      |                                 |
| SBDRMO-17                    | 996840.35 | 749947.1      | 728.546               |                      |                                 |
| SBDRMO-18                    | 997435.34 | 750008.24     | 733.033               |                      |                                 |
| SBDRMO-19                    | 997231.46 | 749728.31     | 731.946               |                      |                                 |
| SBDRMO-20                    | 996834.74 | 749456.43     | 729.377               |                      |                                 |
| SBDRMO-21                    | 997705.32 | 750165.5      | 731.05                |                      |                                 |
| SBDRMO-22                    | 997454.92 | 750291.57     | 736                   |                      |                                 |
| SBDRMO-23                    | 997655.65 | 749996.35     | 727.832               |                      |                                 |
| SBDRMO-24                    | 997288.85 | 750056.52     | 732.531               |                      |                                 |
| SBDRMO-5                     | 997322.07 | 749936.83     | 730.879               |                      |                                 |
| SBDRMO-6                     | 996918.05 | 749882.82     | 729.161               |                      |                                 |
| SBDRMO-7                     | 997254.23 | 749819.49     | 729.519               |                      |                                 |
| SBDRMO-8                     | 996982.28 | 749778.83     | 731.39                |                      |                                 |
| SBDRMO-9                     | 996875.42 | 749831.47     | 730.43                |                      |                                 |

Table 3-1 Summary of Survey Data: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|                    |                  |               | Ground Surface |                |                          |
|--------------------|------------------|---------------|----------------|----------------|--------------------------|
| Location           | Northing         | Easting       | Elevation      | PVC Elevation  | Top of Protective Casing |
| Identification     | (NAD 83 - ft)    | (NAD 83 - ft) | (NAVD 88 - ft) | (NAVD 88 - ft) | Elevation (NAVD 88 - ft) |
| Monitoring Well Lo | ocations         |               |                |                |                          |
| MW121C-3           | 997507.91        | 749999.17     | 733.328        | 733.41         | 733.7                    |
| MW121C-4           | 996866.95        | 749922.29     | 729.859        | 731.24         | 731.4                    |
| MW121C-5           | 996896.87        | 749448.53     | 731.62         | 732.3          | 732.5                    |
| MW121C-6           | 997040.99        | 749613.64     | 733.041        | 734.08         | 734.3                    |
| Surface Water and  | Ditch Soil Locat | ions          |                |                |                          |
| SW/SDDRMO-1        | 997783.54        | 750020.78     | 722.758        |                |                          |
| SW/SDDRMO-10       | 997567.58        | 750188.66     | 726.577        |                |                          |
| SW/SDDRMO-2        | 996827.47        | 750120.08     | 728.57         |                |                          |
| SW/SDDRMO-3        | 996851.59        | 749726.49     | 720.916        |                |                          |
| SW/SDDRMO-4        | 997327.43        | 749775.48     | 721.405        |                |                          |
| SW/SDDRMO-5        | 996770.81        | 749452.27     | 719.279        |                |                          |
| SW/SDDRMO-6        | 996864.4         | 749334.6      | 717.145        |                |                          |
| SW/SDDRMO-7        | 996572.01        | 749161.74     | 715.185        |                |                          |
| SW/SDDRMO-8        | 996634.58        | 749081.28     | 716.346        |                |                          |
| SW/SDDRMO-9        | 997370.53        | 749955.47     | 730.482        |                |                          |

#### TABLE 3-2 SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-846<br>Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | TCL Pesticides/PCBs by<br>EPA SW-846 Method<br>8081A/8082A | Total Petroleum<br>Hydrocarbon - EPA 418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL PCBs by EPA SW-<br>846 Method 8081A | TCL Pesticides by EPA<br>SW-846 Method 8081A | Cyanide by EPA SW-846<br>Method 9012 | Sample Depth (ft.) |
|-------------|-----------|---------|-------------|-------------------------------------|---------------------------------------|-----------------------------------|--|--|--------------------------------------|---|--|--------------------------------------|--------------------|
| SURFACE SO  | IL        |         |             |                                     |                                       |                                   |  |  |                                      |   |  |                                      |                    |
| SB121C-1    | EB226     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SB121C-1    | EB231     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SB121C-2    | EB014     | DU      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SB121C-3    | EB233     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SB121C-4    | EB020     | DU      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SB121C-4    | EB229     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 0 - 0.2            |
| SBDRMO-10   | DRMO-1056 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-11   | DRMO-1059 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-12   | DRMO-1062 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-13   | DRMO-1065 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-14   | DRMO-1068 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-15   | DRMO-1071 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-16   | DRMO-1074 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-16   | DRMO-1080 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-17   | DRMO-1077 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-18   | DRMO-1081 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-19   | DRMO-1084 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
|             | DRMO-1087 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-21   | DRMO-1090 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-22   | DRMO-1091 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-23   | DRMO-1095 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-24   | DRMO-1098 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-5    | DRMO-1040 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-6    | DRMO-1043 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |
| SBDRMO-6    | DRMO-1050 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 0 - 2              |

#### TABLE 3-2 SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| C   |
|---|
| SBDRMO-7         DRMO-1046         SA         27-Oct-02         X       |
| SBDRMO-8         DRMO-1049         SA         25-Oct-02         X       |
| SBDRMO-9         DRMO-1053         SA         25-Oct-02         X       |
| SS121C-2         EB236         SA         9-Mar-98         X            |
| SS121C-3         EB237         SA         9-Mar-98         X            |
| SS121C-4         EB241         SA         10-Mar-98         X           |
| SSDRMO-10         DRMO-1006         SA         23-Oct-02         X </td |
| SSDRMO-11         DRMO-1007         SA         23-Oct-02         X </td |
| SSDRMO-12         DRMO-1008         SA         23-Oct-02         X </td |
| SSDRMO-12         DRMO-1008         SA         23-Oct-02         X </td |
| SSDRMO-14         DRMO-1010         SA         23-Oct-02         X </td |
| SSDRMO-15         DRMO-1011         SA         30-Oct-02         X </td |
| SSDRMO-16         DRMO-1012         SA         30-Oct-02         X </td |
| SSDRMO-17         DRMO-1013         SA         30-Oct-02         X </td |
| SSDRMO-18         DRMO-1014         SA         30-Oct-02         X </td |
| SSDRMO-19         DRMO-1015         SA         30-Oct-02         X </td |
| SSDRMO-20         DRMO-1016         SA         24-Oct-02         X </td |
| SSDRMO-21         DRMO-1017         SA         24-Oct-02         X </td |
| SSDRMO-22 DRMO-1018 SA 24-Oct-02 X X X X X X X X X O ·  |
|   |
|   |
| SSDRMO-23 DRMO-1019 SA 30-Oct-02 X X X X X X X X X 0 -  |
| SSDRMO-24 DRMO-1020 SA 23-Oct-02 X X X X X X X X X O  |
| SSDRMO-5 DRMO-1000 SA 23-Oct-02 X X X X X X X X X O -   |
| SSDRMO-6 DRMO-1001 SA 24-Oct-02 X X X X X X X X X O -   |
| SSDRMO-7 DRMO-1002 SA 24-Oct-02 X X X X X X X X X O   |
| SSDRMO-7 DRMO-1003 SA 24-Oct-02 X X X X X X X X X X O -   |
| SSDRMO-8 DRMO-1004 SA 23-Oct-02 X X X X X X X X X 0 -   |
| SSDRMO-9   DRMO-1005   SA   23-Oct-02   X   X   X   X   X   X   X   X   0 -   |

#### TABLE 3-2 SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

|             |           |         |             |                                     | • •                                   |                                   | tomaras, 110   |  |                                      |   |  |                                      |                    |
|-------------|-----------|---------|-------------|-------------------------------------|---------------------------------------|-----------------------------------|--|--|--------------------------------------|---|--|--------------------------------------|--------------------|
| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-846<br>Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | TCL Pesticides/PCBs by<br>EPA SW-846 Method<br>8081A/8082A | Total Petroleum<br>Hydrocarbon - EPA 418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL PCBs by EPA SW-<br>846 Method 8081A | TCL Pesticides by EPA<br>SW-846 Method 8081A | Cyanide by EPA SW-846<br>Method 9012 | Sample Depth (ft.) |
| SUBSURFAC   | E SOIL    |         |             |                                     |                                       |                                   |  |  |                                      |   |  |                                      |                    |
| SB121C-1    | EB232     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 2.5 - 3            |
| SB121C-2    | EB228     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 2 - 2.5            |
| SB121C-3    | EB234     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 2.5 - 3            |
| SB121C-4    | EB230     | SA      | 9-Mar-98    | X                                   | X                                     | X                                 | X  |  |                                      |   |  |                                      | 2.5 - 3            |
| SBDRMO-10   | DRMO-1057 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-11   | DRMO-1060 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-12   | DRMO-1063 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-13   | DRMO-1066 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-14   | DRMO-1069 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-16   | DRMO-1075 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-17   | DRMO-1078 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
|             | DRMO-1082 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-20   | DRMO-1088 | SA      | 26-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-21   | DRMO-1102 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-23   | DRMO-1096 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
|             | DRMO-1099 | SA      | 28-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-5    | DRMO-1041 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-6    | DRMO-1044 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-7    | DRMO-1047 | SA      | 27-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |
| SBDRMO-9    | DRMO-1054 | SA      | 25-Oct-02   | X                                   | X                                     | X                                 |  | X  | X                                    | X                                       | X  | X                                    | 2 - 6              |

## TABLE 3-3 SUMMARY OF DITCH SOIL SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL Pesticides by EPA<br>SW-846 Method 8081A | TCL PCBs by EPA SW-<br>846 Method 8082A | Cyanide by EPA SW-<br>846 Method 9012 | Sample Depth (ft.) |
|-------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--------------------------------------|--|---|---------------------------------------|--------------------|
| SDDRMO-1    | DRMO-4000 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-2    | DRMO-4001 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-3    | DRMO-4002 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-4    | DRMO-4003 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-5    | DRMO-4004 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-6    | DRMO-4006 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-7    | DRMO-4007 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-8    | DRMO-4005 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-8    | DRMO-4008 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-9    | DRMO-4009 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SDDRMO-10   | DRMO-4010 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |

#### **TABLE 3-4**

# Summary of Ditch Soil Sample Characteristics: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

## **Seneca Army Depot Activity**

| Ditch Soil<br>Sampling | Ditch Soil<br>Sample | Date<br>Sampled | Sample<br>Depth | Field Description              | USCS           |
|------------------------|----------------------|-----------------|-----------------|--------------------------------|----------------|
| Location               | ID                   |                 | (in)            |                                | Classification |
| SDDRMO-1               | DRMO-4000            | 5-Nov-02        | 0-2"            |                                |                |
|                        |                      |                 |                 | Light gray silt and fine clay, |                |
| SDDRMO-2               | DRMO-4001            | 5-Nov-02        | 0-2"            | some organic matter            | ML             |
|                        |                      |                 |                 | Dark black organic matter,     |                |
| SDDRMO-3               | DRMO-4002            | 5-Nov-02        | 0-2"            | anerobic odor                  | OL             |
| SDDRMO-4               | DRMO-4003            | 5-Nov-02        | 0-2"            |                                |                |
| SDDRMO-5               | DRMO-4004            | 5-Nov-02        | 0-2"            |                                |                |
| SDDRMO-6               | DRMO-4006            | 5-Nov-02        | 0-2"            |                                |                |
| SDDRMO-7               | DRMO-4007            | 5-Nov-02        | 0-2"            |                                |                |
|                        |                      |                 |                 | Light gray clay, trace organic |                |
| SDDRMO-8               | DRMO-4005            | 5-Nov-02        | 0-2"            | material                       | CL             |
| SDDRMO-9               | DRMO-4009            | 5-Nov-02        | 0-2"            |                                |                |
| SDDRMO-10              | DRMO-4010            | 5-Nov-02        | 0-2"            |                                |                |

### TABLE 3-5 SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | TCL PCBs by EPA SW-<br>846 Method 8082A | TCL Pesticides by EPA<br>SW-846 Method 8081A | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Cyanide by EPA SW-846 Method 9012 |
|-------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--|---|-----------------------------------|
| SWDRMO-1    | DRMO-3000 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-2    | DRMO-3001 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-3    | DRMO-3002 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-4    | DRMO-3003 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-5    | DRMO-3004 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-6    | DRMO-3006 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-7    | DRMO-3007 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-8    | DRMO-3005 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-8    | DRMO-3008 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-9    | DRMO-3009 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SWDRMO-10   | DRMO-3010 | SA      | 5-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |

Table 3-6
SEAD-121C - Summary of Temporary Well Installations and Water Level Elevations
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

| Location<br>Identification | Depth of<br>Boring<br>(ft bgs) | Depth of<br>Bedrock<br>(ft bgs) | Point of<br>Well<br>(ft bgs) | Top of<br>Well Screen<br>(ft bgs) | Top of Well<br>Casing<br>(ft bgs1) | Depth to<br>Water<br>(ft TOC) | Depth to<br>Water (bgs)<br>(ft bgs) | Sampling<br>Date |
|----------------------------|--------------------------------|---------------------------------|------------------------------|-----------------------------------|------------------------------------|-------------------------------|-------------------------------------|------------------|
| MW121C-1                   | 9.9                            | 2.9                             | 9.7                          | 2.1                               | -1.9                               | 4.6                           | 2.7                                 | 3/11/1998        |
| MW121C-2                   | 6                              | 4                               | 5.9                          | 1.6                               | -2.1                               | 4.74                          | 2.64                                | 3/11/1998        |

ft bgs = Feet Below Grade Surface

ft TOC = Measurement relative to Top of Casing in feet.

<sup>(1)</sup> Negative ft bgs value indicates that the referenced surface is above than grade surface.

# Table 3-7 SEAD-121C - Monitoring Well Construction Details

## SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity - Romulus, New York

| Well     | Well | Point of Well  | Point of Well | Diameter | Diameter | Well   | Scree | ened  | Interval | Well      | Ground    | Elevation of | Elevation of | Height of    | Well     | Well     |
|----------|------|----------------|---------------|----------|----------|--------|-------|-------|----------|-----------|-----------|--------------|--------------|--------------|----------|----------|
| ID       | Type | Relative to    | Relative to   | of       | of       | Screen | Re    | elati | ve to    | Screen    | Surface   | Top of PVC   | Top of       | PVC Well     | Casing   | Screen   |
|          |      | Ground Surface | Top of PVC    | Boring   | Well     | Length | 7     | ГОС   | (ft)     | Slot Size | Elevation | Well (MSL)   | Casing       | Stickup (ft) | Material | Material |
|          |      | (ft)           | (ft)          | (in)     | (in)     | (ft)   |       |       |          | (in)      |           |              |              |              |          |          |
| MW121C-3 | T/WS | 724.20         | 725.61        | 6        | 2        | 5      | 2.80  | to    | 7.80     | 0.010     | 732.00    | 733.41       | 733.70       | 1.41         | PVC      | PVC      |
| MW121C-4 | T/WS | 720.29         | 721.63        | 6        | 2        | 5      | 4.61  | to    | 9.61     | 0.010     | 729.90    | 731.24       | 731.40       | 1.34         | PVC      | PVC      |
| MW121C-5 | T/WS | 720.84         | 722.54        | 6        | 2        | 5      | 4.76  | to    | 9.76     | 0.010     | 730.60    | 732.30       | 732.50       | 1.70         | PVC      | PVC      |
| MW121C-6 | T/WS | 725.50         | 726.88        | 6        | 2        | 5      | 2.20  | to    | 7.20     | 0.010     | 732.70    | 734.08       | 734.30       | 1.38         | PVC      | PVC      |

Notes:

T/WS = Till Weathered Shale Aqufier

# Table 3-8 SEAD-121C - Monitoring Well Development Information

### SEAD-121C AND SEAD-121I RI REPORT

**Seneca Army Depot Activity** 

|          |             | Installation |                                  |             | Field-Measured Param  | eters * |           | Dungo Woton                 |
|----------|-------------|--------------|----------------------------------|-------------|-----------------------|---------|-----------|-----------------------------|
| Well ID  | Date Purged | Date         | <b>Development Method</b>        | Temperature | Specific Conductivity |         | Turbidity | Purge Water<br>Removed (mL) |
|          |             | Date         |                                  | (°C)        | ( <b>mS</b> )         | pН      | (NTU)     | Kemovea (IIIL)              |
| MW121C-3 | 1/17/2003   | 10/29/2002   | Teflon Bailer & Peristaltic Pump | 4.8         | 0.88                  | 7.28    | 0.69      | 3750                        |
| MW121C-4 | 1/17/2003   | 10/29/2002   | Teflon Bailer & Peristaltic Pump | 7.1         | 2.09                  | 6.94    | 18.9      | 3700                        |
| MW121C-5 | 1/17/2003   | 10/29/2002   | Well was Dry                     |             |                       |         |           |                             |
| MW121C-6 | 1/17/2003   | 10/29/2002   | Teflon Bailer & Peristaltic Pump | 5.5         | 2.63                  | 7.06    | 0.37      | 3750                        |

<sup>\*</sup> Measurements taken at end of purging event.

### TABLE 3-9 SUMMARY OF GROUNDWATER SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL VOCs EPA<br>Method 524.2 | TCL SVOCs EPA SW-846 Method 8270B | TAL Metals by SW-846<br>6010/7### | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | TCL Pesticides/PCBs by<br>EPA SW-846 Method<br>8081A/8082A | TCL Pesticides by EPA<br>SW-846 Method 8081A | TCL PCBs by EPA SW-846 Method 8082A | Cyanide by EPA SW-846 Method 9012 |
|-------------|-----------|---------|-------------|--------------------------------------|------------------------------|-----------------------------------|-----------------------------------|---|--|--|-------------------------------------|-----------------------------------|
| MW121C-1    | EB153     | SA      | 17-Mar-98   | X                                    |                              | X                                 | X                                 |   | X  |  |                                     |                                   |
| MW121C-1    | EB023     | DU      | 17-Mar-98   | X                                    |                              | X                                 | X                                 |   | X  |  |                                     |                                   |
| MW121C-2    | EB154     | SA      | 17-Mar-98   | X                                    |                              | X                                 | X                                 |   | X  |  |                                     |                                   |
| MW121C-3    | 121C-2000 | SA      | 3-Feb-03    | X                                    |                              | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-4    | 121C-2002 | SA      | 3-Feb-03    | X                                    |                              | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-4    | 121C-2004 | SA      | 4-Feb-03    | X                                    |                              | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-6    | 121C-2003 | SA      | 3-Feb-03    | X                                    |                              | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-3    | 121C-2009 | SA      | 7-May-03    |                                      | X                            | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-4    | 121C-2010 | SA      | 7-May-03    |                                      | X                            | X                                 | X                                 | X   |  | X  | X                                   | X                                 |
| MW121C-6    | 121C-2012 | SA      | 7-May-03    |                                      | X                            | X                                 | X                                 | X   |  | X  | X                                   | X                                 |

Table 3-10
Monitoring Well Field Sampling Information: SEAD-121C

### SEAD-121C AND SEAD-121I RI REPORT

## **Seneca Army Depot Activity**

| Well     | Sample      | Date     |             | Field-Measured Parameters |      |      |                  |           |             |  |  |
|----------|-------------|----------|-------------|---------------------------|------|------|------------------|-----------|-------------|--|--|
| ID       | ID          | Sampled  | Temperature | Specific                  | pН   | ORP  | Dissolved Oxygen | Turbidity | Purge Water |  |  |
|          |             |          | (°C)        | Conductivity (umhos)      |      | (mv) | (mg/L)           | (NTU)     | Removed (L) |  |  |
| MW121C-3 | 121C-2000   | 3-Feb-03 | 6.20        | 0.576                     | 7.12 | 68   | 1.02             | 36.4      | 1.1         |  |  |
| MW121C-4 | 121C-2002/4 | 3-Feb-03 | 4.08        | 2.12                      | 7.08 | 165  | 6.28             | 15.6      | 0.80        |  |  |
| MW121C-6 | 121C-2003   | 3-Feb-03 | 7.09        | 2.61                      | 6.90 | 181  | 2.46             | 5.90      | 1.4         |  |  |

| Well     | Sample    | Date     |             | Field-Measured Parameters |      |      |                  |           |             |  |  |
|----------|-----------|----------|-------------|---------------------------|------|------|------------------|-----------|-------------|--|--|
| ID       | ID        | Sampled  | Temperature | Specific                  | pН   | ORP  | Dissolved Oxygen | Turbidity | Purge Water |  |  |
|          |           |          | (°C)        | Conductivity (umhos)      |      | (mv) | (mg/L)           | (NTU)     | Removed (L) |  |  |
| MW121C-3 | 121C-2009 | 7-May-03 | 9.8         | 0.57                      | 7.08 | 19   | 0.8              | 318       | 0.45        |  |  |
| MW121C-4 | 121C-2010 | 7-May-03 | 11.84       | 2.11                      | 7.12 | 147  | 4.15             | 127.00    | 1.7         |  |  |
| MW121C-6 | 121C-2012 | 7-May-03 | 10.73       | 2.52                      | 6.84 | 148  | 0.69             | 189.00    | 0.92        |  |  |

#### Table 3-11 Summary of Groundwater Elevation Data: SEAD-121C

## SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|          | Elevation          | Prior to Develo        | pment (Oct 29, 2002)         | <b>During Develop</b>  | ment (Jan 17, 2003)      | Round 1                | (Feb 3, 2003)            | Round 2 (              | May 7, 2003)             |
|----------|--------------------|------------------------|------------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|
| Well Id  | Top of PVC<br>Well | Depth to<br>Water (ft) | Groundwater<br>Elevation     | Depth to Water<br>(ft) | Groundwater<br>Elevation | Depth to<br>Water (ft) | Groundwater<br>Elevation | Depth to<br>Water (ft) | Groundwater<br>Elevation |
| MW-1     | 734.21             |                        | Not Develo                   | oped in 2003           |                          | 5.44                   | 728.77                   | 6.25                   | 727.96                   |
| MW-2     | 733.88             |                        | Not Develo                   | pped in 2003           |                          | 5.13                   | 728.75                   | 5.90                   | 727.98                   |
| MW121C-3 | 733.41             | 7.55                   | 725.86                       | 8.47                   | 724.94                   | 7.75                   | 725.66                   | 7.80                   | 725.61                   |
| MW121C-4 | 731.24             | 4.41                   | 726.83                       | 6.84                   | 724.40                   | 4.49                   | 726.75                   | 4.70                   | 726.54                   |
| MW121C-5 | 732.30             |                        | Well was Dry - Not Developed |                        |                          | Wel                    | was Dry                  | Well                   | was Dry                  |
| MW121C-6 | 734.08             | 4.39                   | 729.69                       | 6.78                   | 727.30                   | 6.90                   | 727.18                   | 7.20                   | 726.88                   |

Table 3-12 Summary of Survey Data: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|                |               |               | <b>Ground Surface</b> |
|----------------|---------------|---------------|-----------------------|
| Location       | Northing      | Easting       | Elevation             |
| Identification | (NAD 83 - ft) | (NAD 83 - ft) | (NAVD 88 - ft)        |
|                |               |               | ,                     |
| Surface Soil   |               |               |                       |
| SB121I-1       | 995134.62     | 751429.66     | 744.116               |
| SB121I-2       | 994774.98     | 751398.61     | 741.195               |
| SB121I-3       | 993858.04     | 751444.5      | 744.773               |
| SB121I-4       | 993263.9      | 751385.07     | 742.38                |
| SB121I-5       | 993462.77     | 751485.25     | 747.191               |
| SS121I-1       | 995206.36     | 751476.69     |                       |
| SS121I-10      | 994219.65     | 751465.5      | 742.601               |
| SS121I-11      | 994257.88     | 751344.83     | 745.435               |
| SS121I-12      | 993711.38     | 751512.5      | 745.597               |
| SS121I-13      | 993688.28     | 751370.81     | 745.102               |
| SS121I-14      | 993615.84     | 751506.74     | 746.386               |
| SS121I-15      | 993596.98     | 751348.01     | 744.781               |
| SS121I-16      | 993118.94     | 751551.07     | 749.245               |
| SS121I-17      | 993055.23     | 751346.07     | 741.685               |
| SS121I-18      | 995535.8      | 751184.74     | 744.894               |
| SS121I-19      | 995046.39     | 751204.71     | 745.475               |
| SS121I-2       | 994638.65     | 751531.37     |                       |
| SS121I-20      | 994642.37     | 751208.02     | 744.269               |
| SS121I-21      | 993951.98     | 751220.2      | 742.826               |
| SS121I-22      | 993349.34     | 751238.63     | 741.906               |
| SS121I-23      | 995265.53     | 751555.95     | 748.836               |
| SS121I-24      | 994691.52     | 751572.55     | 746.111               |
| SS121I-25      | 993935.49     | 751600.17     | 747.41                |
| SS121I-26      | 993495.76     | 751618.19     | 748.096               |
| SS121I-27      | 993363.28     | 751398.21     | 742.978               |
| SS121I-28      | 994014.1      | 751400.37     | 744.774               |
| SS121I-29      | 994628.57     | 751294.95     | 738.675               |
| SS121I-3       | 994130.84     | 751494.92     |                       |
| SS121I-30      | 995656.23     | 751535.71     | 747.866               |
| SS121I-31      | 995554.62     | 751436.22     | 744.826               |
| SS121I-32      | 995496.91     | 751254.6      | 745.813               |
| SS121I-33      | 995248.38     | 751373.26     | 747.41                |
| SS121I-34      | 995006.57     | 751470.02     | 743.415               |
| SS121I-4       | 993378.24     | 751513.14     |                       |
| SS121I-5       | 994982.32     | 751311.35     | 740.961               |
| SS121I-6       | 994891.02     | 751472.32     | 744.032               |
| SS121I-7       | 994898.23     | 751317.98     | 741.223               |
| SS121I-8       | 994361.1      | 751494.58     | 743.692               |
| SS121I-9       | 994351.89     | 751311.25     | 744.254               |

Table 3-12 Summary of Survey Data: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

| Location<br>Identification | Northing<br>(NAD 83 - ft) | Easting (NAD 83 - ft) | Ground Surface<br>Elevation<br>(NAVD 88 - ft) |
|----------------------------|---------------------------|-----------------------|---|
| Surface Water and          | Ditch Soil                |                       |   |
| SW/SD121I-1                | 992962.25                 | 750592.66             | 743.255                                       |
| SW/SD121I-10               | 995433.74                 | 751244.74             | 744.035                                       |
| SW/SD121I-2                | 994312.37                 | 750577.55             | 737.467                                       |
| SW/SD121I-3                | 995542.76                 | 750540.98             | 736.6   |
| SD121I-4                   | 993037.94                 | 751345.28             | 738.742                                       |
| SW/SD121I-5                | 993045.44                 | 751647.88             | 756.11  |
| SW/SD121I-6                | 993715.11                 | 751318.73             | 743.046                                       |
| SW/SD121I-7                | 995572.01                 | 751554.66             | 745.644                                       |
| SD121I-8                   | 994337.91                 | 751299.84             | 741.506                                       |
| SD121I-9                   | 994342.44                 | 751590.26             | 744.008                                       |
| SD121I-1EBS                | 993741.65                 | 751334.46             |   |
| SD121I-2EBS                | 995081.23                 | 751286.55             |   |

#### TABLE 3-13 SUMMARY OF SURFACE SOIL SAMPLE ANALYSES: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Location ID  | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL Pesticides by EPA<br>SW-846 Method 8081A | TCL PCBs by EPA SW-<br>846 Method 8082A | Cyanide by EPA SW-<br>846 Method 9012 | Sample Depth (ft.) |
|--------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--------------------------------------|--|---|---------------------------------------|--------------------|
| SURFACE SOIL |           |         |             |                                      |                                       |                                   |   |                                      |  |   |                                       |                    |
|              | EB147     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |   |                                       | 0 - 0.2            |
| SS121I-2     | EB150     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |   |                                       | 0 - 0.2            |
| SS121I-3     | EB149     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |   |                                       | 0 - 0.2            |
| SS121I-4     | EB148     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |   |                                       | 0 - 0.2            |
| SB121I-1     | 121I-1040 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SB121I-2     | 121I-1043 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SB121I-2     | 121I-1044 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SB121I-3     | 121I-1047 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SB121I-4     | 121I-1050 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SB121I-5     | 121I-1053 | SA      | 24-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 2              |
| SS121I-10    | 121I-1006 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-10    | 121I-1031 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-11    | 121I-1007 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-12    | 121I-1008 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-13    | 121I-1009 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-14    | 121I-1010 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-15    | 121I-1011 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-16    | 121I-1012 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-17    | 121I-1013 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-18    | 121I-1014 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-19    | 121I-1015 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-20    | 121I-1016 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-21    | 121I-1017 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-22    | 121I-1018 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-23    | 121I-1019 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-24    | 121I-1020 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-25    | 121I-1021 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-26    | 121I-1022 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |
| SS121I-27    | 121I-1023 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                       | X                                     | 0 - 0.2            |

#### TABLE 3-13 SUMMARY OF SURFACE SOIL SAMPLE ANALYSES: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL Pesticides by EPA<br>SW-846 Method 8081A | TCL PCBs by EPA SW-846 Method 8082A | Cyanide by EPA SW-<br>846 Method 9012 | Sample Depth (ft.) |
|-------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--------------------------------------|--|-------------------------------------|---------------------------------------|--------------------|
| SS121I-28   | 121I-1024 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-29   | 121I-1025 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-29   | 121I-1030 | SA      | 23-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-30   | 121I-1026 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-31   | 121I-1027 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-32   | 121I-1028 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-33   | 121I-1029 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-34   | 121I-1032 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-5    | 121I-1000 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-6    | 121I-1001 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-7    | 121I-1002 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-8    | 121I-1004 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |
| SS121I-9    | 121I-1005 | SA      | 22-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 0.2            |

### TABLE 3-14 SUMMARY OF DITCH SOIL SAMPLE ANALYSES: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Total Organic Carbon -<br>Lloyd Kahn | TCL Pesticides by EPA<br>SW-846 Method 8081A | TCL PCBs by EPA SW-846 Method 8082A | Cyanide by EPA SW-<br>846 Method 9012 | Sample Depth (ft.) |
|-------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--------------------------------------|--|-------------------------------------|---------------------------------------|--------------------|
| SD121I-1EBS | EB151     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |                                     |                                       | 0 - 0.2            |
| SD121I-2EBS | EB152     | SA      | 10-Mar-98   |                                      | X                                     |                                   |   |                                      |  |                                     |                                       | 0 - 0.2            |
| SD121I-1    | 121I-4000 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-2    | 121I-4001 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-3    | 121I-4002 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-4    | 121I-4003 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-5    | 121I-4004 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-6    | 121I-4006 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-7    | 121I-4007 | SA      | 26-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-7    | 121I-4005 | SA      | 26-Oct-02   | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-8    | 121I-4008 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-9    | 121I-4009 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |
| SD121I-10   | 121I-4010 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X   | X                                    | X  | X                                   | X                                     | 0 - 2              |

#### **TABLE 3-15**

## Summary of Ditch Soil Sample Characteristics: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

## **Seneca Army Depot Activity**

| Ditch Soil | Ditch Soil | Date     | Sample |                                |                |
|------------|------------|----------|--------|--------------------------------|----------------|
| Sampling   | Sample     | Sampled  | Depth  | Field Description              | USCS           |
| Location   | ID         |          | (in)   |                                | Classification |
|            |            |          |        | Light gray to brown, silt and  |                |
| SD121I-1   | 121I-4000  | 6-Nov-02 | 0-2"   | clay, shale fragments          | ML             |
|            |            |          |        |                                |                |
| SD121I-2   | 121I-4001  | 6-Nov-02 | 0-2"   | Silt and clay, shale fragments | ML             |
|            |            |          |        | Dark black organic matter,     |                |
| SD121I-3   | 121I-4002  | 6-Nov-02 | 0-2"   | anerobic odor                  | OL             |

### TABLE 3-16 SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Location ID | Sample ID | QC Code | Sample Date | TCL VOCs EPA SW-<br>846 Method 8260B | TCL SVOCs EPA SW-<br>846 Method 8270B | TAL Metals by SW-846<br>6010/7### | TCL PCBs by EPA SW-<br>846 Method 8082A | TCL Pesticides by EPA<br>SW-846 Method 8081A | Total Petroleum<br>Hydrocarbon - EPA<br>418.1 | Cyanide by EPA SW-846 Method 9012 |
|-------------|-----------|---------|-------------|--------------------------------------|---------------------------------------|-----------------------------------|---|--|---|-----------------------------------|
| SW121I-1    | 121I-3000 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-2    | 121I-3001 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-3    | 121I-3002 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-5    | 121I-3004 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-6    | 121I-3006 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-7    | 121I-3007 | SA      | 26-Oct-02   | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-7    | 121I-3005 | SA      | 26-Oct-02   | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |
| SW121I-10   | 121I-3010 | SA      | 6-Nov-02    | X                                    | X                                     | X                                 | X                                       | X  | X   | X                                 |

### Table 4-1A RPD Greater than 50% SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Parameter                     | SEAD-121C     | SEAD-121C  | SEAD-121C   | SEAD-121C     | SEAD-121C           | SEAD-121I    | SEAD-121I  | SEAD-121I     |
|-------------------------------|---------------|------------|-------------|---------------|---------------------|--------------|------------|---------------|
| Media                         | Surface Soil  | Ditch Soil | Groundwater | Surface Water | Groundwater Bld 360 | Surface Soil | Ditch Soil | Surface Water |
| Number of Samp-Dup Pairs      | 5             | 1          | 2           | 1             | 2                   | 3            | 1          | 1             |
| Volatile Organic Compounds    |               |            | •           |               |                     |              |            |               |
| Acetone                       | 56%           | 110%       |             |               |                     | 180%, 69%    | 86%        |               |
| Benzene                       |               |            |             |               |                     | 81%          |            |               |
| Chloroform                    | 93%           |            |             |               |                     |              |            |               |
| Ethyle Benzene                | 121%          |            |             |               |                     | 55%, 73%     |            |               |
| M/P Xylenes                   |               |            |             |               |                     | 76%          |            |               |
| Methyl Ethyl Ketone           |               |            |             |               |                     | 68%, 182%    |            |               |
| Methylene chloride            | 58%           |            |             |               |                     |              |            |               |
| Ortho Xylenes                 |               |            |             |               |                     | 58%, 83%     |            |               |
| Toluene                       | 86%           |            |             |               |                     | 82%          |            |               |
| Semivolatile Organic Compound | ds            |            |             |               |                     |              |            |               |
| 1,2,4-Trichlorobenzene        |               | 51%        |             |               |                     |              |            |               |
| 1,2-Dichlorobenzene           |               | 51%        |             |               |                     |              |            |               |
| 1,3-Dichlorobenzene           |               | 51%        |             |               |                     |              |            |               |
| 1,4-Dichlorobenzene           |               | 51%        |             |               |                     |              |            |               |
| 2,4,6-Trichlorophenol         |               | 51%        |             |               |                     |              |            |               |
| 2,4-Dichlorophenol            |               | 51%        |             |               |                     |              |            |               |
| 2,4-Dimethylphenol            |               | 51%        |             |               |                     |              |            |               |
| 2,4-Dinitrotoluene            |               | 51%        |             |               |                     |              |            |               |
| 2,6-Dinitrotoluene            |               | 51%        |             |               |                     |              |            |               |
| 2-Chloronaphthalene           |               | 51%        |             |               |                     |              |            |               |
| 2-Chlorophenol                |               | 51%        |             |               |                     |              |            |               |
| 2-Methylnaphthalene           | 179%          | 51%        |             |               |                     |              | 105%       |               |
| 2-Methylphenol                |               | 51%        |             |               |                     |              |            |               |
| 2-Nitrophenol                 |               | 51%        |             |               |                     |              |            |               |
| 3 or 4-Methylphenol           |               | 51%        |             |               |                     |              |            |               |
| 3,3'-Dichlorobenzidine        |               | 51%        |             |               |                     |              |            |               |
| 4-Bromophenyl phenyl ether    |               | 51%        |             |               |                     |              |            |               |
| 4-Chloro-3-methylphenol       |               | 51%        |             |               |                     |              |            |               |
| 4-Chloroaniline               |               | 51%        |             |               |                     |              |            |               |
| 4-Chlorophenyl phenyl ether   |               | 51%        |             |               |                     |              |            |               |
| Acenaphthene                  | 168%          | 51%        |             |               |                     |              | 124%       |               |
| Acenaphthylene                |               | 51%        |             |               |                     |              | 143%       |               |
| Anthracene                    | 135%, 61%     | 51%        |             |               |                     | 150%         | 128%       |               |
| Benzo(a)anthracene            | 57%, 62%, 53% | 51%        |             |               |                     | 92%          | 78%        |               |
| Benzo(a)pyrene                | 56%           | 51%        |             |               |                     |              | 71%        |               |

### Table 4-1A RPD Greater than 50% SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Parameter                   | SEAD-121C          | SEAD-121C  | SEAD-121C   | SEAD-121C     | SEAD-121C           | SEAD-121I    | SEAD-121I  | SEAD-121I     |
|-----------------------------|--------------------|------------|-------------|---------------|---------------------|--------------|------------|---------------|
| Media                       | Surface Soil       | Ditch Soil | Groundwater | Surface Water | Groundwater Bld 360 | Surface Soil | Ditch Soil | Surface Water |
| Number of Samp-Dup Pairs    | 5                  | 1          | 2           | 1             | 2                   | 3            | 1          | 1             |
| Benzo(b)fluoranthene        | 138%, 56%, 150%    | 51%        |             |               |                     |              | 77%        |               |
| Benzo(ghi)perylene          | 60%, 79%, 63%      | 51%        |             |               |                     |              | 78%        |               |
| Benzo(k)fluoranthene        | 55%                | 51%        |             |               |                     |              | 65%        |               |
| Bis(2-Chloroethoxy)methane  |                    | 51%        |             |               |                     |              |            |               |
| Bis(2-Chloroethyl)ether     |                    | 51%        |             |               |                     |              |            |               |
| Bis(2-Chloroisopropyl)ether |                    | 51%        |             |               |                     |              |            |               |
| Bis(2-Ethylhexyl)phthalate  | 140%, 69%          | 51%        |             |               |                     | 133%, 156%   |            |               |
| Butylbenzylphthalate        |                    | 51%        |             |               |                     |              |            |               |
| Carbazole                   | 128%               | 51%        |             |               |                     | 148%         | 118%       |               |
| Chrysene                    | 60%                | 51%        |             |               |                     |              | 77%        |               |
| Dibenz(a,h)anthracene       | 115%, 86%          | 51%        |             |               |                     |              | 92%        |               |
| Dibenzofuran                | 175%, 69%          | 51%        |             |               |                     |              | 160%       |               |
| Di-n-butylphthalate         | 180%, 136%         | 51%        |             |               |                     |              |            |               |
| Di-n-octylphthalate         | 152%               | 51%        |             |               |                     |              |            |               |
| Diethyl phthalate           | 171%               | 51%        |             |               |                     | 161%         |            |               |
| Dimethylphthalate           |                    | 51%        |             |               |                     |              |            |               |
| Fluoranthene                | 79%, 52%           | 51%        |             |               |                     | 134%         | 99%        |               |
| Fluorene                    | 163%, 56%          | 51%        |             |               |                     |              | 141%       |               |
| Hexachlorobenzene           |                    | 51%        |             |               |                     |              |            |               |
| Hexachlorobutadiene         |                    | 51%        |             |               |                     |              |            |               |
| Hexachlorocyclopentadiene   |                    | 51%        |             |               |                     |              |            |               |
| Hexachloroethane            |                    | 51%        |             |               |                     |              |            |               |
| Indeno(1,2,3-cd)pyrene      | 62%, 79%, 141%     | 51%        |             |               |                     |              | 106%       |               |
| Isophorone                  |                    | 51%        |             |               |                     |              |            |               |
| N-Nitrosodiphenylamine      |                    | 51%        |             |               |                     |              |            |               |
| N-Nitrosodipropylamine      |                    | 51%        |             |               |                     |              |            |               |
| Naphthalene                 |                    | 51%        |             |               |                     |              |            |               |
| Nitrobenzene                |                    | 51%        |             |               |                     |              |            |               |
| Phenanthrene                | 52%                | 51%        |             |               |                     | 122%         | 120%       |               |
| Phenol                      |                    | 51%        |             |               |                     |              |            |               |
| Pyrene                      | 74%, 51%, 77%, 53% | 51%        |             |               |                     | 58%          | 89%        |               |
| Pesticides/PCBs             |                    |            |             |               |                     |              |            |               |
| 4,4'-DDD                    | 108%               |            | 156%        |               |                     |              |            |               |
| 4,4'-DDE                    | 153%               |            | 98%         |               |                     |              | 146%       |               |
| 4,4'-DDT                    | 160%               |            |             |               |                     |              |            |               |
| Aldrin                      | 63%                |            |             |               |                     |              |            |               |

#### Table 4-1A RPD Greater than 50% SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Parameter                    | SEAD-121C      | SEAD-121C  | SEAD-121C   | SEAD-121C | SEAD-121C           | SEAD-121I    | SEAD-121I  | SEAD-121I     |
|------------------------------|----------------|------------|-------------|-----------|---------------------|--------------|------------|---------------|
| Media                        | Surface Soil   | Ditch Soil | Groundwater |           | Groundwater Bld 360 | Surface Soil | Ditch Soil | Surface Water |
| Number of Samp-Dup Pairs     | 5              | 1          | 2           | 1         | 2                   | 3            | 1          | 1             |
| Beta-BHC                     |                |            | 141%        |           |                     |              |            |               |
| Delta-BHC                    | 71%            |            | 84%         |           |                     |              |            |               |
| Dieldrin                     |                |            | 72%         |           |                     |              |            |               |
| Endosulfan I                 |                |            |             |           | 67%                 | 164%         |            |               |
| Endosulfan II                |                |            | 87%         |           |                     |              |            |               |
| Endosulfan sulfate           |                |            | 67%         |           |                     |              |            |               |
| Endrin aldehyde              |                |            | 100%        |           |                     |              |            |               |
| Gamma-Chlordane              |                |            | 138%        |           |                     |              |            |               |
| Heptachlor                   |                |            | 119%        |           |                     |              |            |               |
| Methoxychlor                 |                |            | 164%        |           |                     |              |            |               |
| Aroclor-1016                 |                | 52%        |             |           |                     |              |            |               |
| Metals & Cyanide             |                |            |             |           |                     |              |            |               |
| Aluminum                     |                |            | 150%, 139%  |           | 137%                | 52%          |            |               |
| Antimony                     | 178%, 71%, 78% |            |             |           |                     | 131%         |            |               |
| Arsenic                      |                | 95%        |             |           |                     | 68%          |            |               |
| Barium                       | 184%, 55%      | 51%        |             |           |                     |              |            |               |
| Cadmium                      | 190%           |            |             |           |                     |              |            |               |
| Calcium                      | 170%           |            |             |           |                     |              |            |               |
| Chromium                     |                |            | 122%, 67%   |           |                     | 64%          |            |               |
| Cobalt                       |                | 56%        | 70%         |           |                     | 52%          |            |               |
| Copper                       | 199%           |            |             |           |                     |              |            |               |
| Cyanide, Total               |                |            |             |           |                     | 74%          |            |               |
| Iron                         |                |            | 192%, 122%  | 57%       |                     |              |            |               |
| Lead                         | 199%           |            |             |           |                     |              |            |               |
| Magnesium                    | 69%            |            |             |           |                     | 75%          |            |               |
| Manganese                    |                | 61%        |             | 77%       |                     | 54%          |            | 55%           |
| Nickel                       |                |            |             |           |                     |              |            |               |
| Selenium                     |                | 52%        |             |           | 84%                 | 111%         |            | 53%           |
| Silver                       |                |            |             |           |                     | 75%          |            |               |
| Sodium                       | 125%           | 51%        |             |           |                     |              |            |               |
| Thallium                     |                |            |             |           |                     | 131%         | 70%        |               |
| Vanadium                     |                |            |             |           |                     |              |            |               |
| Zinc                         | 176%           |            | 89%, 118%   |           |                     |              |            |               |
| Other                        |                |            |             |           |                     |              |            |               |
| Total Organic Carbon         | 88%            |            |             |           |                     |              |            |               |
| Total Petroleum Hydrocarbons | 76%, 122%      |            |             |           |                     | 148%         | ·          |               |

Note: All parameters shown had RPD greater than 50%.

#### Table 4-1B Quality Control of Field Duplicates - RPDs Greater than 50%Surface Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

|                              | - 1            |        | SB121C-1 | - Î  | S      | B121C-4 |      | SE        | DRMO-16   | ·    | S         | BDRMO-6   | _    | S            | SDRMO-7   | -          |
|------------------------------|----------------|--------|----------|------|--------|---------|------|-----------|-----------|------|-----------|-----------|------|--------------|-----------|------------|
| Parameter                    | Units          | EB231  | EB014    | *RPD | EB020  | EB229   | *RPD | DRMO-1074 | DRMO-1080 | RPD  | DRMO-1043 | DRMO-1050 | *RPD | DRMO-1002    | DRMO-1003 | *RP        |
| Volatile Organic Compounds   | U 0            |        |          |      |        |         |      |           |           |      |           |           |      |              |           |            |
| Acetone                      | UG/KG          | 12 U   | 12 J     |      | 10 J   | 11 UJ   | 10%  | 2.6 UJ    | 2.8 UJ    | 7%   | 2.6 UJ    | 4.6 U     | 56%  | 3.1 UJ       | 2.9 R     | N.A        |
| Chloroform                   | UG/KG          | 12 U   | 12 U     | +    | 11 UJ  | 4 J     | 93%  | 2.6 U     | 2.8 U     | 7%   | 2.6 UJ    | 2.7 U     | 4%   | 3.1 UJ       | 2.9 U     | 7%         |
| Ethyl benzene                | UG/KG          | 12 U   | 12 U     | 4    | 11 UJ  | 11 UJ   |      | 2.6 U     | 2.8 U     | 7%   | 0.66 J    | 2.7 U     | 121% | 3.1 UJ       | 2.9 U     | 7%         |
| Methylene chloride           | UG/KG          | 12 U   | 12 U     |      | 11 UJ  | 11 UJ   |      | 2.6 U     | 2.8 U     | 7%   | 2.6 UJ    | 2.7 U     | 4%   | 3.1 UJ       | 1.7 U     | 589        |
| Toluene                      | UG/KG          | 2 J    | 5 J      | 86%  | 12 J   | 10 J    | 18%  | 2.6 U     | 2.8 U     | 7%   | 2.6 UJ    | 2.7 U     | 4%   | 3.1 UJ       | 2.9 U     | 7%         |
| Semivolatile Organic Compoun | nds            |        |          |      |        |         |      |           |           |      |           |           |      |              |           |            |
| 2-Methylnaphthalene          | UG/KG          | 78 U   | 4.3 J    | 179% | 72 U   | 71 U    | 1%   | 200 J     | 210 J     | 5%   | 340 U     | 350 U     | 3%   | 140 J        | 110 J     | 249        |
| Acenaphthene                 | UG/KG          | 78 U   | 6.8 J    | 168% | 72 U   | 71 U    | 1%   | 160 J     | 170 J     | 6%   | 340 U     | 350 U     | 3%   | 310 J        | 190 J     | 489        |
| Anthracene                   | UG/KG          | 78 U   | 15 J     | 135% | 72 U   | 71 U    | 1%   | 1100      | 950       | 15%  | 340 U     | 350 U     | 3%   | 1600         | 850       | 619        |
| Benzo(a)anthracene           | UG/KG          | 78 U   | 76       | 3%   | 3.9 J  | 7 J     | 57%  | 5500 J    | 2900 J    | 62%  | 340 U     | 350 UJ    | 3%   | 6700 J       | 3900 J    | 539        |
| Benzo(a)pyrene               | UG/KG          | 78 U   | 57 J     | 31%  | 72 U   | 71 U    | 1%   | 4800 J    | 2700 J    | 56%  | 340 UJ    | 350 UJ    | 3%   | 7600 J       | 5000 J    | 419        |
| Benzo(b)fluoranthene         | UG/KG          | 78 U   | 95       | 20%  | 13 J   | 71 U    | 138% | 6600 J    | 3700 J    | 56%  | 50 J      | 350 UJ    | 150% | 11000 J      | 6600 J    | 509        |
| Benzo(ghi)perylene           | UG/KG          | 78 U   | 42 J     | 60%  | 72 U   | 71 U    | 1%   | 1700 J    | 740 J     | 79%  | 110 J     | 57 J      | 63%  | 3800 J       | 2500 J    | 419        |
| Benzo(k)fluoranthene         | UG/KG          | 78 U   | 67 J     | 15%  | 72 U   | 71 U    | 1%   | 3000 J    | 1700 J    | 55%  | 340 UJ    | 350 UJ    | 3%   | 4900 J       | 3100 J    | 459        |
| Bis(2-Ethylhexyl)phthalate   | UG/KG          | 13 J   | 73 U     | 140% | 9,3 J  | 13 J    | 33%  | 97 J      | 74 J      | 27%  | 340 UJ    | 350 UJ    | 3%   | 200 J        | 97 J      | 699        |
| Carbazole                    | UG/KG          | 78 U   | 17 J     | 128% | 72 U   | 71 U    | 1%   | 170 J     | 130 J     | 27%  | 340 U     | 350 U     | 3%   | 910          | 550       | 499        |
| Chrysene                     | UG/KG          | 78 U   | 90       | 14%  | 8.8 J  | 12 J    | 31%  | 5000 J    | 2700 J    | 60%  | 340 UJ    | 350 UJ    | 3%   | 6800 J       | 4300 J    | 459        |
| Di-n-butylphthalate          | UG/KG          | 78 U   | 73 U     | 7%   | 72 U   | 3.7 J   | 180% | 360 U     | 360 U     |      | 340 U     | 350 U     | 3%   | 380 U        | 73 J      | 136        |
| Di-n-octylphthalate          | UG/KG          | 9.9 J  | 73 U     | 152% | 72 U   | 71 U    | 1%   | 360 U     | 360 UJ    |      | 340 UJ    | 350 UJ    | 3%   | 380 UJ       | 380 UJ    |            |
| Dibenz(a,h)anthracene        | UG/KG          | 78 U   | 21 J     | 115% | 72 U   | 71 U    | 1%   | 250 J     | 100 J     | 86%  | 340 UJ    | 350 UJ    | 3%   | 570 J        | 370 J     | 439        |
| Dibenzofuran                 | UG/KG          | 78 U   | 5.1 J    | 175% | 72 U   | 71 U    | 1%   | 170 J     | 190 J     | 11%  | 340 U     | 350 U     | 3%   | 330 J        | 160 J     | 699        |
| Diethyl phthalate            | UG/KG          | 5.8 J  | 73 U     | 171% | 8.1 J  | 10 J    | 21%  | 360 U     | 360 U     |      | 340 U     | 350 U     | 3%   | 380 U        | 380 U     |            |
| Fluoranthene                 | UG/KG          | 78 U   | 180      | 79%  | 7.4 J  | 10 J    | 30%  | 8200 J    | 5100 J    | 47%  | 53 J      | 38 J      | 33%  | 15000        | 8800      | 529        |
| Fluorene                     | UG/KG          | 78 U   | 8 J      | 163% | 72 U   | 71 U    | 1%   | 650       | 690       | 6%   | 340 U     | 350 U     | 3%   | 1000         | 560       | 569        |
| Indeno(1,2,3-cd)pyrene       | UG/KG          | 78 U   | 41 J     | 62%  | 72 U   | 71 U    | 1%   | 760       | 330 J     | 79%  | 60 J      | 350 UJ    | 141% | 1100 J       | 840 J     | 279        |
| Phenanthrene                 | UG/KG          | 78 U   | 96       | 21%  | 8.8 J  | 7.6 J   | 15%  | 4400 J    | 4000 J    | 10%  | 340 U     | 350 U     | 3%   | 13000        | 7600      | 529        |
| Pyrene                       | UG/KG          | 78 U   | 170      | 74%  | 8.3 J  | 14 J    | 51%  | 12000 J   | 5300 J    | 77%  | 130 J     | 78 J      | 50%  | 24000 J      | 14000 J   | 539        |
| Pesticides/PCBs              | T CG/RGT       | 7010   | 170      | 7470 | 0.5 5  | 173     | 3170 | 12000 3   | 3300 3    | 1170 | 130 3     | 703       | 3070 | 24000 3      | 14000 3   | 337        |
| 4.4'-DDD                     | UG/KG          | 3.9 U  | 3.7 U    | 5% T | 3.6 U  | 3.5 U   | 3%   | 1.8 UJ    | 6 J       | 108% | 1.8 R     | 1.8 UJ    | NA   | 2 UJ         | 1.9 UJ    | 5%         |
| 4,4'-DDE                     | UG/KG          | 3.9 U  | 29       | 153% | 3.8    | 4.5     | 17%  | 1.8 UJ    | 41 R      | NA   | 6.1 J     | 6.3 J     | 3%   | 2 UJ         | 1.9 UJ    | 5%         |
| 4.4'-DDT                     | UG/KG          | 3.9 U  | 35       | 160% | 1.9 J  | 2.3 J   | 19%  | 19 J      | 21 J      | 10%  | 1.8 UJ    | 1.8 UJ    | 570  | 2 UJ         | 1.9 UJ    | 5%         |
| Aldrin                       | UG/KG          | 2 U    | 1.8 U    | 11%  | 1.8 U  | 1.8 U   | 1970 | 9.9 J     | 19 NJ     | 63%  | 1.8 UJ    | 1.8 UJ    |      | 2 U          | 1.9 U     | 5%         |
| Delta-BHC                    | UG/KG          | 2 U    | 0.95 J   | 71%  | 1.8 U  | 1.8 U   |      | 1.8 UJ    | 1.8 UJ    |      | 1.8 UJ    | 1.8 UJ    |      | 2 UJ         | 1.9 UJ    | 5%         |
| Metals                       | OG/RG          | 2 0    | 0.93 3   | /1/0 | 1.0 0  | 1.0     |      | 1.0 03    | 1.6 03    |      | 1.0 03    | 1.6 03    |      | 2 03         | 1.5 03    | 3/0        |
| Antimony                     | MG/KG          | 1.1 J  | 19.3 J   | 178% | 1.7 J  | 0.81 J  | 71%  | 0.98 U    | 0.99      | 1%   | 1.5       | 0.96 U    | 44%  | 3.2 J        | 1.4 J     | 789        |
| Barium                       | MG/KG<br>MG/KG | 64.9   | 1600     | 184% | 86.6   | 69.6    | 22%  | 42        | 45.6      | 8%   | 37.9 J    | 66.7 J    | 55%  | 80.9 J       | 84.5 J    | 4%         |
| Cadmium                      | MG/KG          | 0.07 U | 2.7      | 190% | 0.07 U | 0.05 U  | 33%  | 0.56      | 0.49 J    | 13%  | 0.2 J     | 0.13 U    | 42%  | 0.57         | 0.44      | 269        |
| Copper                       | MG/KG          | 19.7 J | 7690     | 190% | 39.1 J | 33 J    | 17%  | 28.8      | 34.3      | 17%  | 34.6 J    | 39.6 J    | 13%  | 39.8 J       | 32.8 J    | 199        |
| Magnesium                    | MG/KG<br>MG/KG | 4590   | 6820     | 39%  | 6980   | 5630    | 21%  | 17900     | 13000     | 32%  | 5080      | 6940      | 31%  | 12700        | 6180      | 699        |
| Nagnesium<br>Sodium          | MG/KG<br>MG/KG | 139 U  | 606      | 125% | 132 U  | 110     | 18%  | 276       | 232       | 17%  | 223       | 277       | 22%  | 191          | 194       | 2%         |
| Zinc                         | MG/KG<br>MG/KG | 80.3   | 1280     | 176% | 152 U  | 196     | 25%  | 130 J     | 135 J     | 4%   | 123       | 196       | 46%  | 191<br>107 J | 96.8 J    | 10         |
|                              | MG/KG          | 80.3   | 1280     | 1/0% | 133    | 190     | 23%  | 130 J     | 133 J     | 4%   | 123       | 190       | 40%  | 10/3         | 90.0 p    | 10         |
| Other                        | MC/KC          |        | -        |      |        |         | ~    | 5200      | 5200      | 20/  | 2200      | 9500      | 900/ | 5000         | 6000      | 200        |
| Total Organic Carbon         | MG/KG          |        | -        |      |        |         | _    | 5200      | 5300      | 2%   | 3300      | 8500      | 88%  | 5800         | 6000      | 3%<br>1229 |
| Total Petroleum Hydrocarbons | MG/KG          | - 1    |          |      | 1 1    |         | -    | 2800 J    | 6200 J    | 76%  | 42 UJ     | 43 UJ     | 2%   | 190          | 46 U      | 122        |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = \underline{\mid SR - SDR \mid X \ 100}$ (1/2) (SR + SDR)

SR = Sample Result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.
Shading indicates RPD > 50%

U = not detected to the limit indicated

NJ = reported value is estimated and tentatively identified based on Mass Spec

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

'---- = No difference between results or both results were non-detect

### Table 4-1C

# Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                                | SDDRMO-8 |            |    |            |      |  |  |  |  |  |
|--------------------------------|----------|------------|----|------------|------|--|--|--|--|--|
| <br>  Parameter                | Units    | DRMO-400   |    | DRMO-4008  | *RPD |  |  |  |  |  |
|                                | Omo      | D10110-400 | ,, | 21010 4000 | MD   |  |  |  |  |  |
| Volatile Organic Compounds     | T I      | 1          | _  |            |      |  |  |  |  |  |
| Acetone                        | UG/KG    | 21 .       | J  | 72 J       | 110% |  |  |  |  |  |
| Semivolatile Organic Compounds |          |            | 1  |            |      |  |  |  |  |  |
| 1,2,4-Trichlorobenzene         | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 1,2-Dichlorobenzene            | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 1,3-Dichlorobenzene            | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 1,4-Dichlorobenzene            | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2,4,6-Trichlorophenol          | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2,4-Dichlorophenol             | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2,4-Dimethylphenol             | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2,4-Dinitrotoluene             | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2,6-Dinitrotoluene             | UG/KG    | 650        | _  | 1100 UJ    | 51%  |  |  |  |  |  |
| 2-Chloronaphthalene            | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 2-Chlorophenol                 | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 2-Methylnaphthalene            | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 2-Methylphenol                 | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 2-Nitrophenol                  | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 3 or 4-Methylphenol            | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 3,3'-Dichlorobenzidine         | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 4-Bromophenyl phenyl ether     | UG/KG    | 650        | UJ | 1100 UJ    | 51%  |  |  |  |  |  |
| 4-Chloro-3-methylphenol        | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 4-Chloroaniline                | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| 4-Chlorophenyl phenyl ether    | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Acenaphthene                   | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Acenaphthylene                 | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Anthracene                     | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Benzo(a)anthracene             | UG/KG    | 650        | _  | 1100 UJ    | 51%  |  |  |  |  |  |
| Benzo(a)pyrene                 | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Benzo(b)fluoranthene           | UG/KG    | 650        | _  | 1100 UJ    | 51%  |  |  |  |  |  |
| Benzo(ghi)perylene             | UG/KG    | 650        | _  | 1100 UJ    | 51%  |  |  |  |  |  |
| Benzo(k)fluoranthene           | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Bis(2-Chloroethoxy)methane     | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Bis(2-Chloroethyl)ether        | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Bis(2-Chloroisopropyl)ether    | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Bis(2-Ethylhexyl)phthalate     | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Butylbenzylphthalate           | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Carbazole                      | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Chrysene                       | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Di-n-butylphthalate            | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Di-n-octylphthalate            | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Dibenz(a,h)anthracene          | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Dibenzofuran                   | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Diethyl phthalate              | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Dimethylphthalate              | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Fluoranthene                   |          |            |    |            |      |  |  |  |  |  |
|                                | UG/KG    | 650        |    | 1100 UJ    | 51%  |  |  |  |  |  |
| Fluorene                       | UG/KG    | 650        | ∪J | 1100 UJ    | 51%  |  |  |  |  |  |

#### Table 4-1C

# Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                           |       | SDDRMO-8  |           |      |  |  |  |
|---------------------------|-------|-----------|-----------|------|--|--|--|
| Parameter                 | Units | DRMO-4005 | DRMO-4008 | *RPD |  |  |  |
| Hexachlorobenzene         | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Hexachlorobutadiene       | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Hexachlorocyclopentadiene | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Hexachloroethane          | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Indeno(1,2,3-cd)pyrene    | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Isophorone                | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| N-Nitrosodiphenylamine    | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| N-Nitrosodipropylamine    | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Naphthalene               | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Nitrobenzene              | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Phenanthrene              | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Phenol                    | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Pyrene                    | UG/KG | 650 UJ    | 1100 UJ   | 51%  |  |  |  |
| Pesticides/PCBs           |       |           |           |      |  |  |  |
| Aroclor-1016              | UG/KG | 10 UJ     | 17 UJ     | 52%  |  |  |  |
| Metals                    |       |           |           |      |  |  |  |
| Arsenic                   | MG/KG | 2.1       | 5.9 J     | 95%  |  |  |  |
| Barium                    | MG/KG | 72.2 J    | 122 J     | 51%  |  |  |  |
| Cobalt                    | MG/KG | 11.4      | 20.2 J    | 56%  |  |  |  |
| Manganese                 | MG/KG | 471       | 885 J     | 61%  |  |  |  |
| Selenium                  | MG/KG | 0.82 U    | 1.4 UJ    | 52%  |  |  |  |
| Sodium                    | MG/KG | 388       | 656 J     | 51%  |  |  |  |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

#### Table 4-1D

## Quality Control of Field Duplicates - RPDs Greater than 50% Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                    |       | N         | IW121C-4  |      | N      | /W121C-1 |                     |
|--------------------|-------|-----------|-----------|------|--------|----------|---------------------|
| Parameter          | Units | 121C-2002 | 121C-2004 | *RPD | EB023  | EB153    | *RPD                |
| Pesticides/PCBs    |       |           |           |      |        |          | ( ) ( ) ( ) ( ) ( ) |
| 4,4'-DDD           | UG/L  | 0.01 R    | 0.01 R    | NA   | 0.9    | 0.11 U   | 156%                |
| 4,4'-DDE           | UG/L  | 0.005 UJ  | 0.005 UJ  |      | 0.27 J | 0.093 J  | 98%                 |
| Beta-BHC           | UG/L  | 0.01 U    | 0.01 U    |      | 0.56 J | 0.096 J  | 141%                |
| Delta-BHC          | UG/L  | 0.004 UJ  | 0.004 UJ  |      | 0.23 J | 0.094    | 84%                 |
| Dieldrin           | UG/L  | 0.009 U   | 0.009 U   |      | 0.11 U | 0.052 J  | 72%                 |
| Endosulfan II      | UG/L  | 0.01 UJ   | 0.01 UJ   |      | 0.28 J | 0.11 U   | 87%                 |
| Endosulfan sulfate | UG/L  | 0.02 U    | 0.02 U    |      | 0.28 J | 0.14 J   | 67%                 |
| Endrin aldehyde    | UG/L  | 0.02 UJ   | 0.02 UJ   |      | 0.22 J | 0.073 J  | 100%                |
| Gamma-Chlordane    | UG/L  | 0.01 U    | 0.01 U    |      | 0.47   | 0.086 J  | 138%                |
| Heptachlor         | UG/L  | 0.007 U   | 0.007 U   |      | 0.23 J | 0.058 J  | 119%                |
| Methoxychlor       | UG/L  | 0.008 UJ  | 0.008 UJ  |      | 0.57   | 0.057 U  | 164%                |
| Metals             |       |           |           |      |        |          |                     |
| Aluminum           | UG/L  | 146 J     | 1030      | 150% | 133    | 738 J    | 139%                |
| Chromium           | UG/L  | 1.4 U     | 5.8       | 122% | 1.2    | 2.4      | 67%                 |
| Cobalt             | UG/L  | 2.3 U     | 4.8 J     | 70%  | 1.4 U  | 1.6      | 13%                 |
| Iron               | UG/L  | 34.9 U    | 1720      | 192% | 346    | 1430     | 122%                |
| Zinc               | UG/L  | 9.2 J     | 24        | 89%  | 2.4    | 9.3      | 118%                |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

---- = No difference between results or both results were non-detect

## Table 4-1E

## Quality Control of Field Duplicates - RPDs Greater than 50% Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|           |       | SWDRMO-8  |           |      |  |  |  |  |
|-----------|-------|-----------|-----------|------|--|--|--|--|
| Parameter | Units | DRMO-3008 | DRMO-3005 | *RPD |  |  |  |  |
| Metals    |       |           |           |      |  |  |  |  |
| Iron      | UG/L  | 19 J      | 34.2 J    | 57%  |  |  |  |  |
| Manganese | UG/L  | 11.6      | 26.1      | 77%  |  |  |  |  |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\begin{aligned} \textbf{RPD} = & \underline{\mid SR - SDR \mid X \mid 100} \\ & (1/2) \ (SR + SDR) \end{aligned} \qquad \begin{aligned} SR = \text{Sample Result of a particular analyte.} \\ SDR = \text{Sample Duplicate Result of a particular} \\ & \text{analyte.} \end{aligned}$ 

Shading indicates RPD > 50%

J = reported value is estimated

## Table 4-1F

## Quality Control of Field Duplicates -RPDs Greater than 50% Groundwater at Building 360

## SEAD-121C and SEAD-121I RI Report

## **Seneca Army Depot Activity**

| Location ID     |       |           | MW-1                     |      | MW-1     |           |      |  |
|-----------------|-------|-----------|--------------------------|------|----------|-----------|------|--|
| Sample Date     |       |           | 4/4/2003                 |      | 5/9/2003 |           |      |  |
| Parameter       | Units | DRMO-2005 | DRMO-2005 DRMO-2008 *RPI |      |          | 121C-2019 | *RPD |  |
| Pesticides/PCBs |       |           |                          |      |          |           |      |  |
| Endosulfan I    | UG/L  | 0.02 U    | 0.02 U                   |      | 0.02 UJ  | 0.01 UJ   | 67%  |  |
| Metals          |       |           |                          |      |          |           |      |  |
| Aluminum        | UG/L  | 150 U     | 28.3 J                   | 137% | 32 U     | 32 U      |      |  |
| Selenium        | UG/L  | 4.2 J     | 3.3 J                    | 24%  | 1.3 U    | 3.2 J     | 84%  |  |

## NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

'---- = No difference between results or both results were non-detect

#### Table 4-1G

#### Quality Control of Field Duplicates - RPDs Greater than 50%

#### **Surface Soil at SEAD-121I**

#### SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

| Parameter Volatile Organic Compounds | Units | SB121I-2  |           |      | SS121I-10 |           | SS121I-29 |           |           |      |
|--------------------------------------|-------|-----------|-----------|------|-----------|-----------|-----------|-----------|-----------|------|
| Volatile Organic Compounds           |       | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD      | 121I-1025 | 121I-1030 | *RPD |
|                                      |       |           |           |      |           |           |           |           |           |      |
| Acetone                              | UG/KG | 110 U     | 33 UJ     | 108% | 4.5 J     | 2.2 U     | 69%       | 3.1 U     | 3.6 UJ    | 15%  |
| Benzene                              | UG/KG | 6.6 J     | 10 J      | 41%  | 2.5 U     | 2.2 U     | 13%       | 24        | 57 J      | 81%  |
| Ethyl benzene                        | UG/KG | 2 J       | 3.5 J     | 55%  | 2.5 U     | 2.2 U     | 13%       | 4.4       | 9.5 J     | 73%  |
| Meta/Para Xylene                     | UG/KG | 2.2 J     | 3.4 J     | 43%  | 2.5 U     | 2.2 U     | 13%       | 3.9       | 8.7 J     | 76%  |
| Methyl ethyl ketone                  | UG/KG | 55        | 27 J      | 68%  | 2.5 U     | 2.2 U     | 13%       | 3.1 U     | 67 J      | 182% |
| Ortho Xylene                         | UG/KG | 1.1 J     | 2 J       | 58%  | 2.5 U     | 2.2 U     | 13%       | 2.1 J     | 5.1 J     | 83%  |
| Toluene                              | UG/KG | 6.9       | 11 J      | 46%  | 2.5 U     | 2.2 U     | 13%       | 18        | 43 J      | 82%  |
| Semivolatile Organic Compounds       |       |           |           |      |           |           |           |           |           |      |
| Anthracene                           | UG/KG | 89 J      | 74 J      | 18%  | 360 U     | 360 U     |           | 330 J     | 2300 U    | 150% |
| Benzo(a)anthracene                   | UG/KG | 350 J     | 350 J     |      | 48 J      | 47 J      | 2%        | 700 J     | 260 J     | 92%  |
| Bis(2-Ethylhexyl)phthalate           | UG/KG | 78 J      | 390 U     | 133% | 360 UJ    | 360 U     |           | 2100 U    | 260 J     | 156% |
| Carbazole                            | UG/KG | 56 J      | 67 J      | 18%  | 360 U     | 360 U     |           | 340 J     | 2300 UJ   | 148% |
| Diethyl phthalate                    | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |           | 2100 U    | 230 J     | 161% |
| Fluoranthene                         | UG/KG | 720       | 920       | 24%  | 100 J     | 78 J      | 25%       | 2500      | 490 J     | 134% |
| Phenanthrene                         | UG/KG | 450       | 440       | 2%   | 60 J      | 56 J      | 7%        | 2200      | 530 J     | 122% |
| 3                                    | UG/KG | 1200 J    | 660       | 58%  | 79 J      | 98 J      | 21%       | 2300      | 1600 J    | 36%  |
| Pesticides/PCBs                      |       |           |           |      |           |           |           |           |           |      |
| Endosulfan I                         | UG/KG | 11 J      | 6.9 J     | 46%  | 3.7 J     | 4.2 J     | 13%       | 23        | 2.3 U     | 164% |
| Metals & Cyanide                     |       |           |           |      |           |           |           |           |           |      |
|                                      | MG/KG | 9700      | 9020      | 7%   | 6480      | 7510      | 15%       | 3730      | 2200      | 52%  |
| Antimony                             | MG/KG | 1.8       | 8.6       | 131% | 3.4       | 2.5       | 31%       | 1.1 U     | 1.2 U     | 9%   |
|                                      | MG/KG | 21.2 J    | 43 J      | 68%  | 5.2       | 5.2       |           | 349 R     | 239 R     | NA   |
|                                      | MG/KG | 25.9 J    | 50 J      | 64%  | 14.3      | 14.7      | 3%        | 516       | 362       | 35%  |
|                                      | MG/KG | 23.9 J    | 40.6 J    | 52%  | 8.4       | 8.9       | 6%        | 237 J     | 174 J     | 31%  |
| Cyanide, Total                       | MG/KG | 0.592 U   | 0.595 U   | 1%   | 0.556 UJ  | 0.551 UJ  | 1%        | 1.26      | 2.73      | 74%  |
| Magnesium                            | MG/KG | 6110      | 4240      | 36%  | 13500     | 9040      | 40%       | 2770 J    | 6090 J    | 75%  |
|                                      | MG/KG | 33200 J   | 57800 J   | 54%  | 786       | 822       | 4%        | 349000    | 272000    | 25%  |
|                                      | MG/KG | 5.1 J     | 17.9 J    | 111% | 0.87      | 0.8       | 8%        | 160 J     | 131 J     | 20%  |
|                                      | MG/KG | 1.9 J     | 4.2 J     | 75%  | 1.1 U     | 1.1 U     |           | 24.1 R    | 18.6 R    | NA   |
|                                      | MG/KG | 3         | 14.4      | 131% | 1.1 U     | 1.1 U     |           | 173 J     | 152 J     | 13%  |
| Other                                |       |           |           |      |           |           |           |           |           |      |
| Total Petroleum Hydrocarbons         | MG/KG | 47 U      | 48 U      | 2%   | 44 UJ     | 44 UJ     |           | 240       | 1600      | 148% |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** =  $\rfloor$  SR - SDR  $\mid$  X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

'---- = No difference between results or both results were non-detect

## Table 4-1H

## Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121I

## SEAD-121C and SEAD-121I RI Report

## **Seneca Army Depot Activity**

|                               |       |         |    | SD121I-7 |    |      |  |  |  |  |
|-------------------------------|-------|---------|----|----------|----|------|--|--|--|--|
| Parameter                     | Units | 121I-40 | 05 | 121I-40  | 07 | *RPD |  |  |  |  |
| Volatile Organic Compounds    |       |         |    |          |    |      |  |  |  |  |
| Acetone                       | UG/KG | 25      | J  | 10       | J  | 86%  |  |  |  |  |
| Semivolatile Organic Compound | S     |         |    |          |    |      |  |  |  |  |
| 2-Methylnaphthalene           | UG/KG | 420     | U  | 130      | J  | 105% |  |  |  |  |
| Acenaphthene                  | UG/KG | 280     | J  | 1200     |    | 124% |  |  |  |  |
| Acenaphthylene                | UG/KG | 70      | J  | 420      | U  | 143% |  |  |  |  |
| Anthracene                    | UG/KG | 420     | J  | 1900     |    | 128% |  |  |  |  |
| Benzo(a)anthracene            | UG/KG | 2200    | J  | 5000     | J  | 78%  |  |  |  |  |
| Benzo(a)pyrene                | UG/KG | 2800    | J  | 5900     | J  | 71%  |  |  |  |  |
| Benzo(b)fluoranthene          | UG/KG | 3600    | J  | 8100     | J  | 77%  |  |  |  |  |
| Benzo(ghi)perylene            | UG/KG | 1400    | J  | 3200     | J  | 78%  |  |  |  |  |
| Benzo(k)fluoranthene          | UG/KG | 2500    | J  | 4900     | J  | 65%  |  |  |  |  |
| Carbazole                     | UG/KG | 440     |    | 1700     |    | 118% |  |  |  |  |
| Chrysene                      | UG/KG | 2400    | J  | 5400     | J  | 77%  |  |  |  |  |
| Dibenz(a,h)anthracene         | UG/KG | 130     | J  | 350      | J  | 92%  |  |  |  |  |
| Dibenzofuran                  | UG/KG | 71      | J  | 640      |    | 160% |  |  |  |  |
| Fluoranthene                  | UG/KG | 4400    |    | 13000    |    | 99%  |  |  |  |  |
| Fluorene                      | UG/KG | 190     | J  | 1100     |    | 141% |  |  |  |  |
| Indeno(1,2,3-cd)pyrene        | UG/KG | 400     | J  | 1300     | J  | 106% |  |  |  |  |
| Phenanthrene                  | UG/KG | 2500    |    | 10000    |    | 120% |  |  |  |  |
| Pyrene                        | UG/KG | 6500    | J  | 17000    | J  | 89%  |  |  |  |  |
| Pesticide                     |       |         |    |          |    |      |  |  |  |  |
| 4,4'-DDE                      | UG/KG | 14      | J  | 2.2      | UJ | 146% |  |  |  |  |
| Metal                         |       |         |    |          |    |      |  |  |  |  |
| Thallium                      | MG/KG | 0.71    | J  | 0.34     | U  | 70%  |  |  |  |  |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = \underline{\mid SR - SDR \mid X \mid 100} \qquad \qquad SR = Sample \text{ Result of a particular analyte}.$ 

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

'---- = No difference between results or both results were non-detect

## Table 4-1I

## Quality Control of Field Duplicates - RPDs Greater than 50% Surface Water at SEAD-121I SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|           |       | SW121I-7  |           |      |  |  |  |  |
|-----------|-------|-----------|-----------|------|--|--|--|--|
| Parameter | Units | 121I-3007 | 121I-3005 | *RPD |  |  |  |  |
| Metals    |       |           |           |      |  |  |  |  |
| Manganese | UG/L  | 5.3       | 3         | 55%  |  |  |  |  |
| Selenium  | UG/L  | 3.1 J     | 1.8 J     | 53%  |  |  |  |  |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

J = reported value is estimated

## Table 4-2 SUMMARY STATISTICS - SURFACE SOIL SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                                |       | Maximum           | Frequency    | Criteria | Number of   | Number of | Number of             |
|--------------------------------|-------|-------------------|--------------|----------|-------------|-----------|-----------------------|
| Parameter                      | Units | Detect            | of Detection |          | Exceedances | Detects   | Analyses <sup>2</sup> |
| Volatile Organic Compounds     | Units | Detect            | of Detection | varuc    | Exceedances | Detects   | Analyses              |
| Acetone                        | UG/KG | 13                | 28%          | 200      | 0           | 13        | 47                    |
| Benzene                        | UG/KG | 41                | 2%           | 60       | 0           | 1         | 48                    |
| Carbon disulfide               | UG/KG | 4.7               | 4%           | 2700     | 0           | 2         | 48                    |
| Chloroform                     | UG/KG | 4.8 3             | 4%           | 300      | 0           | 2         | 48                    |
| Ethyl benzene                  | UG/KG | 3300              | 4%           | 5500     | 0           | 2         | 48                    |
| Meta/Para Xylene               | UG/KG | 4400              | 8%           | 3300     | 0           | 3         | 40                    |
| Methylene chloride             | UG/KG | 2.6               | 2%           | 100      | 0           | 1         | 48                    |
| Ortho Xylene                   | UG/KG | 16                | 3%           | 100      | 0           | 1         | 40                    |
| Toluene                        | UG/KG | 28                | 19%          | 1500     | 0           | 9         | 48                    |
| Semivolatile Organic Compounds |       | 20                | 19%          | 1300     | U           | 9         | 40                    |
| 2,4-Dinitrotoluene             | UG/KG | 45                | 2%           |          | 0           | 1         | 48                    |
| 2-Methylnaphthalene            | UG/KG | 610               | 19%          | 36400    | 0           | 9         | 48                    |
| Acenaphthene                   | UG/KG | 2600              | 23%          | 50000    | 0           | 11        | 48                    |
| Acenaphthylene                 | UG/KG | 2500              | 25%          | 41000    | 0           | 10        | 48                    |
| Anthracene                     | UG/KG | 7100              | 42%          | 50000    | 0           | 20        | 48                    |
| Benzo(a)anthracene             | UG/KG | 10000             | 55%          | 224      | 14          | 26        | 47                    |
| Benzo(a)pyrene                 | UG/KG | 8700              | 51%          | 61       | 21          | 24        | 47                    |
| Benzo(b)fluoranthene           | UG/KG | 12000             | 64%          | 1100     | 5           | 30        | 47                    |
| ` ′                            |       | 3200 <sup>3</sup> |              |          |             |           |                       |
| Benzo(ghi)perylene             | UG/KG |                   | 53%          | 50000    | 0           | 25        | 47                    |
| Benzo(k)fluoranthene           | UG/KG | 7500              | 47%          | 1100     | 4           | 22        | 47                    |
| Bis(2-Ethylhexyl)phthalate     | UG/KG | 200               | 56%          | 50000    | 0           | 27        | 48                    |
| Butylbenzylphthalate Carbazole | UG/KG | 120<br>4200       | 13%<br>35%   | 50000    | 0           | 6<br>17   | 48<br>48              |
|                                | UG/KG |                   | 53%          | 400      | 10          | 25        | 48                    |
| Chrysene                       | UG/KG | 9100              |              |          |             |           |                       |
| Di-n-butylphthalate            | UG/KG | 132 3             | 10%          | 8100     | 0           | 5         | 48                    |
| Di-n-octylphthalate            | UG/KG | 23 3              | 4%           | 50000    | 0           | 2         | 48                    |
| Dibenz(a,h)anthracene          | UG/KG | $470^{3}$         | 26%          | 14       | 11          | 12        | 47                    |
| Dibenzofuran                   | UG/KG | 1700              | 21%          | 6200     | 0           | 10        | 48                    |
| Diethyl phthalate              | UG/KG | 21 3              | 13%          | 7100     | 0           | 6         | 48                    |
| Fluoranthene                   | UG/KG | 27000             | 73%          | 50000    | 0           | 35        | 48                    |
| Fluorene                       | UG/KG | 3500              | 27%          | 50000    | 0           | 13        | 48                    |
| Hexachlorobenzene              | UG/KG | 8.5               | 2%           | 410      | 0           | 1         | 48                    |
| Indeno(1,2,3-cd)pyrene         | UG/KG | 970 <sup>3</sup>  | 46%          | 3200     | 0           | 22        | 48                    |
| N-Nitrosodiphenylamine         | UG/KG | 4.8               | 2%           |          | 0           | 1         | 48                    |
| Naphthalene                    | UG/KG | 400               | 19%          | 13000    | 0           | 9         | 48                    |
| Phenanthrene                   | UG/KG | 29000             | 52%          | 50000    | 0           | 25        | 48                    |
| Pyrene                         | UG/KG | 34000             | 67%          | 50000    | 0           | 32        | 48                    |
| Pesticides/PCBs                |       | •                 |              |          | -           |           |                       |
| 4,4'-DDD                       | UG/KG | 44                | 12%          | 2900     | 0           | 5         | 43                    |
| 4,4'-DDE                       | UG/KG | 69                | 32%          | 2100     | 0           | 15        | 47                    |
| 4,4'-DDT                       | UG/KG | 100               | 28%          | 2100     | 0           | 13        | 47                    |
| Aldrin                         | UG/KG | 14 <sup>3</sup>   | 6%           | 41       | 0           | 3         | 48                    |
| Alpha-Chlordane                | UG/KG | 63 <sup>3</sup>   | 8%           |          | 0           | 4         | 48                    |
|                                | -     |                   |              | _        | -           |           |                       |

## Table 4-2 SUMMARY STATISTICS - SURFACE SOIL SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                              |       | Maximum          | Frequency    | Criteria           | Number of   | Number of | Number of             |
|------------------------------|-------|------------------|--------------|--------------------|-------------|-----------|-----------------------|
| Parameter                    | Units | Detect           | of Detection | Value <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Delta-BHC                    | UG/KG | 2                | 6%           | 300                | 0           | 3         | 48                    |
| Dieldrin                     | UG/KG | 41 3             | 4%           | 44                 | 0           | 2         | 48                    |
| Endosulfan I                 | UG/KG | 185 <sup>3</sup> | 38%          | 900                | 0           | 18        | 48                    |
| Endosulfan II                | UG/KG | 9                | 2%           | 900                | 0           | 1         | 47                    |
| Endrin                       | UG/KG | 21.5             | 2%           | 100                | 0           | 1         | 47                    |
| Endrin ketone                | UG/KG | 7.5 <sup>3</sup> | 6%           |                    | 0           | 3         | 48                    |
| Gamma-Chlordane              | UG/KG | 1.2              | 2%           | 540                | 0           | 1         | 48                    |
| Heptachlor                   | UG/KG | 14               | 4%           | 100                | 0           | 2         | 47                    |
| Heptachlor epoxide           | UG/KG | 2.8              | 4%           | 20                 | 0           | 2         | 46                    |
| Aroclor-1242                 | UG/KG | 58               | 2%           |                    | 0           | 1         | 48                    |
| Aroclor-1254                 | UG/KG | 930              | 19%          | 10000              | 0           | 9         | 48                    |
| Aroclor-1260                 | UG/KG | 85               | 10%          | 10000              | 0           | 5         | 48                    |
| Metals                       |       |                  |              |                    |             |           |                       |
| Aluminum                     | MG/KG | 17,000           | 100%         | 19300              | 0           | 48        | 48                    |
| Antimony                     | MG/KG | 236              | 81%          | 5.9                | 11          | 39        | 48                    |
| Arsenic                      | MG/KG | 11.6             | 100%         | 8.2                | 2           | 48        | 48                    |
| Barium                       | MG/KG | 2,030            | 100%         | 300                | 7           | 48        | 48                    |
| Beryllium                    | MG/KG | 1.2              | 100%         | 1.1                | 1           | 48        | 48                    |
| Cadmium                      | MG/KG | 29.1             | 60%          | 2.3                | 14          | 29        | 48                    |
| Calcium                      | MG/KG | 296,000          | 100%         | 121000             | 6           | 48        | 48                    |
| Chromium                     | MG/KG | 74.8             | 100%         | 29.6               | 12          | 48        | 48                    |
| Cobalt                       | MG/KG | 17               | 100%         | 30                 | 0           | 35        | 35                    |
| Copper                       | MG/KG | 9,750            | 100%         | 33                 | 35          | 48        | 48                    |
| Iron                         | MG/KG | 51,700           | 100%         | 36500              | 5           | 48        | 48                    |
| Lead                         | MG/KG | 18,900           | 100%         | 24.8               | 40          | 48        | 48                    |
| Magnesium                    | MG/KG | 20,700           | 100%         | 21500              | 0           | 48        | 48                    |
| Manganese                    | MG/KG | 858              | 100%         | 1060               | 0           | 48        | 48                    |
| Mercury                      | MG/KG | 0.47             | 92%          | 0.1                | 8           | 44        | 48                    |
| Nickel                       | MG/KG | 224              | 100%         | 49                 | 9           | 48        | 48                    |
| Potassium                    | MG/KG | 1,990            | 100%         | 2380               | 0           | 48        | 48                    |
| Selenium                     | MG/KG | 1.3              | 21%          | 2                  | 0           | 10        | 48                    |
| Silver                       | MG/KG | 21.8             | 38%          | 0.75               | 13          | 18        | 48                    |
| Sodium                       | MG/KG | 478              | 88%          | 172                | 26          | 42        | 48                    |
| Thallium                     | MG/KG |                  | 21%          | 0.7                | 3           | 10        | 48                    |
| Vanadium                     | MG/KG | 25.4             | 100%         | 150                | 0           | 48        | 48                    |
| Zinc                         | MG/KG | 3,610            | 100%         | 110                | 28          | 48        | 48                    |
| Other                        |       |                  |              |                    |             |           |                       |
| Total Organic Carbon         | MG/KG | 9,000            | 100%         |                    | 0           | 40        | 40                    |
| Total Petroleum Hydrocarbons | MG/KG | 7,600            | 25%          |                    | 0           | 10        | 40                    |

## NOTES:

- 1. The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate.

### Table 4-3 SUMMARY STATISTICS - DITCH SOIL SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                              |       | Maximum            | Frequency    | Criteria | Number of   | Number of | Number of  |
|------------------------------|-------|--------------------|--------------|----------|-------------|-----------|------------|
| Parameter                    | Units | Detect             | of Detection | Value 1  | Exceedances | Detects   | Analyses 2 |
| Volatile Organic Compounds   | 0     |                    |              |          |             |           |            |
| Acetone                      | UG/KG | 150                | 70%          | 200      | 0           | 7         | 10         |
| Carbon disulfide             | UG/KG | 12                 | 20%          | 2700     | 0           | 2         | 10         |
| Methyl ethyl ketone          | UG/KG | 130                | 30%          | 300      | 0           | 3         | 10         |
| Semivolatile Organic Compour | nds   |                    |              |          | •           |           |            |
| 3 or 4-Methylphenol          | UG/KG | 790                | 10%          |          | 0           | 1         | 10         |
| Anthracene                   | UG/KG | 250                | 20%          | 50000    | 0           | 2         | 10         |
| Benzo(a)anthracene           | UG/KG | 1100               | 20%          | 224      | 2           | 2         | 10         |
| Benzo(a)pyrene               | UG/KG | 900                | 20%          | 61       | 2           | 2         | 10         |
| Benzo(b)fluoranthene         | UG/KG | 1100               | 20%          | 1100     | 0           | 2         | 10         |
| Benzo(ghi)perylene           | UG/KG | 290                | 10%          | 50000    | 0           | 1         | 10         |
| Benzo(k)fluoranthene         | UG/KG | 580                | 10%          | 1100     | 0           | 1         | 10         |
| Chrysene                     | UG/KG | 1200               | 20%          | 400      | 1           | 2         | 10         |
| Fluoranthene                 | UG/KG | 2100               | 20%          | 50000    | 0           | 2         | 10         |
| Indeno(1,2,3-cd)pyrene       | UG/KG | 270                | 10%          | 3200     | 0           | 1         | 10         |
| Phenanthrene                 | UG/KG | 1100               | 20%          | 50000    | 0           | 2         | 10         |
| Pyrene                       | UG/KG | 2100               | 20%          | 50000    | 0           | 2         | 10         |
| Metals and Cyanide           |       |                    |              |          |             |           |            |
| Aluminum                     | MG/KG | 21500              | 100%         | 19300    | 1           | 10        | 10         |
| Antimony                     | MG/KG | 4.9                | 50%          | 5.9      | 0           | 5         | 10         |
| Arsenic                      | MG/KG | 6.1                | 100%         | 8.2      | 0           | 10        | 10         |
| Barium                       | MG/KG | 291                | 100%         | 300      | 0           | 10        | 10         |
| Beryllium                    | MG/KG | $0.8^{3}$          | 80%          | 1.1      | 0           | 8         | 10         |
| Cadmium                      | MG/KG | 14.3               | 50%          | 2.3      | 3           | 5         | 10         |
| Calcium                      | MG/KG | 161000             | 100%         | 121000   | 2           | 10        | 10         |
| Chromium                     | MG/KG | 29.8               | 100%         | 29.6     | 1           | 10        | 10         |
| Cobalt                       | MG/KG | 15.8 <sup>3</sup>  | 100%         | 30       | 0           | 10        | 10         |
| Copper                       | MG/KG | 1190               | 100%         | 33       | 7           | 10        | 10         |
| Cyanide, Amenable            | MG/KG | 2.36               | 10%          |          | 0           | 1         | 10         |
| Cyanide, Total               | MG/KG | 2.36               | 10%          |          | 0           | 1         | 10         |
| Iron                         | MG/KG | 27300 <sup>3</sup> | 100%         | 36500    | 0           | 10        | 10         |
| Lead                         | MG/KG | 436                | 100%         | 24.8     | 8           | 10        | 10         |
| Magnesium                    | MG/KG | 17600              | 100%         | 21500    | 0           | 10        | 10         |
| Manganese                    | MG/KG | 918                | 100%         | 1060     | 0           | 10        | 10         |
| Mercury                      | MG/KG | 0.3                | 100%         | 0.1      | 6           | 10        | 10         |
| Nickel                       | MG/KG | 42.7               | 100%         | 49       | 0           | 10        | 10         |
| Potassium                    | MG/KG | 1410               | 100%         | 2380     | 0           | 10        | 10         |
| Selenium                     | MG/KG | 2.5                | 40%          | 2        | 2           | 4         | 10         |
| Silver                       | MG/KG | 2.6                | 50%          | 0.75     | 5           | 5         | 10         |
| Sodium                       | MG/KG | 1120               | 100%         | 172      | 9           | 10        | 10         |
| Vanadium                     | MG/KG | 29.1               | 100%         | 150      | 0           | 10        | 10         |
| Zinc                         | MG/KG | 566                | 100%         | 110      | 7           | 10        | 10         |
| Other                        | •     |                    |              |          | •           |           |            |
| Total Organic Carbon         | MG/KG | 9100               | 100%         |          | 0           | 10        | 10         |
| Total Petroleum Hydrocarbons | MG/KG | 2600               | 20%          |          | 0           | 2         | 10         |

#### NOTES:

- 1. The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate DRMO-4005 collected at SDDRMO-8.

## Table 4-4 SUMMARY STATISTICS - SUBSURFACE SOIL SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                             |                | Maximum | Frequency    | Criteria | Number of   | Number of | Number of |
|-----------------------------|----------------|---------|--------------|----------|-------------|-----------|-----------|
| Parameter                   | Units          | Detect  | of Detection | Value 1  | Exceedances | Detects   | Analyses  |
| Volatile Organic Compounds  | Cints          | Detect  | of Detection | varue    | Laccedances | Detects   | Maryses   |
| Acetone                     | UG/KG          | 28      | 45%          | 200      | 0           | 9         | 20        |
| Benzene                     | UG/KG          | 1800    | 10%          | 60       | 1           | 2         | 20        |
| Chloroform                  | UG/KG          | 4       | 10%          | 300      | 0           | 2         | 20        |
| Ethyl benzene               | UG/KG          | 24000   | 5%           | 5500     | 1           | 1         | 20        |
| Meta/Para Xylene            | UG/KG          | 130000  | 6%           | 3300     | 0           | 1         | 16        |
| Methyl ethyl ketone         | UG/KG          | 7.6     | 10%          | 300      | 0           | 2         | 20        |
| Methylene chloride          | UG/KG          | 3.5     | 10%          | 100      | 0           | 2         | 20        |
| Ortho Xylene                | UG/KG          | 75      | 6%           | 100      | 0           | 1         | 16        |
| Styrene                     | UG/KG          | 2.7     | 5%           |          | 0           | 1         | 20        |
| Toluene                     | UG/KG          | 84      | 20%          | 1500     | 0           | 4         | 20        |
| Semivolatile Organic Compou |                | 04      | 2070         | 1300     | 0           | -         | 20        |
| 2-Methylnaphthalene         | UG/KG          | 2500    | 20%          | 36400    | 0           | 4         | 20        |
| Acenaphthene                | UG/KG          | 50      | 15%          | 50000    | 0           | 3         | 20        |
| Acenaphthylene              | UG/KG          | 220     | 10%          | 41000    | 0           | 2         | 20        |
| Anthracene                  | UG/KG          | 240     | 15%          | 50000    | 0           | 3         | 20        |
| Benzo(a)anthracene          | UG/KG          | 5200    | 35%          | 224      | 2           | 7         | 20        |
| Benzo(a)pyrene              | UG/KG          | 920     | 32%          | 61       | 3           | 6         | 19        |
| Benzo(b)fluoranthene        | UG/KG          | 1300    | 42%          | 1100     | 1           | 8         | 19        |
| Benzo(ghi)perylene          | UG/KG          | 210     | 37%          | 50000    | 0           | 7         | 19        |
| Benzo(k)fluoranthene        | UG/KG          | 490     | 32%          | 1100     | 0           | 6         | 19        |
| Bis(2-Ethylhexyl)phthalate  | UG/KG          | 87      | 40%          | 50000    | 0           | 8         | 20        |
| Butylbenzylphthalate        | UG/KG          | 39      | 10%          | 50000    | 0           | 2         | 20        |
| Carbazole                   | UG/KG          | 56      | 15%          | 30000    | 0           | 3         | 20        |
| Chrysene                    | UG/KG          | 4900    | 35%          | 400      | 2           | 7         | 20        |
| Di-n-butylphthalate         | UG/KG          | 19      | 10%          | 8100     | 0           | 2         | 20        |
| Di-n-octylphthalate         | UG/KG          | 17      | 15%          | 50000    | 0           | 3         | 20        |
| Dibenz(a,h)anthracene       | UG/KG          | 33      | 16%          | 14       | 2           | 3         | 19        |
| Dibenzofuran                | UG/KG          | 45      | 15%          | 6200     | 0           | 3         | 20        |
| Diethyl phthalate           | UG/KG          | 250     | 25%          | 7100     | 0           | 5         | 20        |
| Fluoranthene                | UG/KG          | 1600    | 40%          | 50000    | 0           | 8         | 20        |
| Fluorene                    | UG/KG          | 160     | 20%          | 50000    | 0           | 4         | 20        |
| Indeno(1,2,3-cd)pyrene      | UG/KG          | 150     | 30%          | 3200     | 0           | 6         | 20        |
| Naphthalene                 | UG/KG          | 1900    | 20%          | 13000    | 0           | 4         | 20        |
| Phenanthrene                | UG/KG          | 1000    | 40%          | 50000    | 0           | 8         | 20        |
| Pyrene                      | UG/KG          | 1700    | 40%          | 50000    | 0           | 8         | 20        |
| Pesticides/PCBs             | UU/KU          | 1700    | 4070         | 30000    | U           | Ö         | 20        |
| 4.4'-DDE                    | UG/KG          | 17      | 15%          | 2100     | 0           | 3         | 20        |
| 4,4'-DDT                    | UG/KG          | 16      | 15%          | 2100     | 0           | 3         | 20        |
| Aldrin                      | UG/KG          | 11      | 5%           | 41       | 0           | 1         | 20        |
| Delta-BHC                   | UG/KG          | 1.3     | 5%           | 300      | 0           | 1         | 20        |
| Endosulfan I                | UG/KG          | 78      | 5%           | 900      | 0           | 1         | 20        |
| Endrin                      | UG/KG          | 23      | 5%           | 100      | 0           | 1         | 20        |
| Endrin ketone               | UG/KG          | 9.7     | 5%           | 100      | 0           | 1         | 20        |
| Heptachlor epoxide          | UG/KG          | 1.1     | 5%           | 20       | 0           | 1         | 19        |
| Aroclor-1260                | UG/KG          | 200     | 15%          | 10000    | 0           | 3         | 20        |
| Metals                      | UU/KU          |         | 13/0         | 10000    |             | J         | 20        |
| Aluminum                    | MG/KG          | 17600   | 100%         | 19300    | 0           | 20        | 20        |
| Antimony                    | MG/KG<br>MG/KG | 17600   | 20%          | 5.9      | 1           | 4         | 20        |
| Arsenic                     | MG/KG<br>MG/KG | 8.1     | 100%         | 8.2      | 0           | 20        | 20        |
| Barium                      | MG/KG<br>MG/KG | 1050    | 100%         | 300      | 1           | 20        | 20        |
|                             | MG/KG<br>MG/KG |         |              |          | 0           | 20        | 20        |
| Beryllium                   |                | 1 0 1   | 100%         | 1.1      |             |           |           |
| Cadmium                     | MG/KG          | 8.1     | 10%          | 2.3      | 1           | 2         | 20        |

## Table 4-4 SUMMARY STATISTICS - SUBSURFACE SOIL SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                              |       | Maximum | Frequency    | Criteria | Number of   | Number of | Number of |
|------------------------------|-------|---------|--------------|----------|-------------|-----------|-----------|
| Parameter                    | Units | Detect  | of Detection | Value 1  | Exceedances | Detects   | Analyses  |
| Calcium                      | MG/KG | 97200   | 100%         | 121000   | 0           | 20        | 20        |
| Chromium                     | MG/KG | 37      | 100%         | 29.6     | 3           | 20        | 20        |
| Cobalt                       | MG/KG | 19.7    | 100%         | 30       | 0           | 20        | 20        |
| Copper                       | MG/KG | 2440    | 100%         | 33       | 6           | 20        | 20        |
| Iron                         | MG/KG | 54100   | 100%         | 36500    | 1           | 20        | 20        |
| Lead                         | MG/KG | 1780    | 100%         | 24.8     | 7           | 20        | 20        |
| Magnesium                    | MG/KG | 24900   | 100%         | 21500    | 1           | 20        | 20        |
| Manganese                    | MG/KG | 790     | 100%         | 1060     | 0           | 20        | 20        |
| Mercury                      | MG/KG | 0.07    | 95%          | 0.1      | 0           | 18        | 19        |
| Nickel                       | MG/KG | 69.7    | 100%         | 49       | 3           | 20        | 20        |
| Potassium                    | MG/KG | 1870    | 100%         | 2380     | 0           | 20        | 20        |
| Silver                       | MG/KG | 0.72    | 10%          | 0.75     | 0           | 2         | 20        |
| Sodium                       | MG/KG | 214     | 70%          | 172      | 2           | 14        | 20        |
| Thallium                     | MG/KG | 1.8     | 10%          | 0.7      | 2           | 2         | 20        |
| Vanadium                     | MG/KG | 27      | 100%         | 150      | 0           | 20        | 20        |
| Zinc                         | MG/KG | 691     | 100%         | 110      | 7           | 20        | 20        |
| Other                        |       |         |              |          |             | •         |           |
| Total Organic Carbon         | MG/KG | 9500    | 100%         |          | 0           | 16        | 16        |
| Total Petroleum Hydrocarbons | MG/KG | 3700    | 25%          |          | 0           | 4         | 16        |

#### NOTE:

<sup>1.</sup> The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

## Table 4-5A SUMMARY STATISTICS - EBS GROUNDWATER SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                             |  | Maximum             | Frequency    | Criteria | Source of             | Number of   | Number of | Number of             |
|-----------------------------|--|---------------------|--------------|----------|-----------------------|-------------|-----------|-----------------------|
| Parameter                   | Units  | Detect              | of Detection | Value    | Criteria <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Volatile Organic Compounds  | Units  | Detect              | of Detection | value    | Citteria              | Excediments | Detects   | Analyses              |
| 1,4-Dichlorobenzene         | UG/L   | 36                  | 50%          | 3        | GA                    | 1           | 1         | 2                     |
| Acetone                     | UG/L   | 57 <sup>3</sup>     | 50%          |          | 0.1                   | 0           | 1         | 2                     |
| Bromochloromethane          | UG/L   | 1                   | 50%          | 5        | GA                    | 0           | 1         | 2                     |
| Bromoform                   | UG/L   | 4                   | 50%          | 80       | MCL                   | 0           | 1         | 2                     |
| Carbon disulfide            | UG/L   | 2 3                 | 50%          | - 00     | MCE                   | 0           | 1         | 2                     |
| Chlorobenzene               | UG/L<br>UG/L                                     | 2                   | 50%          | 5        | GA                    | 0           | 1         | 2                     |
| Vinyl chloride              | UG/L   | 1                   | 50%          | 2        | GA                    | 0           | 1         | 2                     |
| Semivolatile Organic Compou |  | 1                   | 3070         |          | UA                    | U           | 1         |                       |
| Bis(2-Ethylhexyl)phthalate  | UG/L   | 0.4                 | 100%         | 5        | GA                    | 0           | 2         | 2                     |
| Butylbenzylphthalate        | UG/L   | 0.12 3              | 50%          |          |                       | 0           | 1         | 2                     |
|                             | <del>                                     </del> | 1.7 3               |              | 50       | CA                    | 0           |           |                       |
| Di-n-butylphthalate         | UG/L   |                     | 100%         | 50       | GA                    | -           | 2         | 2                     |
| Diethyl phthalate           | UG/L   | 0.057 3             | 50%          |          |                       | 0           | 1         | 2                     |
| Fluorene                    | UG/L   | 0.48                | 50%          | 0.5      | G.4                   | 0           | 1         | 2                     |
| Hexachlorobutadiene         | UG/L   | 0.4                 | 100%         | 0.5      | GA                    | 0           | 2         | 2                     |
| Phenanthrene                | UG/L   | 0.24                | 50%<br>50%   |          |                       | 0           | 1         | 2 2                   |
| Pyrene Pesticides/PCBs      | UG/L   | 0.13                | 50%          |          |                       | U           | 1         | 2                     |
| 4,4'-DDD                    | UG/L   | 0.81                | 100%         | 0.3      | GA                    | 2           | 2         | 2                     |
| 4,4'-DDE                    | UG/L<br>UG/L                                     | 0.3                 | 100%         | 0.3      | GA                    | 1           | 2         | 2                     |
| 4.4'-DDT                    | UG/L   | 0.56                | 100%         | 0.2      | GA                    | 2           | 2         | 2                     |
| Alpha-BHC                   | UG/L   | 0.059               | 100%         | 0.01     | GA                    | 2           | 2         | 2                     |
|                             | UG/L   | 0.082 3             | 50%          | 0.01     | O/1                   | 0           | 1         | 2                     |
| Alpha-Chlordane             |  |                     |              | 0.04     | G.4                   |             |           |                       |
| Beta-BHC                    | UG/L   | 0.33 3              | 100%         | 0.04     | GA                    | 2           | 2         | 2                     |
| Delta-BHC                   | UG/L   | 0.16 3              | 100%         | 0.04     | GA                    | 2           | 2         | 2                     |
| Dieldrin                    | UG/L   | 0.2                 | 100%         | 0.004    | GA                    | 2           | 2         | 2                     |
| Endosulfan I                | UG/L   | $0.10^{3}$          | 50%          |          |                       | 0           | 1         | 2                     |
| Endosulfan II               | UG/L   | 0.28                | 100%         |          |                       | 0           | 2         | 2                     |
| Endosulfan sulfate          | UG/L   | 0.69                | 100%         |          |                       | 0           | 2         | 2                     |
| Endrin                      | UG/L   | 0.71                | 50%          | 0        | GA                    | 0           | 1         | 2                     |
| Endrin aldehyde             | UG/L   | 0.97                | 100%         | 5        | GA                    | 0           | 2         | 2                     |
| Endrin ketone               | UG/L   | 0.2                 | 50%          | 5        | GA                    | 0           | 1         | 2                     |
| Gamma-BHC/Lindane           | UG/L   | 0.038               | 50%          | 0.05     | GA                    | 0           | 1         | 2                     |
| Gamma-Chlordane             | UG/L   | 0.28 3              | 100%         |          |                       | 0           | 2         | 2                     |
| Heptachlor                  | UG/L   | 0.14 3              | 50%          | 0.04     | GA                    | 1           | 1         | 2                     |
| Heptachlor epoxide          | UG/L   | 0.11                | 100%         | 0.03     | GA                    | 2           | 2         | 2                     |
| Methoxychlor                | UG/L   | 0.62                | 100%         | 35       | GA                    | 0           | 2         | 2                     |
| Metals                      |  |                     |              |          |                       |             |           |                       |
| Aluminum                    | UG/L   | 5350                | 100%         | 50       | SEC                   | 2           | 2         | 2                     |
| Arsenic                     | UG/L   | 2.8 3               | 50%          | 10       | MCL                   | 0           | 1         | 2                     |
| Barium                      | UG/L   | 106                 | 100%         | 1000     | GA                    | 0           | 2         | 2                     |
| Beryllium                   | UG/L   | 0.1                 | 50%          | 4        | MCL                   | 0           | 1         | 2                     |
| Cadmium                     | UG/L   | 0.27 3              | 50%          | 5        | GA                    | 0           | 1         | 2                     |
| Calcium                     | UG/L   | 167500 <sup>3</sup> | 100%         |          |                       | 0           | 2         | 2                     |
| Chromium                    | UG/L   | 6.5                 | 100%         | 50       | GA                    | 0           | 2         | 2                     |
| Cobalt                      | UG/L   | 3.6                 | 100%         |          |                       | 0           | 2         | 2                     |
| Copper                      | UG/L   | 5.2                 | 100%         | 200      | GA                    | 0           | 2         | 2                     |
| Iron                        | UG/L   | 5620                | 100%         | 300      | GA                    | 2           | 2         | 2                     |
| Magnesium                   | UG/L   | 23950 <sup>3</sup>  | 100%         |          |                       | 0           | 2         | 2                     |
| Manganese                   | UG/L   | 1365 <sup>3</sup>   | 100%         | 50       | SEC                   | 2           | 2         | 2                     |
| Nickel                      | UG/L   | 10.6                | 100%         | 100      | GA                    | 0           | 2         | 2                     |
| Potassium                   | UG/L   | 21400               | 100%         |          |                       | 0           | 2         | 2                     |

### Table 4-5A SUMMARY STATISTICS - EBS GROUNDWATER SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|           |       | Maximum          | Frequency    | Criteria | Source of             | Number of   | Number of | Number of             |
|-----------|-------|------------------|--------------|----------|-----------------------|-------------|-----------|-----------------------|
| Parameter | Units | Detect           | of Detection | Value    | Criteria <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Selenium  | UG/L  | 4.7 <sup>3</sup> | 100%         | 10       | GA                    | 0           | 2         | 2                     |
| Sodium    | UG/L  | 95200            | 100%         | 20000    | GA                    | 1           | 2         | 2                     |
| Vanadium  | UG/L  | 6.5              | 100%         |          |                       | 0           | 2         | 2                     |
| Zinc      | UG/L  | 16.4             | 100%         | 5000     | SEC                   | 0           | 2         | 2                     |

- GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
   MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
   SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample-duplicate pair EB153/EB023 at MW121C-1.

### Table 4-5B SUMMARY STATISTICS - RI GROUNDWATER SEAD-121C

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                            |       | Maximum            | Frequency    | Criteria | Source of             | Number of   | Number of | Number of             |
|----------------------------|-------|--------------------|--------------|----------|-----------------------|-------------|-----------|-----------------------|
| Parameter                  | Units | Detect             | of Detection | Value    | Criteria <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Semivolatile Organic Compo | unds  | •                  |              | •        | •                     |             |           |                       |
| Bis(2-Ethylhexyl)phthalate | UG/L  | 1.4                | 17%          | 5        | GA                    | 0           | 1         | 6                     |
| Di-n-butylphthalate        | UG/L  | 1.6                | 17%          | 50       | GA                    | 0           | 1         | 6                     |
| Metals                     |       |                    |              |          |                       |             |           |                       |
| Aluminum                   | UG/L  | 588 <sup>3</sup>   | 100%         | 50       | SEC                   | 4           | 6         | 6                     |
| Antimony                   | UG/L  | 8.4                | 33%          | 3        | GA                    | 2           | 2         | 6                     |
| Barium                     | UG/L  | 73.7               | 100%         | 1000     | GA                    | 0           | 6         | 6                     |
| Beryllium                  | UG/L  | 0.24               | 17%          | 4        | MCL                   | 0           | 1         | 6                     |
| Cadmium                    | UG/L  | 1.1                | 17%          | 5        | GA                    | 0           | 1         | 6                     |
| Calcium                    | UG/L  | 558000             | 100%         |          |                       | 0           | 6         | 6                     |
| Chromium                   | UG/L  | 21.4               | 83%          | 50       | GA                    | 0           | 5         | 6                     |
| Cobalt                     | UG/L  | 3                  | 50%          |          |                       | 0           | 3         | 6                     |
| Copper                     | UG/L  | 17.7               | 50%          | 200      | GA                    | 0           | 3         | 6                     |
| Iron                       | UG/L  | 869 <sup>3</sup>   | 50%          | 300      | GA                    | 3           | 3         | 6                     |
| Lead                       | UG/L  | 10.5               | 83%          | 15       | MCL                   | 0           | 5         | 6                     |
| Magnesium                  | UG/L  | 109000             | 100%         |          |                       | 0           | 6         | 6                     |
| Manganese                  | UG/L  | 297                | 100%         | 50       | SEC                   | 6           | 6         | 6                     |
| Mercury                    | UG/L  | 0.2                | 33%          | 0.7      | GA                    | 0           | 2         | 6                     |
| Nickel                     | UG/L  | 2.1 3              | 17%          | 100      | GA                    | 0           | 1         | 6                     |
| Potassium                  | UG/L  | 9400               | 100%         |          |                       | 0           | 6         | 6                     |
| Selenium                   | UG/L  | 6.8                | 33%          | 10       | GA                    | 0           | 2         | 6                     |
| Sodium                     | UG/L  | 58400 <sup>3</sup> | 100%         | 20000    | GA                    | 3           | 6         | 6                     |
| Zinc                       | UG/L  | 96.2               | 100%         | 5000     | SEC                   | 0           | 6         | 6                     |

- 1. GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
  - MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
  - SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample-duplicate pair 121C-2004/121C-2002 at MW121C-4

## Table 4-6 SUMMARY STATISTICS - GROUNDWATER BUILDING 360

#### SEAD-121C AND SEAD-121I RI REPORT

**Seneca Army Depot Activity** 

|                              |       | Maximum            | Frequency    | Criteria | Source of             | Number of   | Number of | Number of             |
|------------------------------|-------|--------------------|--------------|----------|-----------------------|-------------|-----------|-----------------------|
| Parameter                    | Units | Detect             | of Detection | Value    | Criteria <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Volatile Organic Compounds   |       |                    | •            |          | •                     |             |           | v                     |
| 1,1-Dichloroethane           | UG/L  | 4.3 3              | 67%          | 5        | GA                    | 0           | 4         | 6                     |
| 1,2-Dichloropropane          | UG/L  | 0.4 3              | 17%          | 1        | GA                    | 0           | 1         | 6                     |
| Acetone                      | UG/L  | 8.4 <sup>3</sup>   | 25%          |          |                       | 0           | 1         | 4                     |
| Carbon disulfide             | UG/L  | 0.6                | 17%          |          |                       | 0           | 1         | 6                     |
| Cis-1,2-Dichloroethene       | UG/L  | 1                  | 33%          | 5        | GA                    | 0           | 2         | 6                     |
| Methylene chloride           | UG/L  | 1 3                | 17%          | 5        | GA                    | 0           | 1         | 6                     |
| Vinyl chloride               | UG/L  | 2.3 3              | 67%          | 2        | GA                    | 1           | 4         | 6                     |
| Semivolatile Organic Compou  | ınds  |                    |              |          | •                     |             |           |                       |
| Bis(2-Ethylhexyl)phthalate   | UG/L  | 2.5                | 17%          | 5        | GA                    | 0           | 1         | 6                     |
| Metals                       |       |                    |              |          |                       |             |           |                       |
| Aluminum                     | UG/L  | 105                | 57%          | 50       | SEC                   | 4           | 4         | 7                     |
| Arsenic                      | UG/L  | 4.7 <sup>3</sup>   | 14%          | 10       | MCL                   | 0           | 1         | 7                     |
| Barium                       | UG/L  | 141 3              | 100%         | 1000     | GA                    | 0           | 7         | 7                     |
| Cadmium                      | UG/L  | 3.9                | 14%          | 5        | GA                    | 0           | 1         | 7                     |
| Calcium                      | UG/L  | 119149.7969        | 100%         |          |                       | 0           | 7         | 7                     |
| Chromium                     | UG/L  | 84                 | 71%          | 50       | GA                    | 1           | 5         | 7                     |
| Cobalt                       | UG/L  | 7.40               | 43%          |          |                       | 0           | 3         | 7                     |
| Copper                       | UG/L  | 167                | 43%          | 200      | GA                    | 0           | 3         | 7                     |
| Iron                         | UG/L  | 255000             | 100%         | 300      | GA                    | 4           | 7         | 7                     |
| Lead                         | UG/L  | 204                | 29%          | 15       | MCL                   | 2           | 2         | 7                     |
| Magnesium                    | UG/L  | 27400              | 100%         |          |                       | 0           | 7         | 7                     |
| Manganese                    | UG/L  | 1645 <sup>3</sup>  | 100%         | 50       | SEC                   | 7           | 7         | 7                     |
| Mercury                      | UG/L  | 0.28               | 29%          | 0.7      | GA                    | 0           | 2         | 7                     |
| Nickel                       | UG/L  | 38.8               | 86%          | 100      | GA                    | 0           | 6         | 7                     |
| Potassium                    | UG/L  | 12300              | 100%         |          |                       | 0           | 7         | 7                     |
| Selenium                     | UG/L  | 7.5                | 57%          | 10       | GA                    | 0           | 4         | 7                     |
| Silver                       | UG/L  | 8.6                | 14%          | 50       | GA                    | 0           | 1         | 7                     |
| Sodium                       | UG/L  | 42850 <sup>3</sup> | 100%         | 20000    | GA                    | 7           | 7         | 7                     |
| Thallium                     | UG/L  | 3.3 <sup>3</sup>   | 14%          | 2        | MCL                   | 1           | 1         | 7                     |
| Vanadium                     | UG/L  | 4.4                | 14%          |          |                       | 0           | 1         | 7                     |
| Zinc                         | UG/L  | 5740               | 100%         | 5000     | SEC                   | 2           | 7         | 7                     |
| Other                        |       |                    |              |          | _                     |             |           |                       |
| Total Petroleum Hydrocarbons | MG/L  | 1.52               | 33%          |          |                       | 0           | 2         | 6                     |

- 1. GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
  - MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
  - SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate pairs: DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.

## Table 4-7 SUMMARY STATISTICS - SURFACE WATER SEAD-121C

## SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

|                              |       |        | Frequency    | Criteria           | Number of   | Number of | Number of             |
|------------------------------|-------|--------|--------------|--------------------|-------------|-----------|-----------------------|
| Parameter                    | Units | Detect | of Detection | Value <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Semivolatile Organic Compoun | ds    |        |              |                    |             |           |                       |
| Bis(2-Ethylhexyl)phthalate   | UG/L  | 4.2    | 10%          | 0.6                | 1           | 1         | 10                    |
| Metals                       |       |        |              |                    |             |           |                       |
| Aluminum                     | UG/L  | 8760   | 100%         | 100                | 5           | 10        | 10                    |
| Arsenic                      | UG/L  | 50.3   | 10%          | 150                | 0           | 1         | 10                    |
| Barium                       | UG/L  | 423    | 100%         |                    | 0           | 10        | 10                    |
| Beryllium                    | UG/L  | 0.86   | 90%          | 1100               | 0           | 9         | 10                    |
| Cadmium                      | UG/L  | 19.5   | 40%          | 3.84               | 2           | 4         | 10                    |
| Calcium                      | UG/L  | 166000 | 100%         |                    | 0           | 10        | 10                    |
| Chromium                     | UG/L  | 129    | 80%          | 139.45             | 0           | 8         | 10                    |
| Cobalt                       | UG/L  | 47     | 70%          | 5                  | 2           | 7         | 10                    |
| Copper                       | UG/L  | 1160   | 100%         | 17.32              | 2           | 10        | 10                    |
| Iron                         | UG/L  | 110000 | 80%          | 300                | 5           | 8         | 10                    |
| Lead                         | UG/L  | 839    | 100%         | 1.4624632          | 10          | 10        | 10                    |
| Magnesium                    | UG/L  | 26200  | 100%         |                    | 0           | 10        | 10                    |
| Manganese                    | UG/L  | 2380   | 100%         |                    | 0           | 10        | 10                    |
| Mercury                      | UG/L  | 2.1    | 20%          | 0.0007             | 2           | 2         | 10                    |
| Nickel                       | UG/L  | 154    | 30%          | 99.92              | 1           | 3         | 10                    |
| Potassium                    | UG/L  | 5350   | 100%         |                    | 0           | 10        | 10                    |
| Selenium                     | UG/L  | 4.6    | 10%          | 4.6                | 0           | 1         | 10                    |
| Silver                       | UG/L  | 8      | 20%          | 0.1                | 2           | 2         | 10                    |
| Sodium                       | UG/L  | 123000 | 100%         |                    | 0           | 10        | 10                    |
| Thallium                     | UG/L  | 6.3    | 20%          | 8                  | 0           | 2         | 10                    |
| Vanadium                     | UG/L  | 233    | 50%          | 14                 | 2           | 5         | 10                    |
| Zinc                         | UG/L  | 6910   | 100%         | 159.25             | 2           | 10        | 10                    |
| Other                        |       |        |              |                    |             |           |                       |
| Total Petroleum Hydrocarbons | MG/L  | 8.08   | 11%          |                    | 0           | 1         | 9                     |

- 1. Criteria values are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- 2. Sample-duplicate pair (DRMO-3008/DRMO-3005 collected from SWDRMO-8) was averaged and the average results were used in the summary statistic presented in this table.

## Table 4-8 SUMMARY STATISTICS - SURFACE SOIL AND DITCH SOIL SEAD-121I

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                              |             | Maximum          | Frequency    | Criteria | Number of   | Number of | Number of             |
|------------------------------|-------------|------------------|--------------|----------|-------------|-----------|-----------------------|
| Parameter                    | Units       | Detect           | of Detection | Value 1  | Exceedances | Detects   | Analyses <sup>2</sup> |
| Volatile Organic Compounds   |             |                  |              |          |             |           |                       |
| Acetone                      | UG/KG       | 150              | 80%          | 200      | 0           | 36        | 45                    |
| Benzene                      | UG/KG       | 41 3             | 20%          | 60       | 0           | 9         | 45                    |
| Ethyl benzene                | UG/KG       | 7.8              | 13%          | 5500     | 0           | 6         | 45                    |
| Meta/Para Xylene             | UG/KG       | 6.3 <sup>3</sup> | 13%          |          | 0           | 6         | 45                    |
| Methyl ethyl ketone          | UG/KG       | 78               | 24%          | 300      | 0           | 11        | 45                    |
| Methylene chloride           | UG/KG       | 2.8              | 20%          | 100      | 0           | 9         | 45                    |
| Ortho Xylene                 | UG/KG       | 3.6 3            | 13%          |          | 0           | 6         | 45                    |
| Toluene                      | UG/KG       | 31 3             | 18%          | 1500     | 0           | 8         | 45                    |
| Semivolatile Organic Compour |             | 31               | 1070         | 1300     | <u> </u>    | O         | 15                    |
| 2-Methylnaphthalene          | UG/KG       | 260              | 10%          | 36400    | 0           | 5         | 51                    |
| 3,3'-Dichlorobenzidine       | UG/KG       | 315 <sup>3</sup> | 2%           |          | 0           | 1         | 47                    |
| Acenaphthene                 | UG/KG       | 6100             | 51%          | 50000    | 0           | 26        | 51                    |
| Acenaphthylene               | UG/KG       | 560              | 12%          | 41000    | 0           | 6         | 51                    |
| Anthracene                   | UG/KG       | 12000            | 58%          | 50000    | 0           | 29        | 50                    |
| Benzo(a)anthracene           | UG/KG       | 28000            | 90%          | 224      | 28          | 46        | 51                    |
| Benzo(a)pyrene               | UG/KG       | 23000            | 88%          | 61       | 44          | 45        | 51                    |
| Benzo(b)fluoranthene         | UG/KG       | 29000            | 94%          | 1100     | 14          | 48        | 51                    |
| Benzo(ghi)perylene           | UG/KG       | 29000            | 82%          | 50000    | 0           | 42        | 51                    |
| Benzo(k)fluoranthene         | UG/KG       | 23000            | 74%          | 1100     | 14          | 37        | 50                    |
| Bis(2-Ethylhexyl)phthalate   | UG/KG       | 1600             | 33%          | 50000    | 0           | 17        | 51                    |
| Butylbenzylphthalate         | UG/KG       | 420 <sup>3</sup> | 6%           | 50000    | 0           | 3         | 48                    |
| Carbazole                    | UG/KG       | 6800             | 57%          |          | 0           | 29        | 51                    |
| Chrysene                     | UG/KG       | 32000            | 86%          | 400      | 25          | 44        | 51                    |
| Di-n-butylphthalate          | UG/KG       | 45               | 2%           | 8100     | 0           | 1         | 50                    |
| Di-n-octylphthalate          | UG/KG       | 420 <sup>3</sup> | 2%           | 50000    | 0           | 1         | 47                    |
| Dibenz(a,h)anthracene        | UG/KG       | 5000             | 34%          | 14       | 15          | 15        | 44                    |
| Dibenzofuran                 | UG/KG       | 2000             | 27%          | 6200     | 0           | 14        | 51                    |
| Diethyl phthalate            | UG/KG       | 640 <sup>3</sup> | 2%           | 7100     | 0           | 1         | 51                    |
| Fluoranthene                 | UG/KG       | 62000            | 94%          | 50000    | 1           | 48        | 51                    |
| Fluorene                     | UG/KG       | 4200             | 43%          | 50000    | 0           | 22        | 51                    |
| Indeno(1,2,3-cd)pyrene       | UG/KG       | 12000            | 71%          | 3200     | 3           | 35        | 49                    |
| Isophorone                   | UG/KG       | 315 <sup>3</sup> | 2%           | 4400     | 0           | 1         | 51                    |
| Naphthalene                  | UG/KG       | 630              | 14%          | 13000    | 0           | 7         | 51                    |
| Nitrobenzene                 | UG/KG       | 315 <sup>3</sup> | 2%           | 200      | 1           | 1         | 51                    |
| Phenanthrene                 | UG/KG       | 52000            | 94%          | 50000    | 1           | 48        | 51                    |
| Phenol                       | UG/KG       | 315 <sup>3</sup> | 2%           | 30       | 1           | 1         | 51                    |
| Pyrene                       | UG/KG       | 64000            | 94%          | 50000    | 1           | 48        | 51                    |
| Pesticides/PCBs              |             |                  |              |          | •           | -         |                       |
| 4,4'-DDE                     | UG/KG       | 34               | 11%          | 2100     | 0           | 5         | 45                    |
| 4,4'-DDT                     | UG/KG       | 39               | 5%           | 2100     | 0           | 2         | 44                    |
| Aldrin                       | ldrin UG/KG |                  | 9%           | 41       | 0           | 4         | 45                    |
| Dieldrin                     | UG/KG       | 12<br>34         | 4%           | 44       | 0           | 2         | 45                    |
| Endosulfan I                 | UG/KG       | 95               | 59%          | 900      | 0           | 24        | 41                    |

## Table 4-8 SUMMARY STATISTICS - SURFACE SOIL AND DITCH SOIL SEAD-121I

## SEAD-121C and SEAD-121I RI Report

## **Seneca Army Depot Activity**

|                              |       | Maximum            | Frequency    | Criteria | Number of   | Number of | Number of             |
|------------------------------|-------|--------------------|--------------|----------|-------------|-----------|-----------------------|
| Parameter                    | Units | Detect             | of Detection | Value 1  | Exceedances | Detects   | Analyses <sup>2</sup> |
| Endrin                       | UG/KG | 30                 | 4%           | 100      | 0           | 2         | 45                    |
| Heptachlor epoxide           | UG/KG | 55                 | 21%          | 20       | 3           | 8         | 39                    |
| Aroclor-1254                 | UG/KG | 67                 | 4%           | 10000    | 0           | 2         | 45                    |
| Aroclor-1260                 | UG/KG | 46                 | 7%           | 10000    | 0           | 3         | 45                    |
| Metals and Cyanide           |       |                    |              |          |             |           |                       |
| Aluminum                     | MG/KG | 13200              | 100%         | 19300    | 0           | 45        | 45                    |
| Antimony                     | MG/KG | 7.5                | 31%          | 5.9      | 1           | 14        | 45                    |
| Arsenic                      | MG/KG | 104                | 100%         | 8.2      | 8           | 34        | 34                    |
| Barium                       | MG/KG | 207                | 100%         | 300      | 0           | 45        | 45                    |
| Beryllium                    | MG/KG | 0.68               | 98%          | 1.1      | 0           | 44        | 45                    |
| Cadmium                      | MG/KG | 6.6                | 31%          | 2.3      | 3           | 14        | 45                    |
| Calcium                      | MG/KG | 298000             | 100%         | 121000   | 18          | 45        | 45                    |
| Chromium                     | MG/KG | 439 <sup>3</sup>   | 100%         | 29.6     | 6           | 45        | 45                    |
| Cobalt                       | MG/KG | 206 3              | 100%         | 30       | 4           | 45        | 45                    |
| Copper                       | MG/KG | 209 <sup>3</sup>   | 100%         | 33       | 10          | 40        | 40                    |
| Cyanide, Total               | MG/KG | $2.00^{3}$         | 7%           |          | 0           | 3         | 45                    |
| Iron                         | MG/KG | 58400 <sup>3</sup> | 100%         | 36500    | 2           | 45        | 45                    |
| Lead                         | MG/KG | 122                | 100%         | 24.8     | 22          | 45        | 45                    |
| Magnesium                    | MG/KG | 22300              | 100%         | 21500    | 1           | 45        | 45                    |
| Manganese                    | MG/KG |                    | 100%         | 1060     | 15          | 45        | 45                    |
| Mercury                      | MG/KG | 0.18               | 98%          | 0.1      | 1           | 44        | 45                    |
| Nickel                       | MG/KG | 342                | 100%         | 49       | 7           | 45        | 45                    |
| Potassium                    | MG/KG | 1450               | 100%         | 2380     | 0           | 45        | 45                    |
| Selenium                     | MG/KG | 146 <sup>3</sup>   | 47%          | 2        | 5           | 21        | 45                    |
| Silver                       | MG/KG | 10.5               | 18%          | 0.75     | 4           | 6         | 34                    |
| Sodium                       | MG/KG | 372                | 82%          | 172      | 24          | 37        | 45                    |
| Thallium                     | MG/KG | 163 <sup>3</sup>   | 20%          | 0.7      | 5           | 9         | 45                    |
| Vanadium                     | MG/KG | 182 <sup>3</sup>   | 100%         | 150      | 1           | 45        | 45                    |
| Zinc                         | MG/KG | 532                | 100%         | 110      | 14          | 45        | 45                    |
| Other                        |       |                    |              |          |             |           |                       |
| Total Organic Carbon         | MG/KG | 8900               | 100%         |          | 0           | 45        | 45                    |
| Total Petroleum Hydrocarbons | MG/KG | 2200               | 33%          |          | 0           | 15        | 45                    |

#### Notes:

- 1. The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate.

## Table 4-9 SUMMARY STATISTICS - SURFACE WATER SEAD-121I

## SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|                      |       | Maximum     | Frequency    | Criteria           | Number of   | Number of | Number of             |
|----------------------|-------|-------------|--------------|--------------------|-------------|-----------|-----------------------|
| Parameter            | Units | Detect      | of Detection | Value <sup>1</sup> | Exceedances | Detects   | Analyses <sup>2</sup> |
| Semivolatile Organic | Compo | unds        |              |                    |             |           |                       |
| Butylbenzylphthalate | UG/L  | 1.1         | 14%          |                    | 0           | 1         | 7                     |
| Fluoranthene         | UG/L  | 1.1         | 14%          |                    | 0           | 1         | 7                     |
| Metals               |       |             |              |                    |             |           |                       |
| Aluminum             | UG/L  | 2050        | 100%         | 100                | 3           | 7         | 7                     |
| Barium               | UG/L  | 49.2        | 86%          |                    | 0           | 6         | 7                     |
| Beryllium            | UG/L  | 0.28        | 86%          | 1100               | 0           | 6         | 7                     |
| Cadmium              | UG/L  | 0.54        | 14%          | 3.84               | 0           | 1         | 7                     |
| Calcium              | UG/L  | 74200       | 100%         |                    | 0           | 7         | 7                     |
| Chromium             | UG/L  | 6           | 71%          | 139.45             | 0           | 5         | 7                     |
| Cobalt               | UG/L  | 3           | 29%          | 5                  | 0           | 2         | 7                     |
| Copper               | UG/L  | 11.2        | 86%          | 17.32              | 0           | 6         | 7                     |
| Iron                 | UG/L  | 3410        | 71%          | 300                | 2           | 5         | 7                     |
| Lead                 | UG/L  | 26.3        | 57%          | 1.4624632          | 4           | 4         | 7                     |
| Magnesium            | UG/L  | 11100       | 100%         |                    | 0           | 7         | 7                     |
| Manganese            | UG/L  | 206         | 100%         |                    | 0           | 7         | 7                     |
| Nickel               | UG/L  | 3.6         | 29%          | 99.92              | 0           | 2         | 7                     |
| Potassium            | UG/L  | 4640        | 100%         |                    | 0           | 7         | 7                     |
| Selenium             | UG/L  | $2.5^{\ 3}$ | 14%          | 4.6                | 0           | 1         | 7                     |
| Sodium               | UG/L  | 38500       | 100%         |                    | 0           | 7         | 7                     |
| Vanadium             | UG/L  | 3.9         | 43%          | 14                 | 0           | 3         | 7                     |
| Zinc                 | UG/L  | 190         | 100%         | 159.25             | 1           | 7         | 7                     |

- 1. Criteria values are from the New York State Ambient Water Quality Standards, Class C for Surface Water
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample (121I-3007) and its duplicate (121I-3005) collected at SW121I-7.

TABLE 5-1
Relative Relationship Between Koc and Mobility
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

| Koc       | Class | Mobility              |
|-----------|-------|-----------------------|
| >2,000    | Ι     | Immobile              |
| 500-2,000 | II    | Low Mobility          |
| 150-500   | III   | Intermediate Mobility |
| 50-150    | IV    | Mobile                |
| <50       | V     | Very Mobile           |

## Notes:

- 1) Koc = Organic carbon partition coefficient
- 2) Source: Dragun, 1988.

| Scenario  | Medium | Exposure | Exposure       | Receptor            | Receptor   | Exposure   | On-Site/ | Type of  | Rationale for Selection or Exclusion   |
|-----------|--------|----------|----------------|---------------------|------------|------------|----------|----------|--|
| Timeframe |        | Medium   | Point          | Population          | Age        | Route      | Off-Site | Analysis | of Exposure Pathway  |
| Current   | Soil   | Soil     | SEAD-121C/121I | Construction Worker | Adult      | Dermal     | On-Site  | Quant    | Potential construction workers will be exposed to soil at SEAD-121C and SEAD-121I.               |
|           |        |          |                |                     |            | Ingestion  | On-Site  | Quant    | Potential construction workers will be exposed to soil at SEAD-121C and SEAD-121I.               |
|           |        |          |                | Industrial Worker   | Adult      | Dermal     | On-Site  | Quant    | Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-121I.                 |
|           |        |          |                |                     |            | Ingestion  | On-Site  | Quant    | Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-121I.                 |
|           |        |          |                | Trespasser          | Adolescent | Dermal     | On-Site  | Quant    | Trespasser may potentially be exposed to soil at SEAD-121C and SEAD-121I.                        |
|           |        |          |                |                     |            | Ingestion  | On-Site  | Quant    | Trespasser may potentially be exposed to soil at SEAD-121C and SEAD-121I.                        |
|           |        |          |                | Resident            | Adult      | Dermal     | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        |          |                |                     |            | Ingestion  | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        |          |                |                     | Adolescent | Dermal     | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        |          |                |                     |            | Ingestion  | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        | Air      | SEAD-121C/121I | Construction Worker | Adult      | Inhalation | On-Site  | Quant    | Potential construction workers will be exposed to dust from soil.                                |
|           |        |          |                | Industrial Worker   | Adult      | Inhalation | On-Site  | Quant    | Potential industrial workers will be exposed to dust from soil.                                  |
|           |        |          |                | Trespasser          | Adolescent | Inhalation | On-Site  | Quant    | Potential trespasser receptor will be exposed to dust from soil.                                 |
|           |        |          |                | Resident            | Adult      | Inhalation | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        |          |                |                     | Adolescent | Inhalation | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I. |
|           |        | Produce  | SEAD-121C/121I | Construction Worker | Adult      | Ingestion  | On-Site  | None     | No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.               |
|           |        |          |                | Industrial Worker   | Adult      | Ingestion  | On-Site  | None     | No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.               |
|           |        |          |                | Trespasser          | Adolescent | Ingestion  | On-Site  | None     | No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.               |
|           |        |          |                | Resident            | Adult      | Ingestion  | On-Site  | None     | No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.               |
|           |        |          |                |                     | Adolescent | Ingestion  | On-Site  | None     | No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.               |

|           |               |               |                   |                     |            |          |          | 1        |   |
|-----------|---------------|---------------|-------------------|---------------------|------------|----------|----------|----------|---|
|           |               |               |                   |                     |            |          |          |          |   |
| Scenario  | Medium        | Exposure      | Exposure          | Receptor            | Receptor   | Exposure | On-Site/ | Type of  | Rationale for Selection or Exclusion  |
| Timeframe |               | Medium        | Point             | Population          | Age        | Route    | Off-Site | Analysis | of Exposure Pathway   |
| Current   | Groundwater   | Groundwater   | Aquifer Tap Water | Construction Worker | Adult      | Dermal   | On-Site  | Quant    | Construction workers may potentially be exposed to groundwater at SEAD-121C and SEAD-<br>121I.                    |
|           |               |               |                   |                     |            | Intake   | On-Site  | None     | Groundwater is not currently used as a drinking water source.   |
|           |               |               |                   | Industrial Worker   | Adult      | Dermal   | On-Site  | None     | Groundwater is not currently used as a drinking water source.   |
|           |               |               |                   |                     |            | Intake   | On-Site  | None     | Groundwater is not currently used as a drinking water source.   |
|           |               |               |                   | Trespasser          | Adolescent | Dermal   | On-Site  | None     | Trespassers are not likely to contact groundwater.  |
|           |               |               |                   |                     |            | Intake   | On-Site  | None     | Groundwater is not currently used as a drinking water source.   |
|           |               |               |                   | Resident            | Adult      | Dermal   | On-Site  | None     | The sites are currently not in use and no residents currently reside at the sites.                                |
|           |               |               |                   |                     |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal. |
|           |               |               |                   |                     |            | Intake   | On-Site  | None     | The sites are currently not in use and no residents currently reside at the sites.                                |
|           |               |               |                   |                     |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal. |
|           |               |               |                   |                     | Adolescent | Dermal   | On-Site  | None     | The sites are currently not in use and no residents currently reside at the sites.                                |
|           |               |               |                   |                     |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal. |
|           |               |               |                   |                     |            | Intake   | On-Site  | None     | The sites are currently not in use and no residents currently reside at the sites.                                |
|           |               |               |                   |                     |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal. |
| Current   | Surface Water | Surface Water | SEAD-121C/121I    | Construction Worker | Adult      | Dermal   | On-Site  | Quant    | Construction workers may potentially be exposed to surface water at SEAD-121C and SEAD-121I.                      |
|           |               |               |                   | Industrial Worker   | Adult      | Dermal   | On-Site  | None     | Industrial workers are unlikely to be exposed to surface water at either SEAD-121C and SEAD-121I.                 |
|           |               |               |                   | Trespasser          | Adolescent | Dermal   | On-Site  | Quant    | Trespassers may potentially contact surface water.  |
|           |               |               |                   | Resident            | Adult      | Dermal   | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I.                  |
|           |               |               |                   |                     | Adolescent | Dermal   | On-Site  | None     | The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I.                  |

| Coomonio  | Medium | Evenosumo | Evenogues      | Dagantan                    | Dogonton   | Evenosumo  | On-Site/ | Tyma of  | Rationale for Selection or Exclusion  |
|-----------|--------|-----------|----------------|-----------------------------|------------|------------|----------|----------|---|
| Scenario  | Medium | Exposure  | Exposure       | Receptor                    | Receptor   | Exposure   |          | Type of  |   |
| Timeframe |        | Medium    | Point          | Population                  | Age        | Route      | Off-Site | Analysis | of Exposure Pathway   |
| Future    | Soil   | Soil      | SEAD-121C/121I | Construction Worker         | Adult      | Dermal     | On-Site  | Quant    | Potential construction workers will be exposed to soil at SEAD-121C and SEAD-121I.  |
|           |        |           |                |                             |            | Ingestion  | On-Site  | Quant    | Potential construction workers will be exposed to soil at SEAD-121C and SEAD-121I.  |
|           |        |           |                | Industrial Worker           | Adult      | Dermal     | On-Site  | Quant    | Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-121I.  |
|           |        |           |                |                             |            | Ingestion  | On-Site  | Quant    | Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-121I.  |
|           |        |           |                | Adolescent Visitor          | Adolescent | Dermal     | On-Site  | Quant    | Adolescent visitor may potentially be exposed to soil at SEAD-121C and SEAD-121I.   |
|           |        |           |                |                             |            | Ingestion  | On-Site  | Quant    | Adolescent visitor may potentially be exposed to soil at SEAD-121C and SEAD-121I.   |
|           |        |           |                | Child at Day Care           | Child      | Dermal     | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                | Center                      |            | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                | Resident                    | Adult      | Dermal     | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                |                             |            | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                |                             | Adolescent | Dermal     | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                |                             |            | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        | Air       | SEAD-121C/121I | Construction Worker         | Adult      | Inhalation | On-Site  | Quant    | Potential construction workers will be exposed to dust from soil.   |
|           |        |           |                | Industrial Worker           | Adult      | Inhalation | On-Site  | Quant    | Potential industrial workers may be exposed to dust from soil.  |
|           |        |           |                | Adolescent Visitor          | Adolescent | Inhalation | On-Site  | Quant    | Adolescent visitor may potentially be exposed to soil at SEAD-121C and SEAD-121I.   |
|           |        |           |                | Child at Day Care<br>Center | Child      | Inhalation | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                | Resident                    | Adult      | Inhalation | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                |                             | Adolescent | Inhalation | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           | [      | Produce   | SEAD-121C/121I | Construction Worker         | Adult      | Ingestion  | On-Site  | None     | Produce suitable for consumption is unlikely to grow at the sites based on the future use.                                    |
|           |        |           |                | Industrial Worker           | Adult      | Ingestion  | On-Site  | None     | Produce suitable for consumption is unlikely to grow at the sites based on the future use.                                    |
|           |        |           |                | Adolescent Visitor          | Adolescent | Ingestion  | On-Site  | None     | Produce suitable for consumption is unlikely to grow at the sites based on the future use.                                    |
|           |        |           |                | Child at Day Care<br>Center | Child      | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                | Resident                    | Adult      | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |
|           |        |           |                |                             | Adolescent | Ingestion  | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities. |

| Scenario  | Medium        | Exposure      | Exposure          | Receptor                    | Receptor   | Exposure | On-Site/ | Type of  | Rationale for Selection or Exclusion   |
|-----------|---------------|---------------|-------------------|-----------------------------|------------|----------|----------|----------|--|
| Timeframe |               | Medium        | Point             | Population                  | Age        | Route    | Off-Site | Analysis | of Exposure Pathway  |
| Future    | Groundwater   | Groundwater   | Aquifer Tap Water | Construction Worker         | Adult      | Dermal   | On-Site  | Quant    | Potential construction workers are not likely to be exposed to groundwater at SEAD-121C and SEAD-121I.   |
|           |               |               |                   |                             |            | Intake   | On-Site  | Quant    | Groundwater is not currently used as a drinking water source. However, as no institutional control is available to prevent future use of groundwater, groundwater is assumed to be used as tap water as a conservative step. |
|           |               |               |                   | Industrial Worker           | Adult      | Dermal   | On-Site  | None     | Industrial workers are not assumed to shower.  |
|           |               |               |                   |                             |            | Intake   | On-Site  | Quant    | Groundwater is not currently used as a drinking water source. However, as no institutional control is available to prevent future use of groundwater, groundwater is assumed to be used as tap water as a conservative step. |
|           |               |               |                   |                             | Adolescent | Dermal   | On-Site  | None     | Adolescent visitors are unlikely to contact groundwater at the sites.  |
|           |               |               |                   | Adolescent Visitor          |            | Intake   | On-Site  | Quant    | Groundwater is not currently used as a drinking water source. However, as no institutional control is available to prevent future use of groundwater, groundwater is assumed to be used as tap water as a conservative step. |
|           |               |               |                   | Child at Day Care           | Child      | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   | Center                      |            | Intake   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   | Resident                    | Adult      | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   |                             |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal.  |
|           |               |               |                   |                             |            | Intake   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   |                             |            |          | Off-Site | None     | froundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal.  |
|           |               |               |                   |                             | Adolescent | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   |                             |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal.  |
|           |               |               |                   |                             |            | Intake   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   |                             |            |          | Off-Site | None     | Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyond the Depot is minimal.  |
| Future    | Surface Water | Surface Water | SEAD-121C/121I    | Construction Worker         | Adult      | Dermal   | On-Site  | Quant    | Potential construction workers maybe exposed to surface water at SEAD-121C and SEAD-121L   |
|           |               |               |                   | Industrial Worker           | Adult      | Dermal   | On-Site  | None     | Industrial workers are unlikely to be exposed to surface water at either SEAD-121C and SEAD-<br>121I.  |
|           |               |               |                   | Adolescent Visitor          | Adolescent | Dermal   | On-Site  | Quant    | Adolescent visitor may potentially contact surface water.  |
|           |               |               |                   | Child at Day Care<br>Center | Child      | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   | Resident                    | Adult      | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |
|           |               |               |                   |                             | Adolescent | Dermal   | On-Site  | None     | Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.  |

#### Table 6-2A

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Cuurent/Future

 Medium:
 Soil

 Exposure Medium:
 Soil

 Exposure Point:
 SEAD-121C

| CAS<br>Number | Chemical                   | Minimum Detected Concentration | Q | Maximum<br>Detected<br>Concentration | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value 5 | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|----------------------------|--------------------------------|---|--------------------------------------|---|---|------------------------|--|--|--|--|---------------------------------------|--------------|--|
|               |                            | (mg/kg)                        |   | (mg/kg)                              |   |   |                        |  |  |  |  | (mg/kg)                               |              |  |
|               | ganic Compounds            |                                |   |                                      |   |   |                        |  |  |  |  |                                       |              |  |
| 67-64-1       | Acetone                    | 0.0032                         | J | 0.028                                | J | SB121C-4                                | 22 / 67                | 0.0022 - 0.03  | 0.028  |  | 14,000                                     | 0.2                                   | NO           | BSL  |
| 71-43-2       | Benzene                    | 0.002                          | J | 1.8                                  | J | SBDRMO-9                                | 3 / 68                 | 0.0022 - 0.012                                       | 1.8  |  | 0.64                                       | 0.06                                  | YES          | ASL  |
| 75-15-0       | Carbon disulfide           | 0.0022                         | J | 0.0047                               |   | SBDRMO-9                                | 2 / 68                 | 0.0022 - 0.012                                       | 0.0047   |  | 360  | 2.7                                   | NO           | BSL  |
|               |                            |                                |   |                                      |   | SB121C-4                                |                        |  |  |  |  |                                       |              |  |
| 67-66-3       | Chloroform                 | 0.002                          | J | 0.0048                               | J | (dup)                                   | 4 / 68                 | 0.0022 - 0.012                                       | 0.0048   |  | 0.22                                       | 0.3                                   | NO           | BSL  |
| 100-41-4      | Ethyl benzene              | 0.001005                       | J | 24                                   | J | SBDRMO-9                                | 3 / 68                 | 0.0022 - 0.012                                       | 24   |  | 400  | 5.5                                   | NO           | BSL  |
| SA0078        | Meta/Para Xylene           | 0.002                          | J | 130                                  | J | SBDRMO-9                                | 4 / 56                 | 0.0022 - 0.0033                                      | 130  |  | 270  |                                       | NO           | BSL  |
| 78-93-3       | Methyl ethyl ketone        | 0.0032                         | _ | 0.0076                               | J | SBDRMO-14                               | 2 / 68                 | 0.0022 - 0.012                                       | 0.0076   |  | 22,000                                     | 0.3                                   | NO           | BSL  |
| 75-09-2       | Methylene chloride         | 0.0026                         | J | 0.0035                               |   | SBDRMO-24                               | 3 / 68                 | 0.00084 - 0.012                                      | 0.0035   |  | 9.1  | 0.1                                   | NO           | BSL  |
| 95-47-6       | Ortho Xylene               | 0.016                          |   | 0.075                                |   | SBDRMO-9                                | 2 / 56                 | 0.0022 - 0.0033                                      | 0.075  |  | 270  |                                       | NO           | BSL  |
| 100-42-5      | Styrene                    | 0.0027                         | J | 0.0027                               | J | SBDRMO-9                                | 1 / 68                 | 0.0022 - 0.012                                       | 0.0027   |  | 1,700                                      |                                       | NO           | BSL  |
| 108-88-3      | Toluene                    | 0.002                          | J | 0.084                                |   | SBDRMO-9                                | 13 / 68                | 0.0022 - 0.005                                       | 0.084  |  | 520  | 1.5                                   | NO           | BSL  |
|               | e Organic Compounds        |                                | _ |                                      |   |   |                        |  |  |  |  |                                       |              |  |
| 121-14-2      | 2,4-Dinitrotoluene         | 0.045                          | J | 0.045                                | J | SB121C-2                                | 1 / 68                 | 0.069 - 1.8  | 0.045  |  | 120  |                                       | NO           | BSL  |
| 91-57-6       | 2-Methylnaphthalene        | 0.0055                         | J | 2.5                                  | J | SBDRMO-12                               | 13 / 68                | 0.069 - 1.8  | 2.5  |  | 310  | 36.4                                  | NO           | BSL  |
| 83-32-9       | Acenaphthene               | 0.0065                         | J | 2.6                                  |   | SSDRMO-12                               | 14 / 68                | 0.0715 - 1.8   | 2.6  |  | 3,700                                      | 50                                    | NO           | BSL  |
| 208-96-8      | Acenaphthylene             | 0.042                          | J | 2.5                                  |   | SBDRMO-24                               | 12 / 68                | 0.069 - 1.8  | 2.5  |  |  | 41                                    | NO           | NSV  |
| 120-12-7      | Anthracene                 | 0.0065                         | J | 7.1                                  |   | SSDRMO-12                               | 23 / 68                | 0.0715 - 1.8   | 7.1  |  | 22,000                                     | 50                                    | NO           | BSL  |
| 56-55-3       | Benzo(a)anthracene         | 0.0046                         | J | 10                                   | J | SSDRMO-12                               | 33 / 67                | 0.072 - 1.8  | 10   |  | 0.62                                       | 0.224                                 | YES          | ASL  |
| 50-32-8       | Benzo(a)pyrene             | 0.006                          | J | 8.7                                  | J | SSDRMO-12                               | 30 / 66                | 0.0715 - 0.43  | 8.7  |  | 0.062                                      | 0.061                                 | YES          | ASL  |
| 205-99-2      | Benzo(b)fluoranthene       | 0.0058                         | J | 12                                   | J | SSDRMO-12                               | 38 / 66                | 0.072 - 0.43   | 12   |  | 0.62                                       | 1.1                                   | YES          | ASL  |
|               |                            |                                |   |                                      |   | SSDRMO-7                                |                        |  |  |  |  |                                       |              |  |
| 191-24-2      | Benzo(ghi)perylene         | 0.0062                         | J | 3.2                                  | J | (dup)                                   | 32 / 66                | 0.0715 - 0.43  | 3.2  |  |  | 50                                    | NO           | NSV  |
| 207-08-9      | Benzo(k)fluoranthene       | 0.0057                         | J | 7.5                                  | J | SSDRMO-12                               | 28 / 66                | 0.0715 - 0.43  | 7.5  |  | 6.2  | 1.1                                   | YES          | ASL  |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.0072                         | J | 0.2                                  |   | SS121C-3                                | 35 / 68                | 0.073 - 1.8  | 0.2  |  | 35   | 50                                    | NO           | BSL  |
| 85-68-7       | Butylbenzylphthalate       | 0.0064                         | J | 0.12                                 | J | SSDRMO-14                               | 8 / 68                 | 0.0715 - 1.8   | 0.12   |  | 12,000                                     | 50                                    | NO           | BSL  |
| 86-74-8       | Carbazole                  | 0.014                          | J | 4.2                                  |   | SSDRMO-12                               | 20 / 68                | 0.0715 - 1.8   | 4.2  |  | 24   |                                       | NO           | BSL  |
| 218-01-9      | Chrysene                   | 0.0055                         | J | 9.1                                  | J | SSDRMO-12                               | 32 / 67                | 0.072 - 1.8  | 9.1  |  | 62   | 0.4                                   | YES          | CSG  |
|               |                            |                                |   |                                      |   | SSDRMO-7                                |                        |  |  |  |  |                                       |              |  |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.0076                         | J | 0.47                                 | J | (dup)                                   | 15 / 66                | 0.0715 - 0.43  | 0.47   |  | 0.062                                      | 0.014                                 | YES          | ASL  |
| 132-64-9      | Dibenzofuran               | 0.008                          | J | 1.7                                  |   | SSDRMO-12                               | 13 / 68                | 0.069 - 1.8  | 1.7  |  | 150  | 6.2                                   | NO           | BSL  |
| 84-66-2       | Diethylphthalate           | 0.0047                         | J | 0.25                                 | J | SBDRMO-24                               | 11 / 68                | 0.073 - 1.8  | 0.25   |  | 49,000                                     | 7.1                                   | NO           | BSL  |
|               |                            |                                | _ |                                      | _ | SSDRMO-7                                |                        |  |  |  |  |                                       |              |  |
| 84-74-2       | Di-n-butylphthalate        | 0.0053                         | J | 0.13                                 | J | (dup)                                   | 7 / 68                 | 0.069 - 1.8  | 0.13   |  | 6,100                                      | 8.1                                   | NO           | BSL  |
|               |                            |                                |   |                                      | L | SB121C-1                                |                        |  |  |  |  |                                       |              |  |
| 117-84-0      | Di-n-octylphthalate        | 0.0038                         | J | 0.023                                | J | (dup)                                   | 5 / 68                 | 0.0715 - 1.8   | 0.023  |  | 2,400                                      | 50                                    | NO           | BSL  |
| 206-44-0      | Fluoranthene               | 0.0048                         | J | 27                                   |   | SSDRMO-12                               | 43 / 68                | 0.072 - 1.8  | 27   |  | 2,300                                      | 50                                    | NO           | BSL  |
| 86-73-7       | Fluorene                   | 0.005                          | J | 3.5                                  | - | SSDRMO-12                               | 17 / 68                | 0.0715 - 1.8   | 3.5  |  | 2,700                                      | 50                                    | NO           | BSL  |
| 118-74-1      | Hexachlorobenzene          | 0.0085                         | J | 0.0085                               | J | SB121C-2                                | 1 / 68                 | 0.069 - 1.8  | 0.0085   |  | 0.3  | 0.41                                  | NO           | BSL  |
|               |                            |                                |   |                                      |   | SSDRMO-7                                |                        |  |  |  |  |                                       |              | 1.00   |
| 193-39-5      | Indeno(1,2,3-cd)pyrene     | 0.0059                         | J | 0.97                                 | J | (dup)                                   | 28 / 68                | 0.0715 - 1.8   | 0.97   |  | 0.62                                       | 3.2                                   | YES          | ASL  |
| 91-20-3       | Naphthalene                | 0.004                          | J | 1.9                                  | J | SBDRMO-12                               | 13 / 68                | 0.0715 - 1.8   | 1.9  |  | 56   | 13                                    | NO           | BSL  |

#### Table 6-2A

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical               | Minimum<br>Detected<br>Concentration<br>1<br>(mg/kg) | Q      | Maximum Detected Concentration 1 (mg/kg) | Q  | Location of<br>Maximum<br>Concentration | Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------|--|--------|--|----|---|-----------|--|--|--|--|---|--------------|--|
| 86-30-6       | N-Nitrosodiphenylamine | 0.0048   | J      | 0.0048                                   | J  | SB121C-2                                | 1 / 68    | 0.069 - 1.8  | 0.0048   |  | 99   |   | NO           | BSL  |
| 85-01-8       | Phenanthrene           | 0.0059   | J      | 29                                       |    | SSDRMO-12                               | 33 / 68   | 0.072 - 1.8  | 29   |  |  | 50  | NO           | NSV  |
| 129-00-0      | Pyrene                 | 0.0047   | J      | 34                                       | J  | SSDRMO-12                               | 40 / 68   | 0.072 - 1.8  | 34   |  | 2,300                                      | 50  | NO           | BSL  |
| PCBs          |                        |  |        |  |    |   |           |  |  |  |  |   |              |  |
| 53469-21-9    | Aroclor-1242           | 0.058  | J      | 0.058                                    | J  | SS121C-4                                | 1 / 68    | 0.0024 - 0.038                                       | 0.058  |  | 0.22                                       |   | YES          | CSG  |
| 11097-69-1    | Aroclor-1254           | 0.044  | J      | 0.93                                     |    | SBDRMO-18                               | 9 / 68    | 0.011 - 0.038  | 0.93   |  | 0.22                                       | 10  | YES          | ASL  |
| 11096-82-5    | Aroclor-1260           | 0.009  | J      | 0.20                                     |    | SB121C-2                                | 8 / 68    | 0.0021 - 0.038                                       | 0.20   |  | 0.22                                       | 10  | YES          | CSG  |
| Pesticides    |                        |  |        |  |    |   |           |  |  |  |  |   |              |  |
| 72-54-8       | 4,4'-DDD               | 0.0019   | J      | 0.044                                    | J  | SBDRMO-18                               | 5 / 59    | 0.00022 - 0.0039                                     | 0.044  |  | 2.4  | 2.9   | NO           | BSL  |
| 72-55-9       | 4,4'-DDE               | 0.0025   | J      | 0.069                                    | J  | SS121C-3                                | 18 / 67   | 0.00022 - 0.0038                                     | 0.069  |  | 1.7  | 2.1   | NO           | BSL  |
| 50-29-3       | 4,4'-DDT               | 0.0021   | J      | 0.1                                      | J  | SS121C-3                                | 16 / 67   | 0.00022 - 0.0038                                     | 0.10   |  | 1.7  | 2.1   | NO           | BSL  |
| 309-00-2      | Aldrin                 | 0.0045   |        | 0.014                                    | J  | SBDRMO-16<br>(dup)                      | 4 / 68    | 0.00011 - 0.0022                                     | 0.014  |  | 0.029                                      | 0.041   | NO           | BSL  |
| 5103-71-9     | Alpha-Chlordane        | 0.001  | Y      | 0.063                                    | T  | SBDRMO-16<br>(dup)                      | 4 / 68    | 0.00032 - 0.0022                                     | 0.063  |  | 1.6  |   | NO           | BSL  |
| 319-86-8      | Delta-BHC              | 0.000975   | J<br>T | 0.003                                    | J  | SS121C-4                                | 4 / 68    | 0.00032 - 0.0022                                     | 0.002  |  | 0.09                                       | 0.3   | NO           | BSL  |
| 317-00-0      | Delta-BHC              | 0.000973   | ,      | 0.002                                    | J  | SBDRMO-16                               | 4 / 08    | 0.00022 - 0.0022                                     | 0.002  |  | 0.09                                       | 0.3   | NO           | BSL  |
| 60-57-1       | Dieldrin               | 0.039  | J      | 0.041                                    | J  | (dup)<br>SSDRMO-7                       | 2 / 67    | 0.00011 - 0.0038                                     | 0.041  |  | 0.030                                      | 0.044   | YES          | ASL  |
| 959-98-8      | Endosulfan I           | 0.0058   |        | 0.19                                     | J  | (dup)                                   | 19 / 68   | 0.00054 - 0.0022                                     | 0.19   |  | 370  | 0.9   | NO           | BSL  |
| 33213-65-9    | Endosulfan II          | 0.009  |        | 0.009                                    |    | SBDRMO-24                               | 1 / 67    | 0.00034 - 0.0038                                     | 0.009  |  | 370  | 0.9   | NO           | BSL  |
| 72-20-8       | Endrin                 | 0.022  | J      | 0.023                                    | J  | SBDRMO-16                               | 2 / 67    | 0.00086 - 0.0038                                     | 0.023  |  | 18   | 0.1   | NO           | BSL  |
| 53494-70-5    | Endrin ketone          | 0.0034   | NJ     | 0.0097                                   | NJ | SBDRMO-16                               | 4 / 68    | 0.00011 - 0.0038                                     | 0.0097   |  | 18   |   | NO           | BSL  |
| 5103-74-2     | Gamma-Chlordane        | 0.0012   | J      | 0.0012                                   | J  | SS121C-4                                | 1 / 68    | 0.00032 - 0.0022                                     | 0.0012   |  | 1.6  | 0.54  | NO           | BSL  |
| 76-44-8       | Heptachlor             | 0.0021   | J      | 0.014                                    | J  | SBDRMO-18                               | 2 / 67    | 0.0011 - 0.0022                                      | 0.014  |  | 0.11                                       | 0.1   | NO           | BSL  |
| 1024-57-3     | Heptachlor epoxide     | 0.0011   | J      | 0.0028                                   | J  | SS121C-3                                | 3 / 65    | 0.00032 - 0.0022                                     | 0.0028   |  | 0.053                                      | 0.02  | NO           | BSL  |
| Inorganics    |                        |  |        |  |    |   |           |  |  |  |  |   |              |  |
| 7429-90-5     | Aluminum               | 1,730  |        | 17,600                                   |    | SBDRMO-13                               | 68 / 68   |  | 17,600   | 20,500   | 76,000                                     | 19,300  | NO           | BSL  |
| 7440-36-0     | Antimony               | 0.32   | J      | 236                                      |    | SSDRMO-24                               | 43 / 68   | 0.26 - 1.2   | 236  | 6.55   | 31   | 5.9   | YES          | ASL  |
| 7440-38-2     | Arsenic                | 2.4  | J      | 11.6                                     |    | SSDRMO-24                               | 68 / 68   |  | 11.6   | 21.5   | 0.39                                       | 8.2   | YES          | ASL  |
| 7440-39-3     | Barium                 | 18.1   |        | 2,030                                    | J  | SSDRMO-24                               | 68 / 68   |  | 2,030  | 159  | 5,400                                      | 300   | NO           | BSL  |
| 7440-41-7     | Beryllium              | 0.21   |        | 1.2                                      |    | SBDRMO-8                                | 68 / 68   |  | 1.2  | 1.4  | 150  | 1.1   | NO           | BSL  |
| 7440-43-9     | Cadmium                | 0.06   | J      | 29.1                                     |    | SSDRMO-14                               | 31 / 68   | 0.06 - 0.16  | 29.1   | 2.9  | 37   | 2.3   | NO           | BSL  |
| 7440-70-2     | Calcium                | 2,100  | J      | 296,000                                  |    | SS121C-4                                | 68 / 68   |  | 296,000  | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT  |
| 7440-47-3     | Chromium               | 3.8  |        | 74.8                                     |    | SBDRMO-18                               | 68 / 68   |  | 74.8   | 32.7   | 210  | 29.6  | NO           | BSL  |
| 7440-48-4     | Cobalt                 | 3.5  |        | 19.7                                     |    | SB121C-4                                | 55 / 55   |  | 19.7   | 29.1   | 900  | 30  | NO           | BSL  |
| 7440-50-8     | Copper                 | 8.8  | J      | 9,750                                    |    | SB121C-2                                | 68 / 68   |  | 9,750  | 62.8   | 3,100                                      | 33  | YES          | ASL  |
| 7439-89-6     | Iron                   | 4,230  |        | 54,100                                   |    | SB121C-2                                | 68 / 68   |  | 54,100   | 38,600   | 23,000                                     | 36,500  | YES          | ASL  |
| 7439-92-1     | Lead                   | 6.2  | J      | 18,900                                   |    | SSDRMO-24                               | 68 / 68   |  | 18,900   | 266  | 400  | 24.8  | YES          | ASL  |
| 7439-95-4     | Magnesium              | 3,610  |        | 24,900                                   | J  | SBDRMO-23                               | 68 / 68   |  | 24,900   | 29,100   | 400,000                                    | 21,500  | NO           | NUT  |
|               | Manganese              | 213  |        | 858                                      |    | SSDRMO-11                               | 68 / 68   |  | 858  | 2,380  | 1,800                                      | 1,060   | NO           | BSL  |
|               | Mercury                | 0.01   |        | 0.47                                     |    | SBDRMO-18                               | 62 / 67   | 0.04 - 0.06  | 0.47   | 0.13   | 23   | 0.1   | NO           | BSL  |
|               | Nickel                 | 11.6   |        | 224                                      |    | SS121C-2                                | 68 / 68   |  | 224  | 62.3   | 1,600                                      | 49  | NO           | BSL  |
| 7440-09-7     | Potassium              | 787  | J      | 1,990                                    |    | SB121C-2                                | 68 / 68   |  | 1,990  | 3,160  | 5,000,000                                  | 2,380   | NO           | NUT  |

#### Table 6-2A

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future

Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|---|--|---|---|------------------------|--|--|--|--|---|--------------|--|
| 7782-49-2     | Selenium                     | 0.49                                     | J | 1.3                                      |   | SSDRMO-14                               | 10 / 68                | 0.36 - 1.1   | 1.3  | 1.7  | 390  | 2   | NO           | BSL  |
| 7440-22-4     | Silver                       | 0.34                                     |   | 21.8                                     |   | SS121C-1                                | 20 / 68                | 0.28 - 0.49  | 21.8   | 0.87   | 390  | 0.75  | NO           | BSL  |
| 7440-23-5     | Sodium                       | 58.2                                     |   | 478                                      |   | SSDRMO-14                               | 56 / 68                | 106 - 141  | 478  | 269  | 1,125,000                                  | 172   | NO           | NUT  |
| 7440-28-0     | Thallium                     | 0.5                                      | J | 1.8                                      | J | SBDRMO-24                               | 12 / 68                | 0.32 - 1.5   | 1.8  | 1.2  | 5.2  | 0.7   | NO           | BSL  |
| 7440-62-2     | Vanadium                     | 5.1                                      | T | 27                                       | J | SBDRMO-13                               | 68 / 68                |  | 27   | 32.7   | 78   | 150   | NO           | BSL  |
| 7440-66-6     | Zinc                         | 29.8                                     |   | 3,610                                    |   | SBDRMO-15                               | 68 / 68                |  | 3,610  | 126  | 23,000                                     | 110   | NO           | BSL  |
| Other Anal    | ytes                         |  |   |  |   |   |                        |  |  |  |  |   |              |  |
| SA0019        | Total Organic Carbon         | 2800                                     |   | 9,500                                    |   | SBDRMO-7                                | 56 / 56                |  |  |  |  |   | NO           | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 43                                       | J | 7,600                                    | J | SBDRMO-17                               | 14 / 56                | 42.5 - 53  |  |  |  |   | NO           | ICE  |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value
- of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = IE-6; Target Hazard Quotient = 1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for gamma-chlordane was used as screening value for alpha-chlordane.

PRG for alpha-BHC was used as screening value for delta-BHC.

PRG for endosulfan was used as screening value for endosulfan I and endosulfan II.

PRG for endrin was used as screening value for endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and

minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)
No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Individual Chemicals Evaluated (IO
Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

## ${\it Table 6-2B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL SEAD-121C

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future

Medium: Soil

Exposure Medium: Soil

Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                   | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|----------------------------|--|---|--|---|---|-----------|--|--|--|--|---|--------------|--|
| Volatile O    | rganic Compounds           |  |   |  |   |   |           |  |  |  |  |   |              |  |
| 67-64-1       | Acetone                    | 0.0032                                   | J | 0.013                                    | J | SBDRMO-19                               | 13 / 47   | 0.0025 - 0.021                                       | 0.013                                      |  | 14,000                                     | 0.2   | NO           | BSL  |
| 71-43-2       | Benzene                    | 0.041                                    |   | 0.041                                    |   | SBDRMO-9                                | 1 / 48    | 0.0025 - 0.012                                       | 0.041                                      |  | 0.64                                       | 0.06  | NO           | BSL  |
| 75-15-0       | Carbon disulfide           | 0.0022                                   | J | 0.0047                                   |   | SBDRMO-9                                | 2 / 48    | 0.0025 - 0.012                                       | 0.0047                                     |  | 360  | 2.7   | NO           | BSL  |
|               |                            |  |   |  |   | SB121C-4                                |           |  |  |  |  |   |              |  |
| 67-66-3       | Chloroform                 | 0.004                                    | J | 0.0048                                   | J | (dup)                                   | 2 / 48    | 0.0025 - 0.012                                       | 0.0048                                     |  | 0.22                                       | 0.3   | NO           | BSL  |
| 100-41-4      | Ethyl benzene              | 0.00101                                  | J | 3.3                                      | J | SBDRMO-9                                | 2 / 48    | 0.0025 - 0.012                                       | 3.3  |  | 400  | 5.5   | NO           | BSL  |
| SA0078        | Meta/Para Xylene           | 0.002                                    | J | 4.4                                      | J | SBDRMO-9                                | 3 / 40    | 0.0025 - 0.0033                                      | 4.4  |  | 270  |   | NO           | BSL  |
| 75-09-2       | Methylene chloride         | 0.0026                                   | J | 0.0026                                   | J | SSDRMO-21                               | 1 / 48    | 0.00084 - 0.012                                      | 0.0026                                     |  | 9.1  | 0.1   | NO           | BSL  |
| 95-47-6       | Ortho Xylene               | 0.016                                    |   | 0.016                                    |   | SBDRMO-9                                | 1 / 40    | 0.0025 - 0.0033                                      | 0.016                                      |  | 270  |   | NO           | BSL  |
| 108-88-3      | Toluene                    | 0.002                                    | J | 0.028                                    | J | SS121C-2                                | 9 / 48    | 0.0025 - 0.0033                                      | 0.028                                      |  | 520  | 1.5   | NO           | BSL  |
| Semivolati    | le Organic Compounds       |  |   |  |   |   |           |  |  |  |  |   |              |  |
| 121-14-2      | 2,4-Dinitrotoluene         | 0.045                                    | J | 0.045                                    | J | SB121C-2                                | 1 / 48    | 0.069 - 1.8  | 0.05                                       |  | 120  |   | NO           | BSL  |
| 91-57-6       | 2-Methylnaphthalene        | 0.0055                                   | J | 0.61                                     |   | SSDRMO-12                               | 9 / 48    | 0.069 - 1.8  | 0.61                                       |  | 310  | 36.4  | NO           | BSL  |
| 83-32-9       | Acenaphthene               | 0.0065                                   | J | 2.6                                      | П | SSDRMO-12                               | 11 / 48   | 0.0715 - 1.8   | 2.6  |  | 3,700                                      | 50  | NO           | BSL  |
| 208-96-8      | Acenaphthylene             | 0.042                                    | J | 2.5                                      |   | SBDRMO-24                               | 10 / 48   | 0.069 - 1.8  | 2.5  |  |  | 41  | NO           | NSV  |
| 120-12-7      | Anthracene                 | 0.0065                                   | J | 7.1                                      |   | SSDRMO-12                               | 20 / 48   | 0.0715 - 1.8   | 7.1  |  | 22,000                                     | 50  | NO           | BSL  |
| 56-55-3       | Benzo(a)anthracene         | 0.00545                                  | J | 10                                       | J | SSDRMO-12                               | 26 / 47   | 0.072 - 1.8  | 10   |  | 0.62                                       | 0.224   | YES          | ASL  |
| 50-32-8       | Benzo(a)pyrene             | 0.0081                                   | J | 8.7                                      | J | SSDRMO-12                               | 24 / 47   | 0.0715 - 0.43  | 8.7  |  | 0.062                                      | 0.061   | YES          | ASL  |
| 205-99-2      | Benzo(b)fluoranthene       | 0.013                                    | J | 12                                       | J | SSDRMO-12                               | 30 / 47   | 0.072 - 0.43   | 12   |  | 0.62                                       | 1.1   | YES          | ASL  |
|               |                            |  |   |  | П | SSDRMO-7                                |           |  |  |  |  |   |              |  |
| 191-24-2      | Benzo(ghi)perylene         | 0.011                                    | J | 3.2                                      | J | (dup)                                   | 25 / 47   | 0.0715 - 0.43  | 3.2  |  |  | 50  | NO           | NSV  |
| 207-08-9      | Benzo(k)fluoranthene       | 0.007                                    | J | 7.5                                      | J | SSDRMO-12                               | 22 / 47   | 0.0715 - 0.43  | 7.5  |  | 6.2  | 1.1   | YES          | ASL  |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.0072                                   | J | 0.2                                      |   | SS121C-3                                | 27 / 48   | 0.073 - 1.8  | 0.2  |  | 35   | 50  | NO           | BSL  |
| 85-68-7       | Butylbenzylphthalate       | 0.0078                                   | J | 0.12                                     | J | SSDRMO-14                               | 6 / 48    | 0.0715 - 1.8   | 0.12                                       |  | 12,000                                     | 50  | NO           | BSL  |
| 86-74-8       | Carbazole                  | 0.014                                    | J | 4.2                                      |   | SSDRMO-12                               | 17 / 48   | 0.0715 - 1.8   | 4.2  |  | 24   |   | NO           | BSL  |
| 218-01-9      | Chrysene                   | 0.0104                                   | J | 9.1                                      | J | SSDRMO-12                               | 25 / 47   | 0.072 - 1.8  | 9.1  |  | 62   | 0.4   | YES          | CSG  |
|               |                            | _  |   |  |   | SSDRMO-7                                |           |  |  |  |  |   | -            |  |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.0076                                   | J | 0.47                                     | J | (dup)                                   | 12 / 47   | 0.0715 - 0.43  | 0.47                                       |  | 0.062                                      | 0.014   | YES          | ASL  |
| 132-64-9      | Dibenzofuran               | 0.019                                    | J | 1.7                                      |   | SSDRMO-12                               | 10 / 48   | 0.069 - 1.8  | 1.7  |  | 150  | 6.2   | NO           | BSL  |
| 84-66-2       | Diethylphthalate           | 0.0085                                   |   | 0.021                                    | 1 | SB121C-1                                |           | 0.073 - 1.8  | 0.021                                      |  | 49,000                                     | 7.1   | NO           | BSL  |
|               | 1.                         |  | J |  | J | (dup)                                   | 6 / 48    |  |  |  |  |   |              |  |
|               |                            |  |   |  |   | SSDRMO-7                                |           |  |  |  |  |   |              |  |
| 84-74-2       | Di-n-butylphthalate        | 0.0082                                   | J | 0.132                                    | J | (dup)                                   | 5 / 48    | 0.069 - 1.8  | 0.132                                      |  | 6,100                                      | 8.1   | NO           | BSL  |
|               |                            |  |   |  |   | SB121C-1                                |           |  |  |  |  |   |              |  |
| 117-84-0      | Di-n-octylphthalate        | 0.0038                                   | J | 0.0232                                   | J | (dup)                                   | 2 / 48    | 0.0715 - 1.8   | 0.0232                                     |  | 2,400                                      | 50  | NO           | BSL  |
| 206-44-0      | Fluoranthene               | 0.0087                                   | J | 27                                       | - | SSDRMO-12                               | 35 / 48   | 0.072 - 1.8  | 27   |  | 2,300                                      | 50  | NO           | BSL  |
| 86-73-7       | Fluorene                   | 0.005                                    | J | 3.5                                      |   | SSDRMO-12                               | 13 / 48   | 0.0715 - 1.8   | 3.5  |  | 2,700                                      | 50  | NO           | BSL  |
|               |                            |  |   |  |   | SB121C-1                                |           |  |  |  |  |   |              |  |
| 118-74-1      | Hexachlorobenzene          | 0.0085                                   | J | 0.0085                                   | J | (dup)                                   | 1 / 48    | 0.069 - 1.8  | 0.0085                                     |  | 0.3  | 0.41  | NO           | BSL  |
|               |                            |  |   |  |   | SSDRMO-7                                |           |  |  |  |  |   |              |  |
| 193-39-5      | Indeno(1,2,3-cd)pyrene     | 0.0086                                   | J | 0.97                                     | J | (dup)                                   | 22 / 48   | 0.0715 - 1.8   | 0.97                                       |  | 0.62                                       | 3.2   | YES          | ASL  |
| 91-20-3       | Naphthalene                | 0.004                                    | J | 0.4                                      |   | SSDRMO-12                               | 9 / 48    | 0.0715 - 1.8   | 0.4  |  | 56   | 13  | NO           | BSL  |
| 86-30-6       | N-Nitrosodiphenylamine     | 0.0048                                   | J | 0.0048                                   | J | SB121C-2                                | 1 / 48    | 0.069 - 1.8  | 0.0048                                     |  | 99   | 13  | NO           | BSL  |
|               |                            |  |   |  |   |   |           |  |  |  |  |   |              |  |

## ${\it Table 6-2B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL SEAD-121C

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future

Medium: Soil

Exposure Medium: Soil

Exposure Point: SEAD-121C

| CAS<br>Number | Chemical           | Minimum Detected Concentration 1 (mg/kg) | Q  | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|--------------------|--|----|--|---|---|-----------|--|--|--|--|---|--------------|--|
| 85-01-8       | Phenanthrene       | 0.0082                                   | J  | 29                                       |   | SSDRMO-12                               | 25 / 48   | 0.072 - 1.8  | 29   |  |  | 50  | NO           | NSV  |
| 129-00-0      | Pyrene             | 0.01115                                  | J  | 34                                       | J | SSDRMO-12                               | 32 / 48   | 0.072 - 1.8  | 34   |  | 2,300                                      | 50  | NO           | BSL  |
| PCBs          |                    |  |    |  |   |   |           |  |  |  |  |   |              |  |
| 53469-21-9    | Aroclor-1242       | 0.058                                    | J  | 0.058                                    | J | SS121C-4                                | 1 / 48    | 0.0024 - 0.038                                       | 0.058                                      |  | 0.22                                       |   | YES          | CSG  |
| 11097-69-1    | Aroclor-1254       | 0.044                                    | J  | 0.93                                     | Е | SBDRMO-18                               | 9 / 48    | 0.011 - 0.038  | 0.93                                       |  | 0.22                                       | 10  | YES          | ASL  |
| 11096-82-5    | Aroclor-1260       | 0.009                                    | J  | 0.085                                    | J | SS121C-3                                | 5 / 48    | 0.0021 - 0.037                                       | 0.085                                      |  | 0.22                                       | 10  | YES          | CSG  |
| Pesticides    |                    |  |    |  |   |   |           |  |  |  |  |   |              |  |
| 72-54-8       | 4,4'-DDD           | 0.0019                                   | J  | 0.044                                    | J | SBDRMO-18                               | 5 / 43    | 0.00022 - 0.0039                                     | 0.044                                      |  | 2.4  | 2.9   | NO           | BSL  |
| 72-55-9       | 4,4'-DDE           | 0.00415                                  |    | 0.069                                    | J | SS121C-3                                | 15 / 47   | 0.00022 - 0.0036                                     | 0.069                                      |  | 1.7  | 2.1   | NO           | BSL  |
| 50-29-3       | 4,4'-DDT           | 0.0021                                   | J  | 0.1                                      | J | SS121C-3                                | 13 / 47   | 0.00022 - 0.0036                                     | 0.1  |  | 1.7  | 2.1   | NO           | BSL  |
|               |                    | - 1                                      |    |  |   | SBDRMO-16                               |           |  | -  |  |  |   |              |  |
| 309-00-2      | Aldrin             | 0.0045                                   |    | 0.014                                    | J | (dup)                                   | 3 / 48    | 0.00011 - 0.0022                                     | 0.014                                      |  | 0.029                                      | 0.041   | NO           | BSL  |
|               |                    |  |    |  |   | SBDRMO-16                               |           |  |  |  |  |   |              |  |
| 5103-71-9     | Alpha-Chlordane    | 0.001                                    | J  | 0.063                                    | J | (dup)                                   | 4 / 48    | 0.00032 - 0.0022                                     | 0.063                                      |  | 1.6  |   | NO           | BSL  |
| 319-86-8      | Delta-BHC          | 0.000975                                 | J  | 0.002                                    | J | SS121C-4                                | 3 / 48    | 0.00022 - 0.0022                                     | 0.002                                      |  | 0.09                                       | 0.3   | NO           | BSL  |
|               |                    |  |    |  |   | SBDRMO-16                               |           |  |  |  |  |   |              |  |
| 60-57-1       | Dieldrin           | 0.039                                    | J  | 0.041                                    | J | (dup)                                   | 2 / 48    | 0.00011 - 0.0038                                     | 0.041                                      |  | 0.030                                      | 0.044   | YES          | ASL  |
|               |                    | -  |    |  |   | SSDRMO-7                                |           | -  | -  |  |  |   |              |  |
| 959-98-8      | Endosulfan I       | 0.0058                                   |    | 0.19                                     | J | (dup)                                   | 18 / 48   | 0.00054 - 0.0022                                     | 0.19                                       |  | 370  | 0.9   | NO           | BSL  |
| 33213-65-9    | Endosulfan II      | 0.009                                    |    | 0.009                                    |   | SBDRMO-24                               | 1 / 47    | 0.00034 - 0.0038                                     | 0.009                                      |  | 370  | 0.9   | NO           | BSL  |
|               |                    |  |    |  |   | SBDRMO-16                               |           |  |  |  |  |   |              |  |
| 72-20-8       | Endrin             | 0.022                                    | J  | 0.0215                                   | J | (dup)                                   | 1 / 47    | 0.00086 - 0.0038                                     | 0.0215                                     |  | 18   | 0.1   | NO           | BSL  |
|               |                    |  |    |  |   | SBDRMO-16                               |           |  |  |  |  |   |              |  |
| 53494-70-5    | Endrin ketone      | 0.0034                                   | NJ | 0.0075                                   | J | (dup)                                   | 3 / 48    | 0.00011 - 0.0038                                     | 0.0075                                     |  | 18   |   | NO           | BSL  |
| 5103-74-2     | Gamma-Chlordane    | 0.0012                                   | J  | 0.0012                                   | J | SS121C-4                                | 1 / 48    | 0.00032 - 0.0022                                     | 0.0012                                     |  | 1.6  | 0.54  | NO           | BSL  |
| 76-44-8       | Heptachlor         | 0.0021                                   | J  | 0.014                                    | J | SBDRMO-18                               | 2 / 47    | 0.0011 - 0.0022                                      | 0.014                                      |  | 0.11                                       | 0.1   | NO           | BSL  |
| 1024-57-3     | Heptachlor epoxide | 0.0014                                   | J  | 0.0028                                   | J | SS121C-3                                | 2 / 46    | 0.00032 - 0.0022                                     | 0.0028                                     |  | 0.053                                      | 0.02  | NO           | BSL  |
| Inorganics    |                    |  |    |  | - |   |           |  |  |  |  |   |              |  |
|               | Aluminum           | 1,730                                    |    | 17,000                                   |   | SBDRMO-13                               | 48 / 48   |  | 17,000                                     | 20,500   | 76,000                                     | 19,300  | NO           | BSL  |
| 7440-36-0     | Antimony           | 0.32                                     | J  | 236                                      |   | SSDRMO-24                               | 39 / 48   | 1 - 1.2  | 236  | 6.55   | 31   | 5.9   | YES          | ASL  |
| 7440-38-2     |                    | 3.4                                      |    | 11.6                                     |   | SSDRMO-24                               | 48 / 48   |  | 11.6                                       | 21.5   | 0.39                                       | 8.2   | YES          | ASL  |
| 7440-39-3     | Barium             | 18.1                                     |    | 2,030                                    | J | SSDRMO-24                               | 48 / 48   |  | 2,030                                      | 159  | 5,400                                      | 300   | NO           | BSL  |
| 7440-41-7     | Beryllium          | 0.21                                     |    | 1.2                                      |   | SBDRMO-8                                | 48 / 48   |  | 1.2  | 1.4  | 150  | 1.1   | NO           | BSL  |
| 7440-43-9     | Cadmium            | 0.13                                     | J  | 29.1                                     |   | SSDRMO-14                               | 29 / 48   | 0.06 - 0.16  | 29.1                                       | 2.9  | 37   | 2.3   | NO           | BSL  |
| 7440-70-2     | Calcium            | 2,100                                    | J  | 296,000                                  |   | SS121C-4                                | 48 / 48   |  | 296,000                                    | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT  |
| 7440-47-3     | Chromium           | 3.8                                      |    | 74.8                                     |   | SBDRMO-18                               | 48 / 48   |  | 74.8                                       | 32.7   | 210  | 29.6  | NO           | BSL  |
| 7440-48-4     |                    | 3.5                                      |    | 17                                       |   | SBDRMO-8                                | 35 / 35   |  | 17   | 29.1   | 900  | 30  | NO           | BSL  |
|               | Copper             | 8.8                                      | J  | 9,750                                    |   | SB121C-2                                | 48 / 48   |  | 9,750                                      | 62.8   | 3,100                                      | 33  | YES          | ASL  |
| 7439-89-6     |                    | 4,230                                    |    | 51,700                                   |   | SB121C-18                               | 48 / 48   |  | 51,700                                     | 38,600   | 23,000                                     | 36,500  | YES          | ASL  |
| 7439-92-1     | Lead               | 7.3                                      |    | 18,900                                   |   | SSDRMO-24                               | 48 / 48   |  | 18,900                                     | 266  | 400  | 24.8  | YES          | ASL  |
|               | Magnesium          | 3,610                                    |    | 20,700                                   |   | SSDRMO-5                                | 48 / 48   |  | 20,700                                     | 29,100   | 400,000                                    | 21,500  | NO           | NUT  |
|               | Manganese          | 213                                      |    | 858                                      | - | SSDRMO-11                               | 48 / 48   |  | 858  | 2,380  | 1,800                                      | 1,060   | NO           | BSL  |
| 7439-97-6     |                    | 0.03                                     |    | 0.47                                     |   | SBDRMO-18                               | 44 / 48   | 0.04 - 0.055   | 0.47                                       | 0.13   | 23   | 0.1   | NO           | BSL  |
| 7440-02-0     | Nickel             | 11.6                                     |    | 224                                      |   | SS121C-2                                | 48 / 48   |  | 224  | 62.3   | 1,600                                      | 49  | NO           | BSL  |

#### Table 6-2B

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL

#### SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

cenario Timeframe: Cuurent/Future Soil Medium: Exposure Medium: Soil Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting Limits <sup>1</sup> (mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|---|--|---|---|------------------------|--|--|--|--|---|--------------|--|
| 7440-09-7     | Potassium                    | 787                                      | J | 1,990                                    |   | SB121C-2                                | 48 / 48                |  | 1,990  | 3,160  | 5,000,000                                  | 2,380   | NO           | NUT  |
| 7782-49-2     | Selenium                     | 0.49                                     | J | 1.3                                      |   | SSDRMO-14                               | 10 / 48                | 0.36 - 1.01                                    | 1.3  | 1.7  | 390  | 2   | NO           | BSL  |
| 7440-22-4     | Silver                       | 0.34                                     |   | 21.8                                     |   | SS121C-1                                | 18 / 48                | 0.28 - 0.46                                    | 21.8   | 0.87   | 390  | 0.75  | NO           | BSL  |
| 7440-23-5     | Sodium                       | 58.2                                     |   | 478                                      |   | SSDRMO-14                               | 42 / 48                | 106 - 132                                      | 478  | 269  | 1,125,000                                  | 172   | NO           | NUT  |
| 7440-28-0     | Thallium                     | 0.5                                      | J | 1.1                                      | J | SBDRMO-24                               | 10 / 48                | 0.32 - 1.4                                     | 1.1  | 1.2  | 5.2  | 0.7   | NO           | BSL  |
| 7440-62-2     | Vanadium                     | 5.1                                      |   | 25.4                                     |   | SBDRMO-8                                | 48 / 48                |  | 25.4   | 32.7   | 78   | 150   | NO           | BSL  |
| 7440-66-6     | Zinc                         | 29.8                                     |   | 3,610                                    |   | SBDRMO-15                               | 48 / 48                |  | 3,610  | 126  | 23,000                                     | 110   | NO           | BSL  |
| Other Anal    | ytes                         |  |   |  |   |   |                        |  |  |  |  |   |              |  |
| SA0019        | Total Organic Carbon         | 2,800                                    |   | 9,000                                    |   | SBDRMO-13                               | 40 / 40                |  |  |  |  |   | NO           | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 59                                       |   | 7,600                                    | J | SBDRMO-17                               | 10 / 40                | 42.5 - 53                                      |  |  |  |   | NO           | ICE  |

#### Notes:

1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment.

(dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value

of the sample and its duplicate. Range of reporting limits were presented for nondetects only. 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient = 1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for gamma-chlordane was used as screening value for alpha-chlordane.

PRG for alpha-BHC was used as screening value for delta-BHC.

PRG for endosulfan was used as screening value for endosulfan I, endosulfan II, and endosulfan sulfate.

PRG for endrin was used as screening value for endrin aldehyde and endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL) No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

#### Table 6-2C

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical               | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q  | Location of<br>Maximum<br>Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Concentration Used for Screening <sup>2</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|------------------------|--|---|--|----|---|---------|---|---|--|--|---|--------------|---|
| Volatile Or   | ganic Compounds        |  |   |  |    |   |         |   |   |  |  |   |              |   |
| 67-64-1       | Acetone                | 0.012                                    | J | 0.15                                     | J  | SDDRMO-3                                | 7 / 10  | 0.0029 - 0.01                           | 0.15  |  | 14,000                                     | 0.2   | NO           | BSL   |
| 75-15-0       | Carbon disulfide       | 0.005                                    | J | 0.012                                    | J  | SDDRMO-6                                | 2 / 10  | 0.0028 - 0.03                           | 0.012   |  | 360  | 2.7   | NO           | BSL   |
| 78-93-3       | Methyl ethyl ketone    | 0.0036                                   | J | 0.13                                     | J  | SDDRMO-4                                | 3 / 10  | 0.0029 - 0.03                           | 0.13  |  | 22,000                                     | 0.3   | NO           | BSL   |
| Semivolatile  | e Organic Compounds    |  |   |  |    |   |         |   |   |  |  |   |              |   |
| 106-44-5      |                        |  |   |  |    |   |         |   |   |  |  |   |              |   |
| 108-39-4      | 3 or 4-Methylphenol    | 0.79                                     | J | 0.79                                     | J  | SDDRMO-3                                | 1 / 10  | 0.36 - 1.6                              | 0.79  |  | 180  |   | NO           | NSV   |
| 120-12-7      | Anthracene             | 0.1                                      | J | 0.25                                     | J  | SDDRMO-2                                | 2 / 10  | 0.36 1.7                                | 0.25  |  | 22,000                                     | 50  | NO           | BSL   |
| 56-55-3       | Benzo(a)anthracene     | 0.23                                     | J | 1.1                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1   |  | 0.62                                       | 0.224   | YES          | ASL   |
| 50-32-8       | Benzo(a)pyrene         | 0.17                                     | J | 0.9                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 0.9   |  | 0.062                                      | 0.061   | YES          | ASL   |
| 205-99-2      | Benzo(b)fluoranthene   | 0.18                                     | J | 1.1                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1   |  | 0.62                                       | 1.1   | YES          | ASL   |
| 191-24-2      | Benzo(ghi)perylene     | 0.29                                     | J | 0.29                                     | J  | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              | 0.29  |  |  | 50  | NO           | NSV   |
| 207-08-9      | Benzo(k)fluoranthene   | 0.58                                     | J | 0.58                                     | J  | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              | 0.58  |  | 6.2  | 1.1   | YES          | CSG   |
| 218-01-9      | Chrysene               | 0.24                                     | J | 1.2                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.2   |  | 62   | 0.4   | YES          | CSG   |
| 206-44-0      | Fluoranthene           | 0.52                                     | J | 2.1                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 2.1   |  | 2,300                                      | 50  | NO           | BSL   |
|               | Indeno(1,2,3-cd)pyrene | 0.27                                     | J | 0.27                                     | J  | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              | 0.27  |  | 0.62                                       | 3.2   | YES          | CSG   |
| 85-01-8       | Phenanthrene           | 0.41                                     | J | 1.1                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1   |  |  | 50  | NO           | NSV   |
|               | Pyrene                 | 0.44                                     | J | 2.1                                      | J  | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 2.1   |  | 2,300                                      | 50  | NO           | BSL   |
| Inorganics    | ,                      |  |   |  |    |   |         |   |   |  |  |   |              |   |
|               | Aluminum               | 2,850                                    |   | 21,500                                   |    | SDDRMO-9                                | 10 / 10 |   | 21,500  | 20,500   | 76,000                                     | 19,300  | NO           | BSL   |
|               | Antimony               | 0.97                                     | J | 4.9                                      | J  | SDDRMO-9                                | 5 / 10  | 1.2 - 4.3                               | 4.9   | 6.55   | 31   | 5.9   | NO           | BSL   |
| 7440-38-2     | Arsenic                | 1.1                                      |   | 6.1                                      | J  | SDDRMO-2                                | 10 / 10 |   | 6.1   | 21.5   | 0.39                                       | 8.2   | YES          | ASL   |
|               | Barium                 | 36.6                                     | J | 291                                      |    | SDDRMO-9                                | 10 / 10 |   | 291   | 159  | 5,400                                      | 300   | NO           | BSL   |
|               |                        |  |   |  |    | SDDRMO-8                                | 10 / 10 |   |   |  | -,   |   |              |   |
| 7440-41-7     | Beryllium              | 0.2                                      |   | 0.8                                      | ī  | (dup)                                   | 8 / 10  | 0.64 - 0.68                             | 0.8   | 1.4  | 150  | 1.1   | NO           | BSL   |
| 7440-43-9     | Cadmium                | 1.5                                      | ī | 14.3                                     | -  | SDDRMO-9                                | 5 / 10  | 0.13 - 0.33                             | 14.3  | 2.9  | 37   | 2.3   | NO           | BSL   |
| 7440-70-2     | Calcium                | 13,200                                   |   | 161,000                                  |    | SDDRMO-9                                | 10 / 10 | 0.15 0.55                               | 161,000   | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT   |
| 7440-47-3     | Chromium               | 7.3                                      |   | 29.8                                     | ī  | SDDRMO-2                                | 10 / 10 |   | 29.8  | 32.7   | 210  | 29.6  | NO           | BSL   |
|               |                        |  |   |  |    | SDDRMO-8                                | 10 / 10 |   |   |  |  |   |              |   |
| 7440-48-4     | Cobalt                 | 3  |   | 15.8                                     | Ιτ | (dup)                                   | 10 / 10 |   | 15.8  | 29.1   | 900  | 30  | NO           | BSL   |
|               | Copper                 | 16.2                                     |   | 1,190                                    | ř  | SDDRMO-9                                | 10 / 10 |   | 1,190   | 62.8   | 3,100                                      | 33  | NO           | BSL   |
| PA0002        | Cyanide, Amenable      | 2.36                                     | ī | 2.36                                     | ī  | SDDRMO-4                                | 1 / 10  | 0.55 - 2.63                             | 2.36  | 02.0   | 11   | 55  | NO           | BSL   |
| SA0008        | Cyanide, Total         | 2.36                                     | ī | 2.36                                     | ī  | SDDRMO-4                                | 1 / 10  | 0.552 - 2.63                            | 2.36  |  | 11   |   | NO           | BSL   |
| DAUUUO        | Cyanide, 10tai         | 2.30                                     | , | 2.30                                     | ,  | SDDRMO-4<br>SDDRMO-8                    | 1 / 10  | 0.552 - 2.05                            | 2.30  |  | 11   |   | 140          | DOL   |
|               | Iron                   | 5,650                                    |   | 27,300                                   | J  | (dup)                                   | 10 / 10 |   | 27,300  | 38,600   | 23,000                                     | 36,500  | YES          | ASL   |
| 7439-92-1     | Lead                   | 13.3                                     |   | 436                                      |    | SDDRMO-9                                | 10 / 10 |   | 436   | 266  | 400  | 24.8  | YES          | ASL   |
|               | Magnesium              | 3,340                                    |   | 17,600                                   |    | SDDRMO-9                                | 10 / 10 |   | 17,600  | 29,100   | 400,000                                    | 21,500  | NO           | NUT   |
| 7439-96-5     | Manganese              | 126                                      |   | 918                                      | J  | SDDRMO-5                                | 10 / 10 |   | 918   | 2,380  | 1,800                                      | 1,060   | NO           | BSL   |

#### Table 6-2C

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Concentration Used for Screening <sup>2</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|------------------------------|--|---|--|---|---|---------|---|---|--|--|---|--------------|---|
| 7439-97-6     | Mercury                      | 0.04                                     |   | 0.3                                      | J | SDDRMO-2                                | 10 / 10 |   | 0.3   | 0.13   | 23   | 0.1   | NO           | BSL   |
| 7440-02-0     | Nickel                       | 8.2                                      |   | 42.7                                     | J | SDDRMO-5                                | 10 / 10 |   | 42.7  | 62.3   | 1,600                                      | 49  | NO           | BSL   |
| 7440-09-7     | Potassium                    | 368                                      |   | 1,410                                    | J | SDDRMO-5                                | 10 / 10 |   | 1,410   | 3,160  | 5,000,000                                  | 2,380   | NO           | NUT   |
| 7782-49-2     | Selenium                     | 0.73                                     |   | 2.5                                      | J | SDDRMO-4                                | 4 / 10  | 0.55 - 2.1                              | 2.5   | 1.7  | 390  | 2   | NO           | BSL   |
| 7440-22-4     | Silver                       | 0.83                                     | J | 2.6                                      | J | SDDRMO-5                                | 5 / 10  | 0.35 - 1.4                              | 2.6   | 0.87   | 390  | 0.75  | NO           | BSL   |
| 7440-23-5     | Sodium                       | 167                                      |   | 1,120                                    | J | SDDRMO-4                                | 10 / 10 |   | 1,120   | 269  | 1,125,000                                  | 172   | NO           | NUT   |
| 7440-62-2     | Vanadium                     | 8.6                                      |   | 29.1                                     | J | SDDRMO-2                                | 10 / 10 |   | 29.1  | 32.7   | 78   | 150   | NO           | BSL   |
| 7440-66-6     | Zinc                         | 51.4                                     | J | 566                                      |   | SDDRMO-5                                | 10 / 10 |   | 566   | 126  | 23,000                                     | 110   | NO           | BSL   |
| Other Anal    | lytes                        |  |   |  |   |   |         |   |   |  |  |   |              |   |
| SA0019        | Total Organic Carbon         | 4,200                                    |   | 9,100                                    | J | SDDRMO-10                               | 10 / 10 |   |   |  |  |   | NO           | NSV   |
| SA0020        | Total Petroleum Hydrocarbons | 1,000                                    |   | 2,600                                    | J | SDDRMO-2                                | 2 / 10  | 53 - 211                                |   |  |  |   | NO           | ICE   |

#### Notes

- Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
   (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- $4.\ EPA\ Region\ 9\ Preliminary\ Remediation\ Goals\ (PRGs)\ for\ residential\ soil.\ On-line\ resources\ available\ at$

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated October 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for cyanide hydrogen was used as screening value for amenable cyanide and total cyanide.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

#### Table 6-2D

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C GROUNDWATER SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Aquifer -- Tap Water

| CAS<br>Number | Chemical                   | Minimum<br>Detected<br>Concentration <sup>1</sup><br>(ug/L) | Q | Maximum Detected Concentration 1 (ug/L) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency <sup>1</sup> | Range of<br>Reporting<br>Limits <sup>1</sup><br>(ug/L) | Concentration Used for Screening <sup>2</sup> (ug/L) | Screening<br>Value <sup>3</sup><br>(ug/L) | Potential<br>ARAR /TBC<br>Value<br>(ug/L) | Potential<br>ARAR/TBC<br>Source <sup>4</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>5</sup> |
|---------------|----------------------------|---|---|---|---|---|-------------------------------------|--|--|---|---|--|--------------|---|
| Semivolati    | le Organic Compounds       |   |   |   | П |   |                                     |  |  |   |   |  |              |   |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 1.4   | J | 1.4                                     | J | MW121C-4                                | 1 / 6                               | 1 - 1.1  | 1.4  | 4.8                                       | 5   | GA   | NO           | BSL   |
| 84-74-2       | Di-n-butylphthalate        | 1.6   | J | 1.6                                     | J | MW121C-6                                | 1 / 6                               | 1.2 - 1.3  | 1.6  | 3,600                                     | 50  | GA   | NO           | BSL   |
| Inorganics    |                            |   |   |   |   |   |                                     |  |  |   |   |  |              |   |
|               | Aluminum                   | 19.9  | J | 588                                     | J | MW121C-4 (dup)                          | 6 / 6                               |  | 588  | 36,000                                    | 50  | SEC  | NO           | BSL   |
| 7440-36-0     | Antimony                   | 7.3   | J | 8.4                                     | J | MW121C-6                                | 2 / 6                               | 3.8 - 7.5  | 8.4  | 15  | 3   | GA   | NO           | BSL   |
| 7440-39-3     |                            | 18.2  | J | 73.7                                    |   | MW121C-3                                | 6 / 6                               |  | 73.7   | 2,600                                     | 1,000                                     | GA   | NO           | BSL   |
| 7440-41-7     | Beryllium                  | 0.24  | J | 0.24                                    | J | MW121C-4                                | 1 / 6                               | 0.1 - 0.9  | 0.24   | 73  | 4   | MCL  | NO           |   |
| 7440-43-9     |                            | 1.1   | J | 1.1                                     | J | MW121C-6                                | 1 / 6                               | 0.8 - 0.8  | 1.1  | 18  | 5   | GA   | NO           | BSL   |
| 7440-70-2     |                            | 114,000   |   | 558,000                                 |   | MW121C-6                                | 6 / 6                               |  | 558,000  | 250,000                                   |   |  | NO           | NUT   |
|               | Chromium                   | 1.5   | J | 21.4                                    |   | MW121C-6                                | 5 / 6                               | 1.4 - 1.4  | 21.4   | 110                                       | 50  | GA   | NO           | BSL   |
| 7440-48-4     |                            | 1.5   | J | 3.0                                     | J | MW121C-4 (dup)                          | 3 / 6                               | 0.7 - 2.3  | 3.0  | 730                                       |   |  | NO           | BSL   |
|               | Copper                     | 6.2   | J | 17.7                                    | J | MW121C-6                                | 3 / 6                               | 2 - 2  | 17.7   | 1,500                                     | 200                                       | GA   | NO           | BSL   |
| 7439-89-6     |                            | 516   |   | 869                                     | J | MW121C-4 (dup)                          | 3 / 6                               | 22.2 - 34.9  | 869  | 11,000                                    | 300                                       | GA   | NO           | BSL   |
| 7439-92-1     |                            | 3.8   |   | 10.5                                    |   | MW121C-6                                | 5 / 6                               | 3 - 3  | 10.5   | 15  | 15  | MCL  | NO           | BSL   |
|               | Magnesium                  | 27,700  |   | 109,000                                 |   | MW121C-6                                | 6 / 6                               |  | 109,000  | 40,000                                    |   |  | NO           | NUT   |
|               | Manganese                  | 135   |   | 297                                     |   | MW121C-6                                | 6 / 6                               |  | 297  | 880                                       | 50  | SEC  | NO           | BSL   |
| 7439-97-6     |                            | 0.2   |   | 0.2                                     |   | MW121C-3                                | 2 / 6                               | 0.2 - 0.2  | 0.2  | 11  | 0.7                                       | GA   | NO           | BSL   |
| 7440-02-0     |                            | 2.1   | J | 2.1                                     | J | MW121C-4 (dup)                          | 1 / 6                               | 2 - 2  | 2.1  | 730                                       | 100                                       | GA   | NO           | BSL   |
| 7440-09-7     |                            | 1,790   | J | 9,400                                   |   | MW121C-4                                | 6 / 6                               |  | 9,400  | 700,000                                   |   |  | NO           | BSL   |
| 7782-49-2     | Selenium                   | 1.9   | J | 6.8                                     |   | MW121C-6                                | 2 / 6                               | 1.3 - 4.2  | 6.8  | 180                                       | 10  | GA   | NO           | BSL   |
| 7440-23-5     |                            | 17,600  |   | 58,400                                  |   | MW121C-4 (dup)                          | 6 / 6                               |  | 58,400   | 1,200,000                                 | 20,000                                    | GA   | NO           | BSL   |
| 7440-66-6     | Zinc                       | 12.6  | J | 96.2                                    |   | MW121C-6                                | 6 / 6                               |  | 96.2   | 11,000                                    | 5,000                                     | SEC  | NO           | BSL   |

#### Notes:

Definitions:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration was value of the sample and its duplicate. Range of reporting limits were presented for nondetects only. To ensure a reliable dataset, only groundwater samples at the DRMO Yard collected from permanent wells using low flow sampling techniques were included in the screening process.
- 2. The maximum detected concentration was used for screening.
- 3. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004. Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs. MCL for lead was used as screening value for lead as no Region 9 PRG is available.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes. For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used. PRG for chromium (VI) was used as screening value for chromium.

- 4. ARARs or TBCs identified are Maximum Contaminant Levels (MCLs), the GA standard, or the Secondary Drinking Water Regulations (SEC).
- 5. Rationale codes Selection Reason: Above Screening Levels (ASL)
  Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

COPC = Chemical of Potential Concern

Q = Qualifier ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

J = Estimated Value MCL = Federal Maximum Contaminant Level

GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)

SEC = USEPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)

#### Table 6-2E

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE WATER SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (ug/L) | Q | Maximum Detected Concentration 1 (ug/L) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of<br>Reporting<br>Limits <sup>1</sup><br>(ug/L) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(ug/L) | Maximum<br>Background<br>Value <sup>3</sup><br>(ug/L) | Screening<br>Value <sup>4</sup><br>(ug/L) | Potential<br>ARAR<br>/TBC<br>Value<br>(ug/L) | Potential<br>ARAR/TBC<br>Source <sup>5</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|------------------------------|---|---|---|---|---|------------------------|--|---|---|---|--|--|--------------|---|
| Semivolatil   | le Organic Compounds         |   |   |   |   |   |                        |  |   |   |   |  |  |              |   |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate   | 4.2                                     | J | 4.2                                     | J | SWDRMO-2                                | 1 / 10                 | 10 - 10  | 4.2   |   | 4.8                                       | 0.6  | Class C                                      | NO           | BSL   |
| Inorganics    |                              |   |   |   |   |   |                        |  |   |   |   |  |  |              |   |
|               | Aluminum                     | 14.4                                    |   | 8,760                                   |   |   | 10 / 10                |  | 8,760   |   | 36,000                                    | 100  | Class C                                      | NO           | BSL   |
| 7440-38-2     | Arsenic                      | 50.3                                    |   | 50.3                                    |   | SWDRMO-2                                | 1 / 10                 | 2.8 - 2.8  | 50.3  |   | 0.045                                     | 150  | Class C                                      | YES          | ASL   |
|               | Barium                       | 37.2                                    |   | 423                                     |   | SWDRMO-2                                | 10 / 10                |  | 423   |   | 2,600                                     |  |  | NO           | BSL   |
| 7440-41-7     | Beryllium                    | 0.12                                    | J | 0.86                                    | J | SWDRMO-2                                | 9 / 10                 | 0.1 - 0.1  | 0.86  |   | 73  | 1100   | Class C                                      | NO           | BSL   |
|               | Cadmium                      | 0.46                                    |   | 19.5                                    |   | SWDRMO-2                                | 4 / 10                 | 0.4 - 0.4  | 19.5  |   | 18  | 3.84   | Class C                                      | YES          | ASL   |
|               | Calcium                      | 66,700                                  |   | 166,000                                 |   | SWDRMO-3                                | 10 / 10                |  | 166,000   |   | 250,000                                   |  |  | NO           | NUT   |
| 7440-47-3     | Chromium                     | 0.69                                    |   | 129                                     |   | SWDRMO-2                                | 8 / 10                 | 0.6 - 0.6  | 129   |   | 110                                       | 139.45                                       | Class C                                      | YES          | ASL   |
| 7440-48-4     | Cobalt                       | 0.6                                     |   | 47                                      |   | SWDRMO-2                                | 7 / 10                 | 0.6 - 0.6  | 47  |   | 730                                       | 5  | Class C                                      | NO           | BSL   |
| 7440-50-8     | Copper                       | 1.7                                     |   | 1,160                                   |   | SWDRMO-2                                | 10 / 10                |  | 1,160   |   | 1,500                                     | 17.32  | Class C                                      | NO           | BSL   |
| 7439-89-6     | Iron                         | 26.6                                    | J | 110,000                                 |   | SWDRMO-2                                | 8 / 10                 | 17.3 - 17.3  | 110,000   |   | 11,000                                    | 300  | Class C                                      | YES          | ASL   |
| 7439-92-1     | Lead                         | 4.4                                     | J | 839                                     |   | SWDRMO-2                                | 10 / 10                |  | 839   |   | 15  | 1.46246                                      | Class C                                      | YES          | ASL   |
| 7439-95-4     | Magnesium                    | 11,100                                  |   | 26,200                                  |   | SWDRMO-2                                | 10 / 10                |  | 26,200  |   | 40,000                                    |  |  | NO           | NUT   |
|               | Manganese                    | 3.2                                     |   | 2,380                                   |   | SWDRMO-2                                | 10 / 10                |  | 2,380   |   | 880                                       |  |  | YES          | ASL   |
| 7439-97-6     | Mercury                      | 0.26                                    |   | 2.1                                     |   | SWDRMO-2                                | 2 / 10                 | 0.2 - 0.2  | 2.1   |   | 11  | 0.0007                                       | Class C                                      | NO           | BSL   |
| 7440-02-0     | Nickel                       | 10.6                                    |   | 154                                     |   | SWDRMO-2                                | 3 / 10                 | 1.8 - 1.8  | 154   |   | 730                                       | 99.92  | Class C                                      | NO           | BSL   |
| 7440-09-7     | Potassium                    | 2,070                                   | J | 5,350                                   | J | SWDRMO-3                                | 10 / 10                |  | 5,350   |   | 700,000                                   |  |  | NO           | NUT   |
| 7782-49-2     | Selenium                     | 4.6                                     | J | 4.6                                     | J | SWDRMO-2                                | 1 / 10                 | 3 - 3  | 4.6   |   | 180                                       | 4.6  | Class C                                      | NO           | BSL   |
| 7440-22-4     | Silver                       | 1.7                                     |   | 8                                       |   | SWDRMO-2                                | 2 / 10                 | 1 - 1  | 8   |   | 182                                       | 0.1  | Class C                                      | NO           | BSL   |
| 7440-23-5     | Sodium                       | 4,490                                   |   | 123,000                                 | J | SWDRMO-1                                | 10 / 10                |  | 123,000   |   | 1,200,000                                 |  |  | NO           | NUT   |
| 7440-28-0     | Thallium                     | 5.5                                     | J | 6.3                                     |   | SWDRMO-4                                | 2 / 10                 | 5.4 - 5.4  | 6.3   |   | 2.4                                       | 8  | Class C                                      | YES          | ASL   |
| 7440-62-2     | Vanadium                     | 0.89                                    |   | 233                                     |   | SWDRMO-2                                | 5 / 10                 | 0.7 - 0.7  | 233   |   | 36  | 14   | Class C                                      | YES          | ASL   |
| 7440-66-6     | Zinc                         | 15.4                                    |   | 6,910                                   |   | SWDRMO-2                                | 10 / 10                |  | 6,910   |   | 11,000                                    | 159.25                                       | Class C                                      | NO           | BSL   |
| Other Ana     | lytes                        |   |   |   |   |   |                        |  |   |   |   |  |  |              |   |
| SA0020        | Total Petroleum Hydrocarbons | 8,080                                   |   | 8,080                                   |   | SWDRMO-2                                | 1 / 9                  | 1000 - 1000  | 8,080   |   |   |  |  | NO           | ICE   |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. No background data are available.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004. Target Cancer Risk = 1E-6; Target Hazard Quotient = 1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

Maximum Contaminant Level (MCL) for lead was used as screening value for lead as no Region 9 PRG is available.

PRG for endrin was used as screening value for endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used.

PRG for chromium (VI) was used as screening value for chromium.

5. Potential ARAR values are from the New York State Ambient Water Quality Standards, Class C for Surface Water 6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

#### Table 6-3A

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121I

| CAS<br>Number | Chemical                   | Minimum Detected Concentration | Q  | Maximum Detected Concentration | Q  | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | ARAR /<br>TBC<br>Value <sup>5</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|----------------------------|--------------------------------|----|--------------------------------|----|---|------------------------|--|--|--|--|-------------------------------------|--------------|--|
|               |                            | (mg/kg)                        |    | (mg/kg)                        |    |   |                        |  |  |  |  | (mg/kg)                             |              |  |
|               | ganic Compounds            |                                |    |                                |    |   |                        |  |  |  |  |                                     |              |  |
| 67-64-1       | Acetone                    | 0.0022                         | J  | 0.11                           | _  | SS121I-15                               | 26 / 35                | 0.003 - 0.0715                                       | 0.11   |  | 14,000                                     | 0.2                                 | NO           | BSL  |
| 71-43-2       | Benzene                    | 0.0046                         | J  | 0.041                          | J  | SS121I-29 (dup)                         | 6 / 35                 | 0.0023 - 0.0034                                      | 0.041  |  | 0.64                                       | 0.06                                | NO           | BSL  |
| 100-41-4      | Ethyl benzene              | 0.0021                         | J  | 0.0078                         |    | SS121I-15                               | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0078   |  | 400  | 5.5                                 | NO           | BSL  |
|               | Meta/Para Xylene           | 0.0021                         | J  | 0.0063                         | J  | SS121I-29 (dup)                         | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0063   |  | 270  |                                     | NO           | BSL  |
| 78-93-3       | Methyl ethyl ketone        | 0.0036                         | _  | 0.07                           |    | SS121I-15                               | 9 / 35                 | 0.0023 - 0.0034                                      | 0.07   |  | 22,000                                     | 0.3                                 | NO           | BSL  |
| 75-09-2       | Methylene chloride         | 0.0016                         | J  | 0.0028                         | J  | SB121I-4                                | 9 / 35                 | 0.0023 - 0.0034                                      | 0.0028   |  | 9.1  | 0.1                                 | NO           | BSL  |
| 95-47-6       | Ortho Xylene               | 0.0013                         | J  | 0.0036                         | J  | SS121I-29 (dup)                         | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0036   |  | 270  |                                     | NO           | BSL  |
| 108-88-3      | Toluene                    | 0.0028                         | J  | 0.031                          | J  | SS121I-29 (dup)                         | 6 / 35                 | 0.0023 - 0.0034                                      | 0.031  |  | 520  | 1.5                                 | NO           | BSL  |
|               | e Organic Compounds        |                                | _  |                                |    |   |                        |  |  |  |  |                                     |              |  |
| 91-57-6       | 2-Methylnaphthalene        | 0.054                          | J  | 0.26                           | J  | SS121I-20                               | 3 / 39                 | 0.35 - 7.4   | 0.26   |  | 310  | 36.4                                | NO           | BSL  |
| 83-32-9       | Acenaphthene               | 0.053                          | J  | 6.1                            |    | SS121I-20                               | 17 / 39                | 0.36 - 2.2   | 6.1  |  | 3,700                                      | 50                                  | NO           | BSL  |
| 208-96-8      | Acenaphthylene             | 0.064                          | J  | 0.56                           | J  | SS121I-21                               | 2 / 39                 | 0.34 - 7.4   | 0.56   |  |  | 41                                  | NO           | NSV  |
| 120-12-7      | Anthracene                 | 0.069                          | J  | 12                             |    | SS121I-20                               | 20 / 38                | 0.36 - 1.8   | 12   |  | 22,000                                     | 50                                  | NO           | BSL  |
| 56-55-3       | Benzo(a)anthracene         | 0.043                          | J  | 28                             | J  | SS121I-20                               | 36 / 39                | 0.37 - 0.38  | 28   |  | 0.62                                       | 0.224                               | YES          | ASL  |
| 50-32-8       | Benzo(a)pyrene             | 0.061                          | J  | 23                             |    | SS121I-20                               | 36 / 39                | 0.37 - 0.39  | 23   |  | 0.062                                      | 0.061                               | YES          | ASL  |
| 205-99-2      | Benzo(b)fluoranthene       | 0.052                          | J  | 29                             |    | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 29   |  | 0.62                                       | 1.1                                 | YES          | ASL  |
| 191-24-2      | Benzo(ghi)perylene         | 0.05                           | J  | 29                             | J  | SS121I-20                               | 33 / 39                | 0.36 - 0.39  | 29   |  |  | 50                                  | NO           | NSV  |
| 207-08-9      | Benzo(k)fluoranthene       | 0.095                          | J  | 21                             | J  | SS121I-20                               | 28 / 38                | 0.36 - 0.4   | 21   |  | 6.2  | 1.1                                 | YES          | ASL  |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.038                          | J  | 1.6                            |    | SS121I-31                               | 14 / 39                | 0.13 - 8.8   | 1.6  |  | 35   | 50                                  | NO           | BSL  |
| 85-68-7       | Butylbenzylphthalate       | 0.055                          | J  | 0.13                           | J  | SB121I-1                                | 2 / 36                 | 0.35 - 8.8   | 0.13   |  | 12,000                                     | 50                                  | NO           | BSL  |
| 86-74-8       | Carbazole                  | 0.06                           | J  | 6.8                            |    | SS121I-20                               | 20 / 39                | 0.36 - 1.8   | 6.8  |  | 24   |                                     | NO           | BSL  |
| 218-01-9      | Chrysene                   | 0.063                          | J  | 32                             | J  | SS121I-20                               | 35 / 39                | 0.37 - 0.39  | 32   |  | 62   | 0.4                                 | YES          | CSG  |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.072                          | J  | 4.6                            | J  | SS121I-2                                | 10 / 32                | 0.36 - 2.1   | 4.6  |  | 0.062                                      | 0.014                               | YES          | ASL  |
| 132-64-9      | Dibenzofuran               | 0.029                          | J  | 2                              |    | SS121I-20                               | 9 / 39                 | 0.35 - 2.2   | 2  |  | 150  | 6.2                                 | NO           | BSL  |
| 84-66-2       | Diethylphthalate           | 0.64                           | J  | 0.64                           | J  | SS121I-29 (dup)                         | 1 / 39                 | 0.34 - 7.4   | 0.64   |  | 49,000                                     | 7.1                                 | NO           | BSL  |
| 84-74-2       | Di-n-butylphthalate        | 0.045                          | J  | 0.045                          | J  | SS121I-1                                | 1 / 38                 | 0.34 - 7.4   | 0.045  |  | 6,100                                      | 8.1                                 | NO           | BSL  |
| 206-44-0      | Fluoranthene               | 0.08                           | J  | 62                             |    | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 62   |  | 2,300                                      | 50                                  | NO           | BSL  |
| 86-73-7       | Fluorene                   | 0.043                          | J  | 4.2                            |    | SS121I-20                               | 13 / 39                | 0.35 - 2.2   | 4.2  |  | 2,700                                      | 50                                  | NO           | BSL  |
| 193-39-5      | Indeno(1,2,3-cd)pyrene     | 0.061                          | J  | 8.1                            | J  | SS121I-20                               | 26 / 37                | 0.36 - 2.1   | 8.1  |  | 0.62                                       | 3.2                                 | YES          | ASL  |
| 91-20-3       | Naphthalene                | 0.051                          | J  | 0.63                           | J  | SS121I-21                               | 5 / 39                 | 0.35 - 7.4   | 0.63   |  | 56   | 13                                  | NO           | BSL  |
| 85-01-8       | Phenanthrene               | 0.052                          | J  | 52                             |    | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 52   |  |  | 50                                  | NO           | NSV  |
| 129-00-0      | Pyrene                     | 0.072                          | J  | 64                             | J  | SS121I-23                               | 37 / 39                | 0.37 - 0.38  | 64   |  | 2,300                                      | 50                                  | NO           | BSL  |
| PCBs          |                            |                                |    |                                |    |   |                        |  |  |  |  |                                     |              |  |
| 11097-69-1    | Aroclor-1254               | 0.03                           | J  | 0.03                           | J  | SS121I-22                               | 1 / 35                 | 0.018 - 0.022  | 0.03   |  | 0.22                                       | 10                                  | NO           | BSL  |
| 11096-82-5    | Aroclor-1260               | 0.0083                         | J  | 0.046                          | J  | SS121I-14                               | 2 / 35                 | 0.018 - 0.022  | 0.046  |  | 0.22                                       | 10                                  | NO           | BSL  |
| Pesticides    |                            |                                |    |                                |    |   |                        |  |  |  |  |                                     |              |  |
| 72-55-9       | 4,4'-DDE                   | 0.011                          | NJ | 0.034                          | NJ | SS121I-23                               | 4 / 35                 | 0.0018 - 0.0023                                      | 0.034  |  | 1.7  | 2.1                                 | NO           | BSL  |
| 50-29-3       | 4,4'-DDT                   | 0.024                          | NJ | 0.039                          | J  | SS121I-21                               | 2 / 34                 | 0.0018 - 0.0023                                      | 0.039  |  | 1.7  | 2.1                                 | NO           | BSL  |
| 309-00-2      | Aldrin                     | 0.0032                         | J  | 0.012                          |    | SS121I-20                               | 4 / 35                 | 0.0018 - 0.0045                                      | 0.012  |  | 0.029                                      | 0.041                               | NO           | BSL  |
| 60-57-1       | Dieldrin                   | 0.016                          | J  | 0.034                          | J  | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      | 0.034  |  | 0.030                                      | 0.044                               | YES          | ASL  |

#### Table 6-3A

## ${\tt OCCURRENCE, DISTRIBUTION \ AND \ SELECTION \ OF \ CHEMICALS \ OF \ POTENTIAL \ CONCERN \ IN \ SEAD-121I \ SURFACE \ SOIL}$

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Soil

Exposure Point: SEAD-121I

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|---|--|---|---|------------------------|--|--|--|--|---|--------------|--|
| 959-98-8      | Endosulfan I                 | 0.0026                                   |   | 0.095                                    | J | SS121I-20                               | 24 / 35                | 0.0018 - 0.002                                       | 0.095                                      |  | 370  | 0.9   | NO           | BSL  |
| 72-20-8       | Endrin                       | 0.0065                                   | J | 0.03                                     | J | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      | 0.03                                       |  | 18   | 0.1   | NO           | BSL  |
| 1024-57-3     | Heptachlor epoxide           | 0.0061                                   |   | 0.055                                    | J | SS121I-21                               | 8 / 33                 | 0.0018 - 0.0023                                      | 0.055                                      |  | 0.053                                      | 0.02  | YES          | ASL  |
| Inorganics    |                              |  |   |  |   |   |                        |  |  |  |  |   |              |  |
| 7429-90-5     | Aluminum                     | 1,510                                    |   | 13,200                                   |   | SB121I-5                                | 35 / 35                |  | 13,200                                     | 20,500   | 76,000                                     | 19,300  | NO           | BSL  |
| 7440-36-0     | Antimony                     | 0.99                                     |   | 7.5                                      |   | SS121I-28                               | 14 / 35                | 0.96 - 7.3   | 7.5  | 6.55   | 31   | 5.9   | NO           | BSL  |
| 7440-38-2     | Arsenic                      | 3.5                                      |   | 32.1                                     | J | SB121I-2 (dup)                          | 24 / 24                |  | 32.1                                       | 21.5   | 0.39                                       | 8.2   | YES          | ASL  |
| 7440-39-3     | Barium                       | 38.2                                     |   | 207                                      |   | SS121I-26                               | 35 / 35                |  | 207  | 159  | 5,400                                      | 300   | NO           | BSL  |
| 7440-41-7     | Beryllium                    | 0.16                                     |   | 0.68                                     |   | SB121I-5                                | 34 / 35                | 0.17 - 0.17  | 0.68                                       | 1.4  | 150  | 1.1   | NO           | BSL  |
| 7440-43-9     | Cadmium                      | 0.15                                     |   | 6.6                                      |   | SB121I-3                                | 13 / 35                | 0.13 - 0.61  | 6.6  | 2.9  | 37   | 2.3   | NO           | BSL  |
| 7440-70-2     | Calcium                      | 5,370                                    | J | 298,000                                  | J | SS121I-26                               | 35 / 35                |  | 298,000                                    | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT  |
| 7440-47-3     | Chromium                     | 3.9                                      |   | 439                                      |   | SS121I-29 (dup)                         | 35 / 35                |  | 439  | 32.7   | 210  | 29.6  | YES          | ASL  |
| 7440-48-4     | Cobalt                       | 4.6                                      |   | 205.5                                    | J | SS121I-29 (dup)                         | 35 / 35                |  | 205.5                                      | 29.1   | 900  | 30  | NO           | BSL  |
| 7440-50-8     | Copper                       | 10.4                                     | J | 209                                      |   | SS121I-29 (dup)                         | 30 / 30                |  | 209  | 62.8   | 3,100                                      | 33  | NO           | BSL  |
|               | Cyanide, Total               | 0.559                                    | J | 2.00                                     |   | SS121I-29 (dup)                         | 3 / 35                 | 0.526 - 0.61   | 2.00                                       |  | 1,200                                      |   | NO           | BSL  |
| 7439-89-6     | Iron                         | 5,720                                    |   | 58,400                                   |   | SS121I-29 (dup)                         | 35 / 35                |  | 58,400                                     | 38,600   | 23,000                                     | 36,500  | YES          | ASL  |
| 7439-92-1     | Lead                         | 8.6                                      | J | 122                                      |   | SS121I-25                               | 35 / 35                |  | 122  | 266  | 400  | 24.8  | NO           | BSL  |
| 7439-95-4     | Magnesium                    | 4,430                                    | J | 22,300                                   | J | SS121I-27                               | 35 / 35                |  | 22,300                                     | 29,100   | 400,000                                    | 21,500  | NO           | NUT  |
| 7439-96-5     | Manganese                    | 377                                      |   | 310,500                                  |   | SS121I-29 (dup)                         | 35 / 35                |  | 310,500                                    | 2,380  | 1,800                                      | 1,060   | YES          | ASL  |
| 7439-97-6     | Mercury                      | 0.01                                     |   | 0.07                                     |   | SB121I-1                                | 35 / 35                |  | 0.07                                       | 0.13   | 23   | 0.1   | NO           | BSL  |
|               |                              |  |   |  |   | SS121I-29 (dup),                        |                        |  |  |  |  |   |              |  |
| 7440-02-0     | Nickel                       | 11.1                                     |   | 342                                      | J | SS121I-33                               | 35 / 35                |  | 342  | 62.3   | 1,600                                      | 49  | NO           | BSL  |
| 7440-09-7     | Potassium                    | 634                                      |   | 1,300                                    |   | SS121I-30                               | 35 / 35                |  | 1,300                                      | 3,160  | 5,000,000                                  | 2,380   | NO           | NUT  |
| 7782-49-2     | Selenium                     | 0.48                                     | J | 146                                      | J | SS121I-29 (dup)                         | 20 / 35                | 0.43 - 0.61  | 146  | 1.7  | 390  | 2   | NO           | BSL  |
| 7440-22-4     | Silver                       | 0.29                                     |   | 3.1                                      | J | SB121I-2 (dup)                          | 4 / 24                 | 0.3 - 1.2  | 3.1  | 0.87   | 390  | 0.75  | NO           | BSL  |
| 7440-23-5     | Sodium                       | 117                                      |   | 372                                      |   | SB121I-1                                | 29 / 35                | 106 - 595  | 372  | 269  | 1,125,000                                  | 172   | NO           | NUT  |
| 7440-28-0     | Thallium                     | 0.38                                     |   |  | J | SS121I-29 (dup)                         | 7 / 35                 | 0.32 - 1.2   | 163  | 1.2  | 5.2  | 0.7   | YES          | ASL  |
| 7440-62-2     | Vanadium                     | 5.9                                      |   |  | J | SS121I-29 (dup)                         | 35 / 35                |  | 182  | 32.7   | 78   | 150   | YES          | ASL  |
| 7440-66-6     | II.                          | 42.75                                    | J | 329                                      |   | SS121I-33                               | 35 / 35                |  | 329  | 126  | 23,000                                     | 110   | NO           | BSL  |
| Other Ana     |                              |  |   |  |   |   |                        |  |  |  |  |   |              |  |
|               | Total Organic Carbon         | 3,000                                    |   | 8,900                                    |   | SS121I-6                                | 35 / 35                |  |  |  |  |   | NO           | NSV  |
|               | Total Petroleum Hydrocarbons | 100                                      | J | 2,200                                    |   | SS121I-27                               | 10 / 35                | 43 - 48  |  |  |  |   | NO           | ICE  |

#### Notes:

- Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
   Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The
  maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

#### Table 6-3A

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Soil

Exposure Point: SEAD-121I

| CAS    | Chemical | Minimum       | Q Maximum     | Q | Location of   | Detection | Range of           | Concentration | Maximum    | Screening | Potential | COPC | Rationale for |
|--------|----------|---------------|---------------|---|---------------|-----------|--------------------|---------------|------------|-----------|-----------|------|---------------|
| Number |          | Detected      | Detected      |   | Maximum       | Frequency | Reporting Limits 1 | Used for      | Background | Value 4   | ARAR /    | Flag | Contaminant   |
|        |          | Concentration | Concentration |   | Concentration | 1         | (mg/kg)            | Screening 2   | Value 3    | (mg/kg)   | TBC       |      | Deletion or   |
|        |          | 1             | 1             |   |               |           |                    | (mg/kg)       | (mg/kg)    |           | Value 5   |      | Selection     |
|        |          | (mg/kg)       | (mg/kg)       |   |               |           |                    |               |            |           | (mg/kg)   |      |               |

Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for endosulfan was used as screening value for endosulfan I.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

PRG for cyanide hydrogen was used for total cyanide.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified.

(on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier

J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

## Table 6-3B

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I DITCH SOIL SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future

Medium: Ditch Soil

Exposure Medium: Ditch Soil

Exposure Point: SEAD-121I

| CAS<br>Number | Chemical                       | Minimum<br>Detected | Q        | Maximum<br>Detected | Q | Location of<br>Maximum           | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup> | Concentration<br>Used for | Maximum<br>Background | Screening<br>Value <sup>4</sup> | Potential<br>ARAR /           | COPC<br>Flag | Rationale for<br>Contaminant |
|---------------|--------------------------------|---------------------|----------|---------------------|---|----------------------------------|------------------------|---|---------------------------|-----------------------|---------------------------------|-------------------------------|--------------|------------------------------|
|               |                                | Concentration       | 1        | Concentration       |   | Concentration                    | 1                      | (mg/kg)                                   | Screening <sup>2</sup>    | Value <sup>3</sup>    | (mg/kg)                         | TBC                           |              | Deletion or                  |
|               |                                | 1<br>(mg/kg)        |          | 1<br>(mg/kg)        |   |                                  |                        |   | (mg/kg)                   | (mg/kg)               |                                 | Value <sup>5</sup><br>(mg/kg) |              | Selection                    |
| ***           |                                | (IIIg/Kg)           | <u> </u> | (Hig/Kg)            |   |                                  |                        |   |                           |                       |                                 | (Ilig/Kg)                     |              |                              |
|               | ganic Compounds                |                     |          | 0.15                |   |                                  | 10 / 10                |   | 0.15                      |                       |                                 |                               |              |                              |
| 67-64-1       | Acetone                        | 0.008               | -        | 0.15                |   | SD121I-8                         | 10 / 10                | 0.0000 0.0000                             | 0.15                      |                       | 14,000                          | 0.2                           | NO           | BSL                          |
| 71-43-2       | Benzene                        | 0.0012              | J        | 0.039               |   | SD121I-8                         | 3 / 10                 | 0.0032 - 0.0037                           | 0.039                     |                       | 0.64                            | 0.06                          | NO           | BSL                          |
|               | Ethyl benzene                  | 0.0052              |          | 0.0052              |   | SD121I-8                         | 1 / 10                 | 0.0027 - 0.0044                           | 0.0052                    |                       | 400                             | 5.5                           | NO           | BSL                          |
| SA0078        | Meta/Para Xylene               | 0.0048              | -        | 0.0048              |   | SD121I-8                         | 1 / 10                 | 0.0027 - 0.0044                           | 0.0048                    |                       | 270                             | 0.0                           | NO           | BSL                          |
| 78-93-3       | Methyl ethyl ketone            | 0.0072              |          | 0.078               |   | SD121I-8                         | 2 / 10                 | 0.0031 - 0.0044<br>0.0027 - 0.0044        | 0.078                     |                       | 22,000                          | 0.3                           | NO           | BSL<br>BSL                   |
| 95-47-6       | Ortho Xylene                   | 0.003               | ĭ        |                     |   | SD121I-8<br>SD121I-8             | 2 / 10                 |   | 0.003                     |                       | 270                             | 1.5                           | NO           |                              |
| 108-88-3      | Toluene e Organic Compounds    | 0.0017              | J        | 0.026               |   | SD1211-8                         | 2 / 10                 | 0.0031 - 0.0044                           | 0.026                     |                       | 520                             | 1.5                           | NO           | BSL                          |
|               | 2-Methylnaphthalene            | 0.033               | ĭ        | 0.17                | T | SD121I-7 (dup)                   | 2 / 12                 | 0.38 - 4.4                                | 0.17                      |                       | 310                             | 36.4                          | NO           | BSL                          |
| 91-57-6       | 3.3'-Dichlorobenzidine         | 0.033               | I        | 0.17                | J | SD1211-7 (dup)<br>SD121I-7 (dup) | 1 / 12                 | 0.38 - 4.4                                | 0.17                      |                       | 1.1                             | 30.4                          | NO           | BSL                          |
| 83-32-9       | - /                            | 0.313               | J        | 0.313               | J | SD1211-7 (dup)<br>SD121I-7 (dup) | 9 / 12                 | 0.38 - 4.4                                | 0.313                     |                       | 3,700                           | 50                            | NO           | BSL                          |
| 208-96-8      | Acenaphthene<br>Acenaphthylene | 0.006               | J        | 0.74                | J | SD121I-7 (dup)                   | 4 / 12                 | 0.38 - 0.40                               | 0.74                      |                       | 3,700                           | 41                            | NO           | NSV                          |
| 120-12-7      | Anthracene                     | 0.076               | J        | 1.8                 | J | SD121I-2EBS<br>SD121I-2EBS       | 9 / 12                 | 0.38 - 0.33                               | 1.8                       |                       | 22,000                          | 50                            | NO           | BSL                          |
| 56-55-3       | Benzo(a)anthracene             | 0.11                | J        | 1.8                 | J | SD121I-2EBS<br>SD121I-2EBS       | 10 / 12                | 0.38 - 0.46                               | 1.6                       |                       | 0.62                            | 0.224                         | YES          | ASL                          |
| 50-33-8       | Benzo(a)pyrene                 | 0.29                | J        | 16                  |   | SD121I-2EBS                      | 9 / 12                 | 0.38 - 0.46                               | 16                        |                       | 0.062                           | 0.224                         | YES          | ASL                          |
| 205-99-2      | Benzo(b)fluoranthene           | 0.044               | J        | 22                  |   | SD121I-2EBS                      | 11 / 12                | 0.46 - 0.46                               | 22                        |                       | 0.62                            | 1.1                           | YES          | ASL                          |
|               | Benzo(ghi)perylene             | 0.11                | Ĭ        | 12                  |   | SD121I-2EBS                      | 9 / 12                 | 0.38 - 0.46                               | 12                        |                       | 0.02                            | 50                            | NO           | NSV                          |
| 207-08-9      | Benzo(k)fluoranthene           | 0.14                | T        | 23                  |   | SD1211-2EBS<br>SD121I-2EBS       | 9 / 12                 | 0.38 - 0.46                               | 23                        |                       | 6.2                             | 1.1                           | YES          | ASL                          |
|               | Bis(2-Ethylhexyl)phthalate     | 0.025               | I        | 0.093               | T | SD1211-2EBS<br>SD121I-7 (dup)    | 3 / 12                 | 0.38 - 4.4                                | 0.093                     |                       | 35                              | 50                            | NO           | BSL                          |
| 85-68-7       | Butylbenzylphthalate           | 0.42                | J        | 0.42                | ĭ | SD121I-7 (dup)                   | 1 / 12                 | 0.38 - 4.4                                | 0.42                      |                       | 12,000                          | 50                            | NO           | BSL                          |
| 86-74-8       | Carbazole                      | 0.1                 | J        | 1.6                 | I | SD1211-2EBS                      | 9 / 12                 | 0.38 - 0.46                               | 1.6                       |                       | 24                              | 30                            | NO           | BSL                          |
| 218-01-9      | Chrysene                       | 0.34                | I        | 25                  |   | SD121I-2EBS                      | 9 / 12                 | 0.38 - 0.46                               | 25                        |                       | 62                              | 0.4                           | YES          | CSG                          |
| 53-70-3       | Dibenz(a,h)anthracene          | 0.086               | J        | 5                   | J | SD121I-2EBS                      | 5 / 12                 | 0.38 - 0.53                               | 5                         |                       | 0.062                           | 0.014                         | YES          | ASL                          |
| 132-64-9      | Dibenzofuran                   | 0.058               | J        | 0.356               | J | SD121I-7 (dup)                   | 5 / 12                 | 0.38 - 4.4                                | 0.356                     |                       | 150                             | 6.2                           | NO           | BSL                          |
| 117-84-0      | Di-n-octylphthalate            | 0.42                | J        | 0.42                | J | SD121I-7 (dup)                   | 1 / 12                 | 0.38 - 4.4                                | 0.42                      |                       | 2,400                           | 50                            | NO           | BSL                          |
| 206-44-0      | Fluoranthene                   | 0.099               | J        | 24                  |   | SD121I-2EBS                      | 11 / 12                | 0.46 - 0.46                               | 24                        |                       | 2,300                           | 50                            | NO           | BSL                          |
| 86-73-7       | Fluorene                       | 0.053               | J        | 0.645               | J | SD121I-7 (dup)                   | 9 / 12                 | 0.38 - 0.46                               | 0.645                     |                       | 2,700                           | 50                            | NO           | BSL                          |
| 193-39-5      | Indeno(1,2,3-cd)pyrene         | 0.098               | J        | 12                  | J | SD121I-2EBS                      | 9 / 12                 | 0.38 - 0.46                               | 12                        |                       | 0.62                            | 3.2                           | YES          | ASL                          |
| 78-59-1       | Isophorone                     | 0.315               | J        | 0.315               | J | SD121I-7 (dup)                   | 1 / 12                 | 0.38 - 4.4                                | 0.315                     |                       | 510                             | 4.4                           | NO           | BSL                          |
| 91-20-3       | Naphthalene                    | 0.065               | J        | 0.35                | J | SD121I-7 (dup)                   | 2 / 12                 | 0.38 - 4.4                                | 0.35                      |                       | 56                              | 13                            | NO           | BSL                          |
| 98-95-3       | Nitrobenzene                   | 0.315               | J        | 0.315               | J | SD121I-7 (dup)                   | 1 / 12                 | 0.38 - 4.4                                | 0.315                     |                       | 20                              | 0.2                           | NO           | BSL                          |
| 85-01-8       | Phenanthrene                   | 0.05                | J        | 6.25                |   | SD121I-7 (dup)                   | 11 / 12                | 0.46 - 0.46                               | 6.25                      |                       |                                 | 50                            | NO           | NSV                          |
| 108-95-2      | Phenol                         | 0.315               | J        | 0.315               | J | SD121I-7 (dup)                   | 1 / 12                 | 0.39 - 4.4                                | 0.315                     |                       | 18,000                          | 0.03                          | NO           | BSL                          |
| 129-00-0      | Pyrene                         | 0.078               | J        | 17                  |   | SD121I-2EBS                      | 11 / 12                | 0.46 - 0.46                               | 17                        |                       | 2,300                           | 50                            | NO           | BSL                          |
| PCBs          |                                |                     |          |                     |   |                                  |                        |   |                           |                       |                                 |                               |              |                              |
| 11097-69-1    | Aroclor-1254                   | 0.067               |          | 0.067               |   | SD121I-5                         | 1 / 10                 | 0.012 - 0.022                             | 0.067                     |                       | 0.22                            | 10                            | NO           | BSL                          |
| 11096-82-5    | Aroclor-1260                   | 0.014               | J        | 0.014               | J | SD121I-7 (dup)                   | 1 / 10                 | 0.0023 - 0.0033                           | 0.014                     |                       | 0.22                            | 10                            | NO           | BSL                          |
| Pesticides    |                                |                     |          |                     |   |                                  |                        |   |                           |                       |                                 |                               |              |                              |
| 72-55-9       | 4,4'-DDE                       | 0.0076              | J        | 0.0076              | J | SD121I-7 (dup)                   | 1 / 10                 | 0.00024 - 0.00033                         | 0.0076                    |                       | 1.7                             | 2.1                           | NO           | BSL                          |

#### Table 6-3B

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL SEAD-1211

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-1211

| CAS<br>Number | Chemical                     | Minimum<br>Detected<br>Concentration | Q | Maximum<br>Detected<br>Concentration | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup> |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--------------------------------------|---|--------------------------------------|---|---|------------------------|--|--|--|--|--|-----|--|
|               |                              | (mg/kg)                              |   | (mg/kg)                              |   |   |                        |  |  |  |  | (mg/kg)  |     |  |
| Inorganics    |                              |                                      |   |                                      |   |   |                        |  |  |  |  |  |     |  |
| 7429-90-5     | Aluminum                     | 4,180                                |   | 10,300                               |   | SD121I-6                                | 10 / 10                |  | 10,300   | 20,500   | 76,000                                     | 19,300   | NO  | BSL  |
| 7440-38-2     | Arsenic                      | 2.6                                  |   | 104                                  |   | SD121I-8                                | 10 / 10                |  | 104  | 21.5   | 0.39                                       | 8.2  | YES | ASL  |
| 7440-39-3     | Barium                       | 44.1                                 | J | 91.1                                 | J | SD121I-8                                | 10 / 10                |  | 91.1   | 159  | 5,400                                      | 300  | NO  | BSL  |
| 7440-41-7     | Beryllium                    | 0.3                                  |   | 0.66                                 |   | SD121I-6                                | 10 / 10                |  | 0.66   | 1.4  | 150  | 1.1  | NO  | BSL  |
| 7440-43-9     | Cadmium                      | 0.8                                  |   | 0.8                                  |   | SD121I-7 (dup)                          | 1 / 10                 | 0.14 - 0.19  | 0.8  | 2.9  | 37   | 2.3  | NO  | BSL  |
| 7440-70-2     | Calcium                      | 8,990                                |   | 127,500                              |   | SD121I-7 (dup)                          | 10 / 10                |  | 127,500  | 293,000  | 2,500,000                                  | 121,000  | NO  | NUT  |
| 7440-47-3     | Chromium                     | 8.6                                  |   | 83.9                                 |   | SD121I-8                                | 10 / 10                |  | 83.9   | 32.7   | 210  | 29.6   | NO  | BSL  |
| 7440-48-4     | Cobalt                       | 5.9                                  |   | 91.9                                 |   | SD121I-8                                | 10 / 10                |  | 91.9   | 29.1   | 900  | 30   | NO  | BSL  |
| 7440-50-8     | Copper                       | 17.1                                 | J | 130                                  |   | SD121I-4                                | 10 / 10                |  | 130  | 62.8   | 3,100                                      | 33   | NO  | BSL  |
| 7439-89-6     | Iron                         | 10,100                               |   | 30,400                               |   | SD121I-8                                | 10 / 10                |  | 30,400   | 38,600   | 23,000                                     | 36,500   | YES | ASL  |
| 7439-92-1     | Lead                         | 11.2                                 | J | 93.3                                 |   | SD121I-6                                | 10 / 10                |  | 93.3   | 266  | 400  | 24.8   | NO  | BSL  |
| 7439-95-4     | Magnesium                    | 2,150                                |   | 11,300                               |   | SD121I-5                                | 10 / 10                |  | 11,300   | 29,100   | 400,000                                    | 21,500   | NO  | NUT  |
| 7439-96-5     | Manganese                    | 303                                  |   | 14,900                               |   | SD121I-8                                | 10 / 10                |  | 14,900   | 2,380  | 1,800                                      | 1,060  | YES | ASL  |
| 7439-97-6     | Mercury                      | 0.02                                 |   | 0.18                                 |   | SD121I-3                                | 9 / 10                 | 0.12 - 0.12  | 0.18   | 0.13   | 23   | 0.1  | NO  | BSL  |
| 7440-02-0     | Nickel                       | 16.4                                 |   | 153                                  |   | SD121I-8                                | 10 / 10                |  | 153  | 62.3   | 1,600                                      | 49   | NO  | BSL  |
| 7440-09-7     | Potassium                    | 541                                  |   | 1,450                                |   | SD121I-6                                | 10 / 10                |  | 1,450  | 3,160  | 5,000,000                                  | 2,380  | NO  | NUT  |
| 7782-49-2     | Selenium                     | 18                                   |   | 18                                   |   | SD121I-8                                | 1 / 10                 | 0.48 - 0.68  | 18   | 1.7  | 390  | 2  | NO  | BSL  |
| 7440-22-4     | Silver                       | 2.5                                  |   | 10.5                                 |   | SD121I-8                                | 2 / 10                 | 0.31 - 0.44  | 10.5   | 0.87   | 390  | 0.75   | NO  | BSL  |
| 7440-23-5     | Sodium                       | 162                                  |   | 266                                  |   | SD121I-10                               | 8 / 10                 | 118 - 132  | 266  | 269  | 1,125,000                                  | 172  | NO  | NUT  |
| 7440-28-0     | Thallium                     | 0.44                                 | J | 21.5                                 |   | SD121I-8                                | 2 / 10                 | 0.36 - 0.5   | 21.5   | 1.2  | 5.2  | 0.7  | YES | ASL  |
| 7440-62-2     | Vanadium                     | 8.1                                  |   | 69.4                                 |   | SD121I-8                                | 10 / 10                |  | 69.4   | 32.7   | 78   | 150  | NO  | BSL  |
| 7440-66-6     | Zinc                         | 57.3                                 | J | 532                                  |   | SD121I-6                                | 10 / 10                |  | 532  | 126  | 23,000                                     | 110  | NO  | BSL  |
| Other Anal    | ytes                         |                                      |   |                                      |   |   |                        |  |  |  |  |  |     |  |
| SA0019        | Total Organic Carbon         | 2,800                                |   | 7,200                                | J | SD121I-1                                | 10 / 10                |  | 7,200  |  |  |  | NO  | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 150                                  |   | 910                                  |   | SD121I-9                                | 5 / 10                 | 52 - 66  |  |  |  |  | NO  | ICE  |

#### Notes:

- $1.\ Field\ duplicates\ were\ averaged\ and\ regarded\ as\ one\ entry.\ Half\ the\ reporting\ limits\ were\ assumed\ for\ non-detects\ for\ the\ average\ calculation.$
- Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

 $Target\ Cancer\ Risk = 1E-6;\ Target\ Hazard\ Quotient = 1.\ Direct\ contact\ exposure\ (ingestion,\ dermal\ contact,\ and\ inhalation)\ is\ evaluated\ to\ derive\ the\ PRGs.$ 

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

 $as \ no \ Region \ 9 \ PRG \ is \ available. \ EPA \ Region \ III \ RBC, \ available \ on-line \ at \ http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS, \ available \ on-line \ at \ http://www.epa.gov/reg3hwmd/rbc/rbc1004.XLS, \ available \ on-line \ at \ http://www.epa.gov/reg3hwmd/rbc/rbc1004.XLS, \ available \ on-line \ at \ http://www.epa.gov/reg3hwmd/rbc/rbc1004.XLS, \ available \ on-line \ at \ available \ on-line \ at \ at \ available \ on-line \ at \ available \ on-line \ at \ available \ on-line$ 

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

#### Table 6-3B

## ${\tt OCCURRENCE, DISTRIBUTION \ AND \ SELECTION \ OF \ CHEMICALS \ OF \ POTENTIAL \ CONCERN \ IN \ SEAD-121I \ DITCH \ SOIL}$

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |  |
|---------------------|----------------|--|
| Medium:             | Ditch Soil     |  |
| Exposure Medium:    | Ditch Soil     |  |
| Exposure Point:     | SEAD-121I      |  |

| CAS    | Chemical | Minimum       | ) Maximum     | Q | Location of   | Detection | Range of Reporting | Concentration | Maximum    | Screening | Potential | COPC | Rationale for |
|--------|----------|---------------|---------------|---|---------------|-----------|--------------------|---------------|------------|-----------|-----------|------|---------------|
| Number |          | Detected      | Detected      |   | Maximum       | Frequency | Limits 1           | Used for      | Background | Value 4   | ARAR /    | Flag | Contaminant   |
|        |          | Concentration | Concentration |   | Concentration | 1         | (mg/kg)            | Screening 2   | Value 3    | (mg/kg)   | TBC       |      | Deletion or   |
|        |          | 1             | 1             |   |               |           |                    | (mg/kg)       | (mg/kg)    |           | Value 5   |      | Selection     |
|        |          | (mg/kg)       | (mg/kg)       |   |               |           |                    |               |            |           | (mg/kg)   |      |               |

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV) Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

#### Table 6-3C

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE WATER SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: SEAD-1211

|             |                      |               |   |                 |   |               |           |                    |               |            |           |           | T    |               |
|-------------|----------------------|---------------|---|-----------------|---|---------------|-----------|--------------------|---------------|------------|-----------|-----------|------|---------------|
| CAS         | Chemical             | Minimum       | Q | Maximum         | Q | Location of   | Detection | Range of           | Concentration | Maximum    | Screening | Potential | COPC | Rationale for |
| Number      |                      | Detected      |   | Detected        |   | Maximum       | Frequency | Reporting Limits 1 | Used for      | Background | Value 4   | ARAR      | Flag | Contaminant   |
|             |                      | Concentration |   | Concentration 1 |   | Concentration | 1         | (ug/L)             | Screening 2   | Value 3    | (ug/L)    | /TBC      |      | Deletion or   |
|             |                      | 1             |   | (ug/L)          |   |               |           |                    | (ug/L)        | (ug/L)     |           | Value 5   |      | Selection 6   |
|             |                      | (ug/L)        |   |                 |   |               |           |                    |               |            |           | (ug/L)    |      |               |
| Semivolatil | le Organic Compounds |               |   |                 | ╁ |               |           |                    |               |            |           |           | 1    |               |
|             | Butylbenzylphthalate | 1.1           | J | 1.1             | J | SW121I-10     | 1 / 7     | 10 - 10            | 1.1           |            | 7,300     |           | NO   | BSL           |
| 206-44-0    | Fluoranthene         | 1.1           | J | 1.1             | J | SW121I-6      | 1 / 7     | 10 - 10            | 1.1           |            | 1,500     |           | NO   | BSL           |
| Inorganics  |                      |               |   |                 |   |               |           |                    |               |            | ,         |           |      |               |
| 7429-90-5   | Aluminum             | 23.9          |   | 2,050           | П | SW121I-6      | 7 / 7     |                    | 2,050         |            | 36,000    | 100       | NO   | BSL           |
| 7440-39-3   | Barium               | 22.5          |   | 49.2            |   | SW121I-1      | 6 / 7     | 9.9 - 9.9          | 49.2          |            | 2,600     |           | NO   | BSL           |
| 7440-41-7   | Beryllium            | 0.14          |   | 0.28            | П | SW121I-6      | 6 / 7     | 0.1 - 0.1          | 0.28          |            | 73        | 1,100     | NO   | BSL           |
| 7440-43-9   | Cadmium              | 0.54          |   | 0.54            |   | SW121I-10     | 1 / 7     | 0.4 - 0.8          | 0.54          |            | 18        | 3.84      | NO   | BSL           |
| 7440-70-2   | Calcium              | 18,000        |   | 74,200          |   | SW121I-1      | 7 / 7     |                    | 74,200        |            | 250,000   |           | NO   | NUT           |
| 7440-47-3   | Chromium             | 1.1           |   | 6               | П | SW121I-6      | 5 / 7     | 0.6 - 1.4          | 6             |            | 110       | 139.45    | NO   | BSL           |
| 7440-48-4   | Cobalt               | 2.8           |   | 3               |   | SW121I-6      | 2 / 7     | 0.6 - 0.7          | 3             |            | 730       | 5         | NO   | BSL           |
| 7440-50-8   | Copper               | 1.2           |   | 11.2            |   | SW121I-6      | 6 / 7     | 3.6 - 3.6          | 11.2          |            | 1,500     | 17.32     | NO   | BSL           |
| 7439-89-6   | Iron                 | 32.3          | J | 3,410           |   | SW121I-6      | 5 / 7     | 17.3 - 17.3        | 3,410         |            | 11,000    | 300       | NO   | BSL           |
| 7439-92-1   | Lead                 | 4.3           | J | 26.3            |   | SW121I-6      | 4 / 7     | 2.1 - 3            | 26.3          |            | 15        | 1.46      | YES  | ASL           |
|             | Magnesium            | 3,635         |   | 11,100          |   | SW121I-1      | 7 / 7     |                    | 11,100        | - 1-       | 40,000    |           | NO   | NUT           |
|             | Manganese            | 0.8           |   | 206             |   | SW121I-6      | 7 / 7     |                    | 206           |            | 880       |           | NO   | BSL           |
|             | Nickel               | 3.5           |   | 3.6             |   | SW121I-6      | 2 / 7     | 1.8 - 2            | 3.6           |            | 730       | 99.92     | NO   | BSL           |
| 7440-09-7   | Potassium            | 645           |   | 4,640           | J | SW121I-6      | 7 / 7     |                    | 4,640         |            | 700,000   |           | NO   | NUT           |
|             |                      |               |   |                 | Γ | SW121I-7      |           |                    |               |            |           |           |      |               |
| 7782-49-2   | Selenium             | 2.5           | J | 2.5             | J | (dup)         | 1 / 7     | 3 - 3              | 2.5           |            | 180       | 4.6       | NO   | BSL           |
| 7440-23-5   | Sodium               | 2,240         |   | 38,500          | J | SW121I-10     | 7 / 7     |                    | 38,500        |            | 1,200,000 |           | NO   | NUT           |
| 7440-62-2   | Vanadium             | 2.1           |   | 3.9             |   | SW121I-6      | 3 / 7     | 0.7 - 1.4          | 3.9           |            | 36        | 14        | NO   | BSL           |
| 7440-66-6   | Zinc                 | 12.5          |   | 190             | Π | SW121I-6      | 7 / 7     |                    | 190           |            | 11,000    | 159.25    | NO   | BSL           |

#### Notes

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- The maximum detected concentration was used for screening.
- 3. No background values available for surface water.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = IE-6; Target Hazard Quotient = 1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

Maximum Contaminant Level (MCL) for lead was used as screening value for lead as no Region 9 PRG is available.

 $Screening\ values\ for\ calcium,\ magnesium,\ potassium,\ and\ sodium\ were\ calculated\ based\ on\ an\ assumption\ of\ 2L/day\ water\ intake$ 

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and

minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used.

PRG for chromium (VI) was used as screening value for chromium.

5. Potential ARAR values are from the New York State Ambient Water Quality Standards, Class C for Surface Water.

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier J = Estimated Value

# Table 6-4A SOIL EXPOSURE POINT CONCENTRATION SUMMARY - TOTAL SOIL AT SEAD-121C SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

|                         |         |            |            |               |   |       |        | Total Soil           |                    |        | Total Soil          |                    |
|-------------------------|---------|------------|------------|---------------|---|-------|--------|----------------------|--------------------|--------|---------------------|--------------------|
| Chemical                | Units   | Arithmetic | 95% UCL of | Maximum       | Q | EPC   | I      | Reasonable Maximum E | xposure (2)        |        | Central Tendency    | (2)                |
| of                      |         | Mean       | Normal     | Detected      |   | Units |        |                      |                    |        |                     |                    |
| Potential               |         | (1)        | Data       | Concentration |   |       | Medium | Medium               | Medium             | Medium | Medium              | Medium             |
| Concern                 |         |            |            | (1)           |   |       | EPC    | EPC                  | EPC                | EPC    | EPC                 | EPC                |
|                         |         |            |            |               |   |       | Value  | Statistic            | Rationale          | Value  | Statistic           | Rationale          |
| Volatile Organic Compo  | unds    |            |            |               |   |       |        |                      |                    |        |                     |                    |
| Benzene                 | mg/kg   | 0.029      | 0.073      | 1.8           | J | mg/kg | 0.19   | 97.5% Chebyshev      | Non-parametric, MH | 0.19   | 97.5% Chebyshev     | Non-parametric, MH |
| Semivolatile Organic Co | mpounds |            |            |               |   |       |        |                      |                    |        |                     |                    |
| Benzo(a)anthracene      | mg/kg   | 0.58       | 0.90       | 10            | J | mg/kg | 1.8    | 97.5% Chebyshev      | Non-parametric, MH | 1.8    | 97.5% Chebyshev     | Non-parametric, MH |
| Benzo(a)pyrene          | mg/kg   | 0.61       | 0.93       | 8.7           | J | mg/kg | 1.8    | 97.5% Chebyshev      | Non-parametric, MH | 1.8    | 97.5% Chebyshev     | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg   | 0.84       | 1.2        | 12            | J | mg/kg | 2.4    | 97.5% Chebyshev      | Non-parametric, MH | 2.4    | 97.5% Chebyshev     | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg   | 0.46       | 0.68       | 7.5           | J | mg/kg | 1.3    | 97.5% Chebyshev      | Non-parametric, MH | 1.3    | 97.5% Chebyshev     | Non-parametric, MH |
| Chrysene                | mg/kg   | 0.58       | 0.87       | 9.1           | J | mg/kg | 1.7    | 97.5% Chebyshev      | Non-parametric, MH | 1.7    | 97.5% Chebyshev     | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg   | 0.17       | 0.18       | 0.47          | J | mg/kg | 0.21   | 95% Chebyshev        | Non-parametric, MO | 0.21   | 95% Chebyshev       | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg   | 0.20       | 0.24       | 0.97          | J | mg/kg | 0.30   | 95% Chebyshev        | Non-parametric, MO | 0.30   | 95% Chebyshev       | Non-parametric, MO |
| Pesticides/PCBs         |         |            |            |               |   |       |        |                      |                    |        |                     |                    |
| Dieldrin                | mg/kg   | 0.0021     | 0.0035     | 0.041         | J | mg/kg | 0.0073 | 97.5% Chebyshev      | Non-parametric, MH | 0.0073 | 97.5% Chebyshev     | Non-parametric, MH |
| Aroclor-1242            | mg/kg   | 0.010      | 0.012      | 0.058         | J | mg/kg | 0.014  | 95% Chebyshev        | Non-parametric, MO | 0.014  | 95% Chebyshev       | Non-parametric, MO |
| Aroclor-1254            | mg/kg   | 0.042      | 0.069      | 0.93          |   | mg/kg | 0.14   | 97.5% Chebyshev      | Non-parametric, MH | 0.14   | 97.5% Chebyshev     | Non-parametric, MH |
| Aroclor-1260            | mg/kg   | 0.014      | 0.019      | 0.20          |   | mg/kg | 0.033  | 97.5% Chebyshev      | Non-parametric, MH | 0.033  | 97.5% Chebyshev     | Non-parametric, MH |
| Metals                  |         |            |            |               |   |       |        |                      |                    |        |                     |                    |
| Antimony                | mg/kg   | 7.52       | 13.5       | 236           |   | mg/kg | 29.9   | 97.5% Chebyshev      | Non-parametric, MH | 29.9   | 97.5% Chebyshev     | Non-parametric, MH |
| -                       |         |            |            |               |   |       |        | 95% Approximate      | Approximate Gamma, |        | 95% Approximate     | Approximate Gamma, |
| Arsenic                 | mg/kg   | 5.45       | 5.73       | 11.6          |   | mg/kg | 5.73   | Gamma                | Lognormal          | 5.73   | Gamma               | Lognormal          |
| Copper                  | mg/kg   | 408        | 694        | 9,750         |   | mg/kg | 1,477  | 97.5% Chebyshev      | Non-parametric, MH | 1,477  | 97.5% Chebyshev     | Non-parametric, MH |
|                         |         |            |            |               |   |       | •      | Mod-t UCL (Adjusted  |                    | •      | Mod-t UCL (Adjusted |                    |
| Iron                    | mg/kg   | 25,557     | 27,489     | 54,100        |   | mg/kg | 27,507 | for skewness)        | Non-parametric, M  | 27,507 | for skewness)       | Non-parametric, M  |
| Lead                    | mg/kg   | 550        | 1,033      | 18,900        |   | mg/kg | 550    | Mean                 | See Note           | 550    | Mean                | See Note           |

#### Notes

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version 32 bit Version (USEPA, 2002)
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set
  - $MO-moderately\ skewed\ (standard\ deviation\ of\ log-transformed\ data\ in\ the\ interval\ (0.5,1]\ data\ set$
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set

Q - qualifier

# Table 6-4B SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-121C SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

| Chemical                | Units   | Arithmetic | 95% UCL of | Maximum       | 0 | EPC   |        | Surface Soil (0-2 ft<br>Reasonable Maximum Ex |                    |        | Surface Soil (0-2 ft<br>Central Tendency | <i>U</i> ,         |
|-------------------------|---------|------------|------------|---------------|---|-------|--------|---|--------------------|--------|--|--------------------|
| of                      |         | Mean       | Normal     | Detected      |   | Units |        |   |                    |        |  |                    |
| Potential               |         | (1)        | Data       | Concentration |   |       | Medium | Medium  | Medium             | Medium | Medium                                   | Medium             |
| Concern                 |         |            |            | (1)           |   |       | EPC    | EPC   | EPC                | EPC    | EPC                                      | EPC                |
|                         |         |            |            | ` ,           |   |       | Value  | Statistic                                     | Rationale          | Value  | Statistic                                | Rationale          |
| Semivolatile Organic Co | mpounds |            |            |               |   |       |        |   |                    |        |  |                    |
| Benzo(a)anthracene      | mg/kg   | 0.64       | 1.1        | 10            | J | mg/kg | 3.1    | 99% Chebyshev                                 | Non-parametric, MH | 3.1    | 99% Chebyshev                            | Non-parametric, MH |
| Benzo(a)pyrene          | mg/kg   | 0.78       | 1.2        | 8.7           | J | mg/kg | 3.4    | 99% Chebyshev                                 | Non-parametric, MH | 3.4    | 99% Chebyshev                            | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg   | 1.0        | 1.6        | 12            | J | mg/kg | 4.5    | 99% Chebyshev                                 | Non-parametric, MH | 4.5    | 99% Chebyshev                            | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg   | 0.57       | 0.88       | 7.5           | J | mg/kg | 2.4    | 99% Chebyshev                                 | Non-parametric, MH | 2.4    | 99% Chebyshev                            | Non-parametric, MH |
| Chrysene                | mg/kg   | 0.64       | 1.0        | 9.1           | J | mg/kg | 2.9    | 99% Chebyshev                                 | Non-parametric, MH | 2.9    | 99% Chebyshev                            | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg   | 0.17       | 0.19       | 0.47          | J | mg/kg | 0.22   | 95% Chebyshev                                 | Non-parametric, MO | 0.22   | 95% Chebyshev                            | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg   | 0.22       | 0.28       | 0.97          | J | mg/kg | 0.36   | 95% Chebyshev                                 | Non-parametric, MO | 0.36   | 95% Chebyshev                            | Non-parametric, MO |
| Pesticides/PCBs         |         |            |            |               |   |       |        |   |                    |        |  |                    |
| Dieldrin                | mg/kg   | 0.0026     | 0.0045     | 0.041         | J | mg/kg | 0.014  | 99% Chebyshev                                 | Non-parametric, MH | 0.014  | 99% Chebyshev                            | Non-parametric, MH |
| Aroclor-1242            | mg/kg   | 0.010      | 0.012      | 0.058         | J | mg/kg | 0.016  | 95% Chebyshev                                 | Non-parametric, MO | 0.016  | 95% Chebyshev                            | Non-parametric, MO |
| Aroclor-1254            | mg/kg   | 0.055      | 0.093      | 0.93          |   | mg/kg | 0.28   | 99% Chebyshev                                 | Non-parametric, MH | 0.28   | 99% Chebyshev                            | Non-parametric, MH |
| Aroclor-1260            | mg/kg   | 0.012      | 0.015      | 0.085         | J | mg/kg | 0.030  | 99% Chebyshev                                 | Non-parametric, MH | 0.030  | 99% Chebyshev                            | Non-parametric, MH |
| Metals                  |         |            |            |               |   |       |        |   |                    |        |  |                    |
| Antimony                | mg/kg   | 10.2       | 18.7       | 236           |   | mg/kg | 60.4   | 99% Chebyshev                                 | Non-parametric, MH | 60.4   | 99% Chebyshev                            | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | 95% Approximate                               | Approximate Gamma, |        | 95% Approximate                          | Approximate Gamma, |
| Arsenic                 | mg/kg   | 5.46       | 5.81       | 11.6          |   | mg/kg | 5.79   | Gamma   | Lognormal          | 5.79   | Gamma                                    | Lognormal          |
| Copper                  | mg/kg   | 515        | 912        | 9,750         |   | mg/kg | 2,868  | 99% Chebyshev                                 | Non-parametric, MH | 2,868  | 99% Chebyshev                            | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | Mod-t UCL (Adjusted                           |                    |        | Mod-t UCL (Adjusted                      |                    |
| Iron                    | mg/kg   | 24,518     | 26,875     | 51,700        |   | mg/kg | 26,903 | for skewness)                                 | Non-parametric, M  | 26,903 | for skewness)                            | Non-parametric, M  |
| Lead                    | mg/kg   | 735        | 1,417      | 18,900        |   | mg/kg | 735    | Mean  | See Note           | 735    | Mean                                     | See Note           |

#### Notes:

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version 32 bit Version (USEPA, 2002).

HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.

MH - moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.

M - mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

### Table 6-4C SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-121C SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

|                         |         |            |            |               |   |       |        | Ditch Soil           |                    |        | Ditch Soil       |                    |
|-------------------------|---------|------------|------------|---------------|---|-------|--------|----------------------|--------------------|--------|------------------|--------------------|
| Chemical                | Units   | Arithmetic | 95% UCL of | Maximum       | Q | EPC   | I      | Reasonable Maximum E | xposure (2)        |        | Central Tendency | (2)                |
| of                      |         | Mean       | Normal     | Detected      |   | Units |        |                      |                    |        |                  |                    |
| Potential               |         | (1)        | Data       | Concentration |   |       | Medium | Medium               | Medium             | Medium | Medium           | Medium             |
| Concern                 |         |            |            | (1)           |   |       | EPC    | EPC                  | EPC                | EPC    | EPC              | EPC                |
|                         |         |            |            |               |   |       | Value  | Statistic            | Rationale          | Value  | Statistic        | Rationale          |
| Semivolatile Organic Co | mpounds |            |            |               |   |       |        |                      |                    |        |                  |                    |
| Benzo(a)anthracene      | mg/kg   | 0.49       | 0.68       | 1.1           | J | mg/kg | 0.68   | 95% Student's-t      | Normal             | 0.68   | 95% Student's-t  | Normal             |
| Benzo(a)pyrene          | mg/kg   | 0.47       | 0.63       | 0.9           | J | mg/kg | 0.63   | 95% Student's-t      | Normal             | 0.63   | 95% Student's-t  | Normal             |
| Benzo(b)fluoranthene    | mg/kg   | 0.49       | 0.67       | 1.1           | J | mg/kg | 0.67   | 95% Student's-t      | Normal             | 0.67   | 95% Student's-t  | Normal             |
| Benzo(k)fluoranthene    | mg/kg   | 0.44       | 0.58       | 0.58          | J | mg/kg | 0.58   | 95% Student's-t      | Normal             | 0.58   | 95% Student's-t  | Normal             |
| Chrysene                | mg/kg   | 0.50       | 0.70       | 1.2           | J | mg/kg | 0.70   | 95% Student's-t      | Normal             | 0.70   | 95% Student's-t  | Normal             |
|                         |         |            |            |               |   |       |        | 95% Approximate      | Approximate Gamma, |        | 95% Approximate  | Approximate Gamma, |
| Indeno(1,2,3-cd)pyrene  | mg/kg   | 0.41       | 0.55       | 0.27          | J | mg/kg | 0.58   | Gamma                | Lognormal          | 0.58   | Gamma            | Lognormal          |
| Metals                  |         |            |            |               |   |       |        |                      |                    |        |                  |                    |
| Arsenic                 | mg/kg   | 3.3        | 4.3        | 6.1           | J | mg/kg | 4.3    | 95% Student's-t      | Normal             | 4.3    | 95% Student's-t  | Normal             |
| Iron                    | mg/kg   | 18,305     | 21,728     | 27,300        | J | mg/kg | 21,728 | 95% Student's-t      | Normal             | 21,728 | 95% Student's-t  | Normal             |
| Lead                    | mg/kg   | 144        | 218        | 436           |   | mg/kg | 144    | Mean                 | See Note           | 144    | Mean             | See Note           |

#### Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version 32 bit Version (USEPA, 2002)
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set
  - MO moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

# Table 6-4D GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY - GROUNDWATER AT SEAD-121C SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

No COPCs were identified based on the screening process (refer to Table 6-1d).

# Table 6-4E EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-121C SEAD-121C

### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Surface water
Exposure Medium: Surface water
Exposure Point: SEAD-121C

| Chemical of | Units | Arithmetic<br>Mean | Maximum<br>Detected | Maximum<br>Qualifier | EPC<br>Units | Reasonable | e Maximum | Exposure  | Centr   | al Tendenc | y (2)     |
|-------------|-------|--------------------|---------------------|----------------------|--------------|------------|-----------|-----------|---------|------------|-----------|
| Potential   |       | (1)                | Concentration       |                      |              | Medium     | Medium    | Medium    | Medium  | Medium     | Medium    |
| Concern     |       |                    |                     |                      |              | EPC        | EPC       | EPC       | EPC     | EPC        | EPC       |
|             |       |                    |                     |                      |              | Value      | Statistic | Rationale | Value   | Statistic  | Rationale |
| Metals      |       |                    |                     |                      |              |            |           |           |         |            |           |
| Arsenic     | ug/L  | 6.3                | 50.3                |                      | ug/L         | 50.3       | MDC       | See note  | 50.3    | MDC        | See note  |
| Cadmium     | ug/L  | 2.7                | 19.5                |                      | ug/L         | 19.5       | MDC       | See note  | 19.5    | MDC        | See note  |
| Chromium    | ug/L  | 15.3               | 129                 |                      | ug/L         | 129        | MDC       | See note  | 129     | MDC        | See note  |
| Iron        | ug/L  | 13,136             | 110,000             |                      | ug/L         | 110,000    | MDC       | See note  | 110,000 | MDC        | See note  |
| Lead        | ug/L  | 116                | 839                 |                      | ug/L         | 839        | MDC       | See note  | 839     | MDC        | See note  |
| Manganese   | ug/L  | 394                | 2,380               |                      | ug/L         | 2,380      | MDC       | See note  | 2,380   | MDC        | See note  |
| Thallium    | ug/L  | 3.34               | 6.3                 |                      | ug/L         | 6.3        | MDC       | See note  | 6.3     | MDC        | See note  |
| Vanadium    | ug/L  | 25.4               | 233                 |                      | ug/L         | 233        | MDC       | See note  | 233     | MDC        | See note  |

#### Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Concentrations for non-detects were assumed to be half the detection limit.
- 2. The maximum detected concentration was used as EPC for the RME and CT scenarios. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

CT = Central Tendency

#### TABLE 6-5A SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-121I SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121I

|                         |            |            |            |               |   |       |         | Surface Soil         |                    |         | Surface Soil     |                    |
|-------------------------|------------|------------|------------|---------------|---|-------|---------|----------------------|--------------------|---------|------------------|--------------------|
| Chemical                | Arithmetic | Arithmetic | 95% UCL of | Maximum       | Q | EPC   | ]       | Reasonable Maximum E | xposure (2)        |         | Central Tendency | y (2)              |
| of                      | Mean       | Mean       | Normal     | Detected      |   | Units |         |                      |                    |         |                  |                    |
| Potential               | Units      | (1)        | Data       | Concentration |   |       | Medium  | Medium               | Medium             | Medium  | Medium           | Medium             |
| Concern                 |            |            |            | (1)           |   |       | EPC     | EPC                  | EPC                | EPC     | EPC              | EPC                |
|                         |            |            |            |               |   |       | Value   | Statistic            | Rationale          | Value   | Statistic        | Rationale          |
| Semivolatile Organic Co | mpounds    |            |            |               |   |       |         |                      |                    |         |                  |                    |
| Benzo(a)anthracene      | mg/kg      | 1.9        | 3.3        | 28            | J | mg/kg | 10      | 99% Chebyshev        | Non-parametric, MH | 10      | 99% Chebyshev    | Non-parametric, MH |
| Benzo(a)pyrene          | mg/kg      | 1.7        | 2.9        | 23            |   | mg/kg | 8.5     | 99% Chebyshev        | Non-parametric, MH | 8.5     | 99% Chebyshev    | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg      | 1.9        | 3.3        | 29            |   | mg/kg | 10      | 99% Chebyshev        | Non-parametric, MH | 10      | 99% Chebyshev    | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg      | 1.9        | 3.0        | 21            | J | mg/kg | 8.7     | 99% Chebyshev        | Non-parametric, MH | 8.7     | 99% Chebyshev    | Non-parametric, MH |
| Chrysene                | mg/kg      | 2.4        | 4.0        | 32            | J | mg/kg | 12      | 99% Chebyshev        | Non-parametric, MH | 12      | 99% Chebyshev    | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg      | 0.50       | 0.75       | 4.6           | J | mg/kg | 1.2     | 95% Chebyshev        | Non-parametric, MO | 1.2     | 95% Chebyshev    | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg      | 0.88       | 1.4        | 8.1           | J | mg/kg | 3.9     | 99% Chebyshev        | Non-parametric, MH | 3.9     | 99% Chebyshev    | Non-parametric, MH |
| Pesticides              |            |            |            |               |   |       |         |                      |                    |         |                  |                    |
| Dieldrin                | mg/kg      | 0.0023     | 0.0041     | 0.034         | J | mg/kg | 0.0068  | 95% Chebyshev        | Non-parametric, MO | 0.0068  | 95% Chebyshev    | Non-parametric, MO |
| Heptachlor epoxide      | mg/kg      | 0.0050     | 0.0081     | 0.055         | J | mg/kg | 0.023   | 99% Chebyshev        | Non-parametric, MH | 0.023   | 99% Chebyshev    | Non-parametric, MH |
| Metals                  |            |            |            |               |   |       |         |                      |                    |         |                  |                    |
| Arsenic                 | mg/kg      | 8.33       | 10.9       | 32.1          | J | mg/kg | 14.9    | 95% Chebyshev        | Non-parametric, MO | 14.9    | 95% Chebyshev    | Non-parametric, MO |
| Chromium                | mg/kg      | 29.3       | 50.0       | 439           |   | mg/kg | 82.7    | 95% Chebyshev        | Non-parametric, MO | 82.7    | 95% Chebyshev    | Non-parametric, MO |
|                         |            |            |            |               |   |       |         | 95% Approximate      | Approximate Gamma, |         | 95% Approximate  | Approximate Gamma, |
| Iron                    | mg/kg      | 18,569     | 21,554     | 58,400        |   | mg/kg | 21,627  | Gamma                | Lognormal          | 21,627  | Gamma            | Lognormal          |
| Manganese               | mg/kg      | 15,037     | 30,559     | 310,500       |   | mg/kg | 106,375 | 99% Chebyshev        | Non-parametric, MH | 106,375 | 99% Chebyshev    | Non-parametric, MH |
| Thallium                | mg/kg      | 6.51       | 14.5       | 163           | J | mg/kg | 53.4    | 99% Chebyshev        | Non-parametric, MH | 53.4    | 99% Chebyshev    | Non-parametric, MH |
| Vanadium                | mg/kg      | 20.6       | 29.1       | 182           | J | mg/kg | 42.7    | 95% Chebyshev        | Non-parametric, MO | 42.7    | 95% Chebyshev    | Non-parametric, MO |

#### Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.

  Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set
  - MO moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

#### TABLE 6-5B SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-121I SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121I

| ~ · · ·                 |            |        | 050/ 1101  |               |   | FDG   |        | Ditch Soil            | (2)                |        | Ditch Soil         | (2)                |
|-------------------------|------------|--------|------------|---------------|---|-------|--------|-----------------------|--------------------|--------|--------------------|--------------------|
| Chemical                | Arithmetic |        | 95% UCL of | Maximum       | Q | EPC   |        | Reasonable Maximum Ex | posure (2)         |        | Central Tendency   | (2)                |
| of<br>D                 | Mean       | Mean   | Normal     | Detected      |   | Units | 3.6 11 | 36.11                 | N 12               | M. F   | 3.6 11             | M 12               |
| Potential               | Units      | (1)    | Data       | Concentration |   |       | Medium | Medium                | Medium             | Medium | Medium             | Medium             |
| Concern                 |            |        |            | (1)           |   |       | EPC    | EPC                   | EPC                | EPC    | EPC                | EPC                |
|                         |            |        |            |               |   |       | Value  | Statistic             | Rationale          | Value  | Statistic          | Rationale          |
| Semivolatile Organic Co | mpounds    |        |            |               |   |       |        |                       |                    |        |                    |                    |
|                         |            |        |            |               |   |       |        | 95% Approximate       | Approximate Gamma, |        | 95% Approximate    | Approximate Gamma, |
| Benzo(a)anthracene      | mg/kg      | 2.5    | 4.6        | 14            |   | mg/kg | 5.9    | Gamma                 | Lognormal          | 5.9    | Gamma              | Lognormal          |
|                         |            |        |            |               |   |       |        | 95% Approximate       | Approximate Gamma, |        | 95% Approximate    | Approximate Gamma, |
| Benzo(a)pyrene          | mg/kg      | 2.7    | 5.1        | 16            |   | mg/kg | 6.2    | Gamma                 | Lognormal          | 6.2    | Gamma              | Lognormal          |
|                         |            |        |            |               |   |       |        |                       | Adjusted Gamma,    |        |                    | Adjusted Gamma,    |
| Benzo(b)fluoranthene    | mg/kg      | 3.8    | 7.0        | 22            |   | mg/kg | 11     | 95% Adjusted Gamma    | Lognormal          | 11     | 95% Adjusted Gamma | Lognormal          |
|                         |            |        |            |               |   |       |        |                       | Adjusted Gamma,    |        |                    | Adjusted Gamma,    |
| Benzo(k)fluoranthene    | mg/kg      | 3.0    | 6.3        | 23            |   | mg/kg | 8.9    | 95% Adjusted Gamma    | Lognormal          | 8.9    | 95% Adjusted Gamma | Lognormal          |
|                         |            |        |            |               |   |       |        | 95% Approximate       | Approximate Gamma, |        | 95% Approximate    | Approximate Gamma, |
| Chrysene                | mg/kg      | 3.6    | 7.2        | 25            |   | mg/kg | 8.6    | Gamma                 | Lognormal          | 8.6    | Gamma              | Lognormal          |
| Dibenz(a,h)anthracene   | mg/kg      | 0.62   | 1.3        | 5.0           | J | mg/kg | 2.4    | 95% Chebyshev         | Non-parametric, MO | 2.4    | 95% Chebyshev      | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg      | 1.3    | 3.1        | 12            | J | mg/kg | 11     | 99% Chebyshev         | Non-parametric, MH | 11.0   | 99% Chebyshev      | Non-parametric, MH |
| Metals                  |            |        |            |               |   |       |        |                       |                    |        |                    |                    |
| Arsenic                 | mg/kg      | 17.7   | 35.7       | 104           |   | mg/kg | 60.6   | 95% Chebyshev         | Non-parametric, MH | 60.6   | 95% Chebyshev      | Non-parametric, MH |
| Iron                    | mg/kg      | 17,415 | 21,110     | 30,400        |   | mg/kg | 21,110 | 95% Student's-t       | Normal             | 21,110 | 95% Student's-t    | Normal             |
| Manganese               | mg/kg      | 3,195  | 6,398      | 14,900        |   | mg/kg | 10,811 | 95% Chebyshev         | Non-parametric, MH | 10,811 | 95% Chebyshev      | Non-parametric, MH |
| Thallium                | mg/kg      | 2.36   | 6.26       | 21.5          |   | mg/kg | 11.6   | 95% Chebyshev         | Non-parametric,MH  | 11.6   | 95% Chebyshev      | Non-parametric,MH  |

#### Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.
  - MO moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

# TABLE 6-5C SURFACE WATER EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-121I SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Lead is the only COPC identified based on the screening. Risks associated with dermal exposure to lead were not quantitatively assessed in this risk assessment.

Therefore, a quantitative evaluation was not conducted for surface water exposure.

#### TABLE 6-6A

# ${\bf AMBIENT~AIR~EXPOSURE~POINT~CONCENTRATIONS~FOR~INDUSTRIAL~WORKER~AND~ADOLESCENT~TRESPASSER~SURFACE~SOIL~AT~SEAD-121C~SEAD-$

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-121C

Equation for Air EPC from Surface Soil (mg/m³) =

CSsurf x PM10 x CF

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                  | Reasonable M                 | aximum Exposure                    | Central Tend                 | ency Exposure                      |  |
|----------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------------|--|
| Chemical of<br>Potential Concern | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil |  |
|                                  | (mg/kg)                      | (mg/m³)                            | (mg/kg)                      | (mg/m³)                            |  |
| Semivolatile Organic Compounds   |                              |                                    |                              |                                    |  |
| Benzo(a)anthracene               | 3.1                          | 5.2E-08                            | 3.1                          | 5.2E-08                            |  |
| Benzo(a)pyrene                   | 3.4                          | 5.8E-08                            | 3.4                          | 5.8E-08                            |  |
| Benzo(b)fluoranthene             | 4.5                          | 7.7E-08                            | 4.5                          | 7.7E-08                            |  |
| Benzo(k)fluoranthene             | 2.4                          | 4.1E-08                            | 2.4                          | 4.1E-08                            |  |
| Chrysene                         | 2.9                          | 5.0E-08                            | 2.9                          | 5.0E-08                            |  |
| Dibenz(a,h)anthracene            | 0.22                         | 3.8E-09                            | 0.22                         | 3.8E-09                            |  |
| Indeno(1,2,3-cd)pyrene           | 0.36                         | 6.1E-09                            | 0.36                         | 6.1E-09                            |  |
| Pesticides/PCBs                  |                              |                                    |                              |                                    |  |
| Dieldrin                         | 0.014                        | 2.4E-10                            | 0.014                        | 2.4E-10                            |  |
| Aroclor-1242                     | 0.016                        | 2.7E-10                            | 0.016                        | 2.7E-10                            |  |
| Aroclor-1254                     | 0.28                         | 4.8E-09                            | 0.28                         | 4.8E-09                            |  |
| Aroclor-1260                     | 0.030                        | 5.1E-10                            | 0.030                        | 5.1E-10                            |  |
| Metals                           |                              |                                    |                              |                                    |  |
| Antimony                         | 60.4                         | 1.0E-06                            | 60.4                         | 1.0E-06                            |  |
| Arsenic                          | 5.79                         | 9.9E-08                            | 5.79                         | 9.9E-08                            |  |
| Copper                           | 2,868                        | 4.9E-05                            | 2,868                        | 4.9E-05                            |  |
| Iron                             | 26,903                       | 4.6E-04                            | 26,903                       | 4.6E-04                            |  |

#### TABLE 6-6B

# $\textbf{AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - SURFACE SOIL AT SEAD-121I \\ \textbf{SEAD-121I}$

### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-121I

Equation for Air EPC from Surface Soil (mg/m³) =

CSsurf x PM10 x CF

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                  |                              | aximum Exposure                    | Central Tend                 | ency Exposure                      |
|----------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------------|
| Chemical of<br>Potential Concern | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil |
|                                  | (mg/kg)                      | (mg/m³)                            | (mg/kg)                      | (mg/m³)                            |
| Semivolatile Organic Compounds   |                              |                                    |                              |                                    |
| Benzo(a)anthracene               | 10                           | 1.7E-07                            | 10                           | 1.7E-07                            |
| Benzo(a)pyrene                   | 8.5                          | 1.4E-07                            | 8.5                          | 1.4E-07                            |
| Benzo(b)fluoranthene             | 10                           | 1.7E-07                            | 10                           | 1.7E-07                            |
| Benzo(k)fluoranthene             | 8.7                          | 1.5E-07                            | 8.7                          | 1.5E-07                            |
| Chrysene                         | 12                           | 2.0E-07                            | 12                           | 2.0E-07                            |
| Dibenz(a,h)anthracene            | 1.2                          | 2.0E-08                            | 1.2                          | 2.0E-08                            |
| Indeno(1,2,3-cd)pyrene           | 3.9                          | 6.6E-08                            | 3.9                          | 6.6E-08                            |
| Pesticides                       |                              |                                    |                              |                                    |
| Dieldrin                         | 0.0068                       | 1.2E-10                            | 0.0068                       | 1.2E-10                            |
| Heptachlor epoxide               | 0.023                        | 4.0E-10                            | 0.023                        | 4.0E-10                            |
| Metals                           |                              |                                    |                              |                                    |
| Arsenic                          | 14.9                         | 2.5E-07                            | 14.9                         | 2.5E-07                            |
| Chromium                         | 83                           | 1.4E-06                            | 83                           | 1.4E-06                            |
| Iron                             | 21627.1                      | 3.7E-04                            | 21627.1                      | 3.7E-04                            |
| Manganese                        | 106,375                      | 1.8E-03                            | 106,375                      | 1.8E-03                            |
| Thallium                         | 53.4                         | 9.1E-07                            | 53.4                         | 9.1E-07                            |
| Vanadium                         | 42.7                         | 7.3E-07                            | 42.7                         | 7.3E-07                            |

## TABLE 6-6C

# AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - SURFACE SOIL AT SEAD-121I SEAD-121I

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe:Current/FutureMedium:SoilExposure Medium:AirExposure Point:SEAD-121I

Equation for Air EPC from Surface Soil (mg/m³) =

CSsurf x PM10 x CF

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 110 ug/m<sup>3</sup>

|                                |                              | laximum Exposure                   | Central Tend                 | lency Exposure                     |
|--------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------------|
| Chemical of Potential Concern  | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil |
|                                | (mg/kg)                      | (mg/m³)                            | (mg/kg)                      | (mg/m³)                            |
| Semivolatile Organic Compounds |                              |                                    |                              |                                    |
| Benzo(a)anthracene             | 10                           | 1.1E-06                            | 10                           | 1.1E-06                            |
| Benzo(a)pyrene                 | 8.5                          | 9.4E-07                            | 8.5                          | 9.4E-07                            |
| Benzo(b)fluoranthene           | 10                           | 1.1E-06                            | 10                           | 1.1E-06                            |
| Benzo(k)fluoranthene           | 8.7                          | 9.6E-07                            | 8.7                          | 9.6E-07                            |
| Chrysene                       | 12                           | 1.3E-06                            | 12                           | 1.3E-06                            |
| Dibenz(a,h)anthracene          | 1.2                          | 1.3E-07                            | 1.2                          | 1.3E-07                            |
| Indeno(1,2,3-cd)pyrene         | 3.9                          | 4.3E-07                            | 3.9                          | 4.3E-07                            |
| Pesticides                     |                              |                                    |                              |                                    |
| Dieldrin                       | 0.0068                       | 7.5E-10                            | 0.0068                       | 7.5E-10                            |
| Heptachlor epoxide             | 0.023                        | 2.6E-09                            | 0.023                        | 2.6E-09                            |
| Metals                         |                              |                                    |                              |                                    |
| Arsenic                        | 14.9                         | 1.6E-06                            | 14.9                         | 1.6E-06                            |
| Chromium                       | 83                           | 9.1E-06                            | 83                           | 9.1E-06                            |
| Iron                           | 21627.1                      | 2.4E-03                            | 21627.1                      | 2.4E-03                            |
| Manganese                      | 106,375                      | 1.2E-02                            | 106,375                      | 1.2E-02                            |
| Thallium                       | 53.4                         | 5.9E-06                            | 53.4                         | 5.9E-06                            |
| Vanadium                       | 42.7                         | 4.7E-06                            | 42.7                         | 4.7E-06                            |

# TABLE 6-7 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - TOTAL SOIL AT SEAD-121C SEAD-121C

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-121C

Equation for Air EPC from Total Soil (mg/m³) =

CStotal x PM10 x CF

Variables:

CStotal = Chemical Concentration in Soil, from EPC data (mg/kg) PM10 = Average Measured PM10 Concentration = 954 ug/m<sup>3</sup>

|                                |              | aximum Exposure    | Central Tende | ency Exposure      |
|--------------------------------|--------------|--------------------|---------------|--------------------|
| Chemical of                    | EPC Data for | Calculated Air EPC | EPC Data for  | Calculated Air EPC |
| Potential Concern              | Total Soil   | Total Soil         | Total Soil    | Total Soil         |
| Fotential Concern              |              |                    |               |                    |
|                                | (mg/kg)      | (mg/m³)            | (mg/kg)       | (mg/m³)            |
| Volatile Organic Compounds     |              |                    |               |                    |
| Benzene                        | 0.19         | 1.9E-07            | 0.19          | 1.9E-07            |
| Semivolatile Organic Compounds |              |                    |               |                    |
| Benzo(a)anthracene             | 1.8          | 1.7E-06            | 1.8           | 1.7E-06            |
| Benzo(a)pyrene                 | 1.8          | 1.7E-06            | 1.8           | 1.7E-06            |
| Benzo(b)fluoranthene           | 2.4          | 2.3E-06            | 2.4           | 2.3E-06            |
| Benzo(k)fluoranthene           | 1.3          | 1.2E-06            | 1.3           | 1.2E-06            |
| Chrysene                       | 1.7          | 1.6E-06            | 1.7           | 1.6E-06            |
| Dibenz(a,h)anthracene          | 0.21         | 2.0E-07            | 0.21          | 2.0E-07            |
| Indeno(1,2,3-cd)pyrene         | 0.30         | 2.9E-07            | 0.30          | 2.9E-07            |
| Pesticides/PCBs                |              |                    |               |                    |
| Dieldrin                       | 0.0073       | 6.9E-09            | 0.0073        | 6.9E-09            |
| Aroclor-1242                   | 0.014        | 1.4E-08            | 0.014         | 1.4E-08            |
| Aroclor-1254                   | 0.14         | 1.4E-07            | 0.14          | 1.4E-07            |
| Aroclor-1260                   | 0.033        | 3.2E-08            | 0.033         | 3.2E-08            |
| Metals                         |              |                    |               |                    |
| Antimony                       | 29.9         | 2.9E-05            | 29.9          | 2.9E-05            |
| Arsenic                        | 5.73         | 5.5E-06            | 5.73          | 5.5E-06            |
| Copper                         | 1,477        | 1.4E-03            | 1,477         | 1.4E-03            |
| Iron                           | 27,507       | 2.6E-02            | 27,507        | 2.6E-02            |

#### TABLE 6-8A

# AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-121C SEAD-121C

### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-121C

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                   | Reasonable Max  | imum Exposure | Central Tende              | ncy Exposure                     |  |
|-----------------------------------|---|---------------|----------------------------|----------------------------------|--|
| Chemicals of<br>Potential Concern | EPC Data for Calculated Air EPC Ditch Soil Ditch Soil |               | EPC Data for<br>Ditch Soil | Calculated Air EPC<br>Ditch Soil |  |
|                                   | (mg/kg)   | $(mg/m^3)$    | (mg/kg)                    | $(mg/m^3)$                       |  |
| Semivolatile Organic Compounds    |   |               |                            |                                  |  |
| Benzo(a)anthracene                | 0.7   | 1.1E-08       | 0.7                        | 1.1E-08                          |  |
| Benzo(a)pyrene                    | 0.6   | 1.1E-08       | 0.6                        | 1.1E-08                          |  |
| Benzo(b)fluoranthene              | 0.7   | 1.1E-08       | 0.7                        | 1.1E-08                          |  |
| Benzo(k)fluoranthene              | 0.6   | 9.9E-09       | 0.6                        | 9.9E-09                          |  |
| Chrysene                          | 0.7   | 1.2E-08       | 0.7                        | 1.2E-08                          |  |
| Indeno(1,2,3-cd)pyrene            | 0.6   | 9.9E-09       | 0.6                        | 9.9E-09                          |  |
| Metals                            |   |               |                            |                                  |  |
| Arsenic                           | 4.3   | 7.2E-08       | 4.3                        | 7.2E-08                          |  |
| Iron                              | 21,728  | 3.7E-04       | 21,728                     | 3.7E-04                          |  |

#### TABLE 6-8B

# AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-121I SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-1211

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                | Reasonable Max | ximum Exposure     | Central Tende | ency Exposure      |
|--------------------------------|----------------|--------------------|---------------|--------------------|
| Chemical of                    | EPC Data for   | Calculated Air EPC | EPC Data for  | Calculated Air EPC |
| Potential Concern              | Ditch Soil     | Ditch Soil         | Ditch Soil    | Ditch Soil         |
| i dendai Concern               |                |                    |               |                    |
|                                | (mg/kg)        | (mg/m³)            | (mg/kg)       | (mg/m³)            |
| Semivolatile Organic Compounds |                |                    |               |                    |
| Benzo(a)anthracene             | 5.9            | 1.0E-07            | 5.9           | 1.0E-07            |
| Benzo(a)pyrene                 | 6.2            | 1.1E-07            | 6.2           | 1.1E-07            |
| Benzo(b)fluoranthene           | 11             | 1.9E-07            | 11            | 1.9E-07            |
| Benzo(k)fluoranthene           | 8.9            | 1.5E-07            | 8.9           | 1.5E-07            |
| Chrysene                       | 8.6            | 1.5E-07            | 8.6           | 1.5E-07            |
| Dibenz(a,h)anthracene          | 2.4            | 4.0E-08            | 2.4           | 4.0E-08            |
| Indeno(1,2,3-cd)pyrene         | 11.0           | 1.9E-07            | 11.0          | 1.9E-07            |
| Metals                         |                |                    |               |                    |
| Arsenic                        | 60.6           | 1.0E-06            | 60.6          | 1.0E-06            |
| Iron                           | 21,110         | 3.6E-04            | 21,110        | 3.6E-04            |
| Manganese                      | 10,811         | 1.8E-04            | 10,811        | 1.8E-04            |
| Thallium                       | 11.6           | 2.0E-07            | 11.6          | 2.0E-07            |

# TABLE 6-8C AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOIL AT SEAD-121C

#### SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

 Scenario Timeframe:
 Current/Future

 Medium:
 Soil

 Exposure Medium:
 Air

 Exposure Point:
 SEAD-121C

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

Csditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 110 ug/m<sup>3</sup>

|                                   | Reasonable Max             | ximum Exposure                   | Central Tende              | ncy Exposure                     |
|-----------------------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| Chemicals of<br>Potential Concern | EPC Data for<br>Ditch Soil | Calculated Air EPC<br>Ditch Soil | EPC Data for<br>Ditch Soil | Calculated Air EPC<br>Ditch Soil |
|                                   | (mg/kg)                    | $(mg/m^3)$                       | (mg/kg)                    | $(mg/m^3)$                       |
| Semivolatile Organic Compounds    |                            |                                  |                            |                                  |
| Benzo(a)anthracene                | 0.7                        | 7.4E-08                          | 0.7                        | 7.4E-08                          |
| Benzo(a)pyrene                    | 0.6                        | 6.9E-08                          | 0.6                        | 6.9E-08                          |
| Benzo(b)fluoranthene              | 0.7                        | 7.4E-08                          | 0.7                        | 7.4E-08                          |
| Benzo(k)fluoranthene              | 0.6                        | 6.4E-08                          | 0.6                        | 6.4E-08                          |
| Chrysene                          | 0.7                        | 7.7E-08                          | 0.7                        | 7.7E-08                          |
| Indeno(1,2,3-cd)pyrene            | 0.6                        | 6.4E-08                          | 0.6                        | 6.4E-08                          |
| Metals                            |                            |                                  |                            |                                  |
| Arsenic                           | 4.3                        | 4.7E-07                          | 4.3                        | 4.7E-07                          |
| Iron                              | 21,728                     | 2.4E-03                          | 21,728                     | 2.4E-03                          |

# TABLE 6-8D AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOIL AT SEAD-121I SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Scenario Timeframe:Current/FutureMedium:SoilExposure Medium:AirExposure Point:SEAD-121I

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 110 ug/m<sup>3</sup>

|                                | Reasonable Max | ximum Exposure     | Central Tende | ency Exposure      |
|--------------------------------|----------------|--------------------|---------------|--------------------|
| Chemical of                    | EPC Data for   | Calculated Air EPC | EPC Data for  | Calculated Air EPC |
| Potential Concern              | Ditch Soil     | Ditch Soil         | Ditch Soil    | Ditch Soil         |
| Fotential Concern              |                |                    |               |                    |
|                                | (mg/kg)        | (mg/m³)            | (mg/kg)       | (mg/m³)            |
| Semivolatile Organic Compounds |                |                    |               |                    |
| Benzo(a)anthracene             | 5.9            | 6.5E-07            | 5.9           | 6.5E-07            |
| Benzo(a)pyrene                 | 6.2            | 6.9E-07            | 6.2           | 6.9E-07            |
| Benzo(b)fluoranthene           | 11             | 1.2E-06            | 11            | 1.2E-06            |
| Benzo(k)fluoranthene           | 8.9            | 9.8E-07            | 8.9           | 9.8E-07            |
| Chrysene                       | 8.6            | 9.5E-07            | 8.6           | 9.5E-07            |
| Dibenz(a,h)anthracene          | 2.4            | 2.6E-07            | 2.4           | 2.6E-07            |
| Indeno(1,2,3-cd)pyrene         | 11.0           | 1.2E-06            | 11.0          | 1.2E-06            |
| Metals                         |                |                    |               |                    |
| Arsenic                        | 60.6           | 6.7E-06            | 60.6          | 6.7E-06            |
| Iron                           | 21,110         | 2.3E-03            | 21,110        | 2.3E-03            |
| Manganese                      | 10,811         | 1.2E-03            | 10,811        | 1.2E-03            |
| Thallium                       | 11.6           | 1.3E-06            | 11.6          | 1.3E-06            |

# EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe: Current/Future Medium: Soil Exposure Medium: Soil Exposure Point: SEAD-121C and SEAD-121I Receptor Population: Construction Worker Receptor Age: Adult

| EXPOSURE ROUTE    | PARAMETER<br>CODE | PARAMETER DEFINITION       | UNITS                     | RME<br>VALUE | RME RATIONALE                                    | RME REFERENCE        | CT<br>VALUE | CT RATIONALE                                     | CT REFERENCE         |
|-------------------|-------------------|----------------------------|---------------------------|--------------|--|----------------------|-------------|--|----------------------|
| Ingestion of Soil | EPC               | Soil EPC                   | mg/kg                     |              | Surface and subsurface soils.                    | See Table 6-4A/B/C & |             | Surface and subsurface soils.                    | See Table 6-4A/B/C & |
|                   |                   |                            |                           |              |  | 6-5A/B               |             |  | 6-5A/B               |
|                   | BW                | Body Weight                | kg                        | 70           | Default value for construction worker.           | USEPA, 2002.         | 70          | Default value for construction worker.           | USEPA, 2002.         |
|                   | IR                | Ingestion Rate             | mg/day                    | 330          | Default value for construction worker.           | USEPA, 2002.         | 100         | Default value for outdoor worker.                | USEPA, 2002.         |
|                   | FI                | Fraction Ingested          | unitless                  | 1            | Assuming 100% ingestion from site.               | BPJ.                 | 1           | Assuming 100% ingestion from site.               | BPJ.                 |
|                   | EF                | Exposure Frequency         | days/yr                   | 250          | Default value for construction worker.           | USEPA, 2002.         | 219         | Default value for industrial worker.             | USEPA, 2004.         |
|                   | ED                | Exposure Duration          | year                      | 1            | Default value for construction worker.           | USEPA, 2002.         | 1           | Default value for construction worker.           | USEPA, 2002.         |
|                   | CF                | Conversion Factor          | kg/mg                     | 1.E-06       |  |                      | 1.E-06      |  |                      |
|                   | AT(Nc)            | Averaging Time - Nc        | days                      | 365          | 1 year.  |                      | 365         | 1 year.  |                      |
|                   | AT(Car)           | Averaging Time - Car       | days                      | 25,550       | 70 years, default value for construction         | USEPA, 2002.         | 25,550      | 70 years, default value for construction         | USEPA, 2002.         |
|                   |                   |                            |                           |              | worker.  |                      |             | worker.  |                      |
| Dermal Contact    | EPC               | Soil EPC                   | mg/kg                     |              | Surface and subsurface soils.                    | See Table 6-4A/B/C & |             | Surface and subsurface soils.                    | See Table 6-4A/B/C & |
| of Soil           |                   |                            |                           |              |  | 6-5A/B               |             |  | 6-5A/B               |
|                   | BW                | Body Weight                | kg                        | 70           | Default value for construction worker.           | USEPA, 2002.         | 70          | Default value for construction worker.           | USEPA, 2002.         |
|                   | SA                | Skin Contact Surface Area  | cm <sup>2</sup>           | 3,300        | Default value for construction worker.           | USEPA, 2002.         | 3,300       | Default value for construction worker.           | USEPA, 2002.         |
|                   | AF                | Soil/Skin Adherence Factor | mg/cm <sup>2</sup> -event | 0.3          | Default value for construction worker.           | USEPA, 2002.         | 0.3         | Default value for construction worker.           | USEPA, 2002.         |
|                   | ABS               | Dermal Absorption Fraction | unitless                  |              | Chemical-specific.                               | USEPA, 2004.         |             | Chemical-specific.                               | USEPA, 2004.         |
|                   | EV                | Event Frequency            | events/day                | 1            | Default value for construction worker.           | USEPA, 2002.         | 1           | Default value for construction worker.           | USEPA, 2002.         |
|                   | EF                | Exposure Frequency         | days/yr                   | 250          | Default value for construction worker.           | USEPA, 2002.         | 219         | Default value for industrial worker.             | USEPA, 2004.         |
|                   | ED                | Exposure Duration          | year                      | 1            | Default value for construction worker.           | USEPA, 2002.         | 1           | Default value for construction worker.           | USEPA, 2002.         |
|                   | CF                | Conversion Factor          | kg/mg                     | 1.E-06       |  |                      | 1.E-06      |  |                      |
|                   | AT(Nc)            | Averaging Time - Nc        | days                      | 365          | 1 year.  |                      | 365         | 1 year.  |                      |
|                   | AT(Car)           | Averaging Time - Car       | days                      | 25,550       | 70 years, default value for construction worker. | USEPA, 2002.         | 25,550      | 70 years, default value for construction worker. | USEPA, 2002.         |

Source References:

RME = Reasonable Maximum Exposure

CT = Central Tendency Exposure

· BPJ: Best Professional Judgment.

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

#### Intake Equations:

Notes:

Ingestion Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT)  $DI (mg/kg-day) = EPC \times SA \times AF \times ABS \times EV \times EF \times ED \times CF/(BW \times AT)$ Dermal

# EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| Scenario Timeframe:  | Current/Future          |
|----------------------|-------------------------|
| Medium:              | Soil                    |
| Exposure Medium:     | Air                     |
| Exposure Point:      | SEAD-121C and SEAD-121I |
| Receptor Population: | Construction Worker     |
| Recentor Age:        | Adult                   |

| EXPOSURE<br>ROUTE | PARAMETER<br>CODE | PARAMETER DEFINITION | UNITS               | RME<br>VALUE | RME RATIONALE                            | RME REFERENCE           | CT<br>VALUE | CT RATIONALE                             | CT REFERENCE         |
|-------------------|-------------------|----------------------|---------------------|--------------|--|-------------------------|-------------|--|----------------------|
| Inhalation of     | EPC               | Air EPC              | mg/m <sup>3</sup>   |              | Surface and subsurface soils.            | See Table 6-6C, 6-7, 6- |             | Surface and subsurface soils.            | See Table 6-6C, 6-7, |
| Dust in Ambient   |                   |                      | ~                   |              |  | 8C/D                    |             |  | 6-8C/D               |
| Air               | BW                | Body Weight          | kg                  | 70           | Default value for construction worker.   | USEPA, 2002.            | 70          | Default value for construction worker.   | USEPA, 2002.         |
|                   | IR                | Inhalation Rate      | m <sup>3</sup> /day | 20           | Default value for construction worker.   | USEPA, 2002.            | 20          | Default value for construction worker.   | USEPA, 2002.         |
|                   | EF                | Evnogura Eraguanav   | days/yr             | 250          | Default value for construction worker.   | USEPA, 2002.            | 219         | Default value for industrial worker.     | USEPA, 2004.         |
|                   | ED                | Evacure Duration     | year                | 1            | Default value for construction worker.   | USEPA, 2002.            | 1           | Default value for construction worker.   | USEPA, 2002.         |
|                   | AT(Nc)            |                      | days                | 365          | 1 year.                                  |                         | 365         | 1 year.                                  |                      |
|                   | AT(Car)           |                      | days                | 25,550       | 70 years, default value for construction | USEPA, 2002.            | 25,550      | 70 years, default value for construction | USEPA, 2002.         |
|                   |                   |                      | <u> </u>            |              | worker.                                  |                         |             | worker.                                  |                      |

Source References:

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:

RME = Reasonable Maximum Exposure CT = Central Tendency Exposure

Intake Equation:

Inhalation Daily Intake (DI)  $(mg/kg-day) = EPC \times IR \times EF \times ED / (BW \times AT)$ 

#### EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

#### SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: SEAD-121C and SEAD-121I
Receptor Population: Construction Worker
Receptor Age: Adult

| EXPOSURE<br>ROUTE | PARAMETER<br>CODE  | PARAMETER DEFINITION      | UNITS           | RME<br>VALUE | RME RATIONALE   | RME REFERENCE      | CT<br>VALUE | CT RATIONALE  | CT REFERENCE                       |
|-------------------|--------------------|---------------------------|-----------------|--------------|---|--------------------|-------------|---|------------------------------------|
| Intake of         | EPC                | Groundwater EPC           | mg/L            |              | See Table 6-4D  | See Table 6-4D     | -           | See Table 6-4D  | See Table 6-4D                     |
| Groundwater       | BW                 | Body Weight               | kg              | 70           | Default value for construction worker.                              | USEPA, 2002.       | 70          | Default value for construction worker.                                      | USEPA, 2002.                       |
|                   | IR                 | Intake Rate               | L/day           | 1            | Default intake rate for commercial/industrial worker.               | USEPA, 1991.       | 0.7         | Average adult tap water intake is 1.41 L/day, assuming half occurs at work. | USEPA, 1997 & BPJ.<br>USEPA, 2004. |
|                   | EF                 |                           | days/yr         | 250          | Default value for construction worker.                              | USEPA, 2002.       | 219         | Default value for industrial worker.  | USEPA, 2002.                       |
|                   | ED                 | Exposure Duration         | year            |              | Default value for construction worker.                              | USEPA, 2002.       | 1           | Default value for construction worker.                                      |                                    |
|                   | AT(Nc)             |                           | days            | 365          | 1 year.   |                    | 365         |   | USEPA, 2002.                       |
|                   | AT(Car)            | Averaging Time - Car      | days            | 25,550       | 70 years, default value for construction worker.                    | USEPA, 2002.       | 25,550      | 70 years, default value for construction worker.                            |                                    |
|                   |                    |                           |                 |              |   |                    |             |   |                                    |
| Dermal Contact    | EPC                | Groundwater EPC           | mg/L            |              | See Table 6-4D  | See Table 6-4D     |             | See Table 6-4D  | See Table 6-4D                     |
| of Groundwater    | BW                 | Body Weight               | kg              | 70           | Default value for construction worker.                              | USEPA, 2002.       | 70          | Default value for construction worker.                                      | USEPA, 2002.                       |
|                   | SA                 | Skin Surface Area         | cm <sup>2</sup> | 2490         | Maximum surface area for adult male (including hands and forearms). | USEPA, 1997        | 1980        | Average surface area for adult male (including hands and forearms).         | USEPA, 1997.                       |
|                   | ED                 | Exposure Duration         | vears           | 1            | Default value for construction worker.                              | USEPA, 2002, 2004. | 1           |   | USEPA, 2004.                       |
|                   | EF                 | *                         |                 | 100          | Assumes contact with groundwater 2                                  | BPJ.               | 100         | Assumes contact with groundwater 2  | USEPA, 2004.                       |
|                   | EV                 | Event Frequency           | events/day      | 1            | workdays each week for 50 weeks. Assumption.                        | BPJ.               | 1           | workdays each week for 50 weeks. Assumption.                                | BPJ.                               |
|                   | t <sub>event</sub> | Event duration (hr/event) |                 | 0.5          |   | ВРЈ.               | 0.5         |   | ВРЈ.                               |
|                   | AT(Nc)             | Averaging Time - Nc       | days            | 365          | 1 year  | USEPA, 2002.       | 365         | 1 year  |                                    |
|                   | AT(Car)            |                           | days            | 25,550       | 70 years, default value for construction worker.                    |                    | 25,550      | 70 years, default value for construction worker.                            | USEPA, 2002.                       |

Notes:

RME = Reasonable Maximum Exposure

CT = Central Tendency Exposure

Source References:

· BPJ: Best Professional Judgment.

· USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED/(BW x AT)

Dermal  $DI (mg/kg-day) = DA_{event} x EV x EF x ED x SA/(BW x AT)$   $Where: DA_{event} = Absorbed \ dose \ per \ event \ (mg/cm^2-event)$ 

For organic compounds: If  $t_{event}$  <=  $t^*$ , then:  $DA_{event}$  = 2 FA x  $K_p$  x EPC (  $(6 \tau_{event} x t_{event}) / \pi$  )  $^{1/2}$ 

If  $t_{event} > t^*$ , then:  $DA_{event} = FA \times K_p \times EPC \left[ \left( t_{event} / 1 + B \right) + 2 \tau_{event} \left( \left( 1 + 3 B + 3 B^2 \right) / \left( 1 + B \right)^2 \right) \right]$ 

Where: t\* = Time to reach steady - state (hr)

 $\tau_{event}\!=Lag\ Time\ per\ event\ (hr\ /\ event)$ 

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative

to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

For inorganic compounds: DAevent = Kp x EPC x tevent

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

#### SEAD-121C and SEAD-121I Remedial Investigation

#### Seneca Army Depot Activity

| Scenario Timeframe:  | Current/Future          |
|----------------------|-------------------------|
| Medium:              | Surface Water           |
| Exposure Medium:     | Surface Water           |
| Exposure Point:      | SEAD-121C and SEAD-121I |
| Receptor Population: | Construction Worker     |
| Receptor Age:        | Adult                   |

| EXPOSURE<br>ROUTE | PARAMETER<br>CODE  | PARAMETER DEFINITION | UNITS           | RME<br>VALUE | RME RATIONALE                            | RME REFERENCE         | CT<br>VALUE | CT RATIONALE                             | CT REFERENCE          |
|-------------------|--------------------|----------------------|-----------------|--------------|--|-----------------------|-------------|--|-----------------------|
| Dermal Contact    | EPC                | Surface Water EPC    | mg/L            | 1 Y          | See Table 6-4E & 6-5C                    | See Table 6-4E & 6-5C | 1           | See Table 6-4E & 6-5C                    | See Table 6-4E & 6-5C |
| of Surface        | BW                 | Body Weight          | kg              | 70           | Default value for construction worker.   | USEPA, 2002.          | 70          | Default value for construction worker.   | USEPA, 2002.          |
| Water             | SA                 | Skin Surface Area    | cm <sup>2</sup> | 2490         | Maximum surface area for adult male      | USEPA, 1997           | 1980        | Average surface area for adult male      | USEPA, 1997.          |
|                   |                    |                      |                 |              | (including hands and forearms).          |                       |             | (including hands and forearms).          |                       |
|                   | ED                 | Exposure Duration    | vears           | 1            | Default value for construction worker.   | USEPA, 2002, 2004.    | 1           | Default value for industrial worker.     | USEPA, 2004.          |
|                   | EF                 | Exposure Frequency   | days/yr         | 100          | Assumes contact with surface water 2     | BPJ.                  | 100         | Assumes contact with surface water 2     | USEPA, 2004.          |
|                   |                    |                      | ,,              |              | workdays each week for 50 weeks.         |                       |             | workdays each week for 50 weeks.         |                       |
|                   | EV                 | Event Frequency      | events/day      | 1            | Assumption.                              | BPJ.                  | 1           | Assumption.                              | BPJ.                  |
|                   | t <sub>event</sub> | E (D ( d / o)        |                 | 0.5          | Assumes half hour to assemble or         | BPJ.                  | 0.5         | Assumes half hour to assemble or         | BPJ.                  |
|                   |                    |                      |                 |              | disassemble a pumping system.            |                       |             | disassemble a pumping system.            |                       |
|                   | AT(Nc)             | Averaging Time - Nc  | days            | 365          | 1 year                                   |                       | 365         | 1 year                                   |                       |
|                   |                    |                      | days            | 25,550       | 70 years, default value for construction | USEPA, 2002.          | 25,550      | 70 years, default value for construction | USEPA, 2002.          |
|                   | , ,                |                      | •               |              | worker.                                  |                       |             | worker.                                  |                       |

Notes:

RME = Reasonable Maximum Exposure CT = Central Tendency Exposure Source References:

BPJ: Best Professional Judgment.
 USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Dermal DI  $(mg/kg-day) = DA_{event} \times EV \times EF \times ED \times SA/(BW \times AT)$ 

Where: DA<sub>event</sub> = Absorbed dose per event (mg/cm<sup>2</sup>-event)

For organic compounds: If  $t_{event}$  <=  $t^*$ , then:  $DA_{event}$  = 2 FA x  $K_p$  x EPC (  $(6 \tau_{event} x t_{event}) / \pi$  )  $^{1/2}$ 

If  $t_{event} > t^*$ , then:  $DA_{event} = FA \ x \ K_p \ x \ EPC \ [ \ (t_{event} / \ 1 + B) + 2 \ \tau_{event} \ ( \ (1 + 3 \ B + 3 \ B^2) / \ (1 + B)^2 \ ) \ ]$ 

Where:  $t^* = \text{Time to reach steady - state (hr)}$ 

 $\tau_{event} = Lag \text{ Time per event (hr / event)}$ 

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative

to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

For inorganic compounds: DAevent = Kp x EPC x tevent

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

## SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Soil

Exposure Point: SEAD-121C and SEAD-121I

Receptor Population: Industrial Worker

Receptor Age: Adult

| EXPOSURE ROUTE  | PARAMETER<br>CODE | PARAMETER DEFINITION       | UNITS        | RME<br>VALUE | RME RATIONALE                                  | RME REFERENCE         | CT<br>VALUE | CT RATIONALE                                   | CT REFERENCE          |
|-----------------|-------------------|----------------------------|--------------|--------------|--|-----------------------|-------------|--|-----------------------|
| Ingestion of    | EPC               | Soil EPC                   | mg/kg        |              | Surface soils.                                 | See Table 6-4B & 6-5A |             | Surface soils.                                 | See Table 6-4B & 6-5A |
| Soil            | BW                | Body Weight                | kg           | 70           | Default value for industrial worker.           | USEPA, 2002.          | 70          | Default value for industrial worker.           | USEPA, 2002.          |
|                 | IR                | Ingestion Rate             | mg/day       | 100          | Default value for outdoor worker.              | USEPA, 2002.          | 50          | Mean adult soil ingestion rate.                | USEPA, 1997.          |
|                 | FI                | Fraction Ingested          | unitless     | 1            | Assumng 100% ingestion from site.              | BPJ.                  | 1           | Assuming 100% ingestion from site.             | ВРЈ.                  |
|                 | EF                | Exposure Frequency         | days/yr      | 250          | Default value for industrial worker.           | USEPA, 2002, 2004.    | 219         | Default value for industrial worker.           | USEPA, 2004.          |
|                 | ED                | Exposure Duration          | year         | 25           | Default value for industrial worker.           | USEPA, 2002, 2004.    | 9           | Default value for industrial worker.           | USEPA, 2004.          |
|                 | CF                | Conversion Factor          | kg/mg        | 1E-6         |  |                       | 1E-6        |  |                       |
|                 | AT(Nc)            | Averaging Time - Nc        | days         | 9,125        | 25 years.                                      |                       | 3,285       | 9 years.                                       |                       |
|                 | AT(Car)           | Averaging Time - Car       | days         | 25,550       | 70 years, default value for industrial worker. | USEPA, 2002.          | 25,550      | 70 years, default value for industrial worker. | USEPA, 2002.          |
| Dermal          | EPC               | Soil EPC                   | mg/kg        |              | Surface soils.                                 | See Table 6-4B & 6-5A |             | Surface soils.                                 | See Table 6-4B & 6-5A |
| Contact of Soil | BW                | Body Weight                | kg           | 70           | Default value for industrial worker.           | USEPA, 2002.          | 70          | Default value for industrial worker.           | USEPA, 2002.          |
|                 | SA                | Skin Contact Surface Area  | cm2          | 3,300        | Default value for industrial worker.           | USEPA, 2002, 2004.    | 3,300       | Default value for industrial worker.           | USEPA, 2002, 2004.    |
|                 | AF                | Soil/Skin Adherence Factor | mg/cm2-event | 0.2          | Default value for adherence factor.            | USEPA, 2002, 2004.    | 0.02        | Default value for adherence factor.            | USEPA, 2004.          |
|                 | ABS               | Dermal Absorption Fraction | unitless     |              | Chemical-specific                              | USEPA, 2004.          |             | Chemical-specific                              | USEPA, 2004.          |
|                 | EV                | Event Frequency            | events/day   | 1            | Default value for industrial worker.           | USEPA, 2004.          | 1           | Default value for industrial worker.           | USEPA, 2002, 2004.    |
|                 | EF                | Exposure Frequency         | days/yr      | 250          | Default value for industrial worker.           | BPJ.                  | 219         | Default value for industrial worker.           | USEPA, 2004.          |
|                 | ED                | Exposure Duration          | year         | 25           | Default value for industrial worker.           | USEPA, 2002, 2004.    | 9           | Default value for industrial worker.           | USEPA, 2004.          |
|                 | CF                | Conversion Factor          | kg/mg        | 1E-6         |  |                       | 1E-6        |  |                       |
|                 | AT(Nc)            | Averaging Time - Nc        | days         | 9,125        | 25 year.                                       |                       | 3,285       | 9 years.                                       |                       |
|                 | AT(Car)           | Averaging Time - Car       | days         | 25,550       | 70 years, default value for industrial worker. | USEPA, 2002.          | 25,550      | 70 years, default value for industrial worker. | USEPA, 2002.          |
|                 |                   |                            |              |              |  |                       |             |  |                       |

Source References:

Notes: • BPJ: Best Professional Judgment.

RME = Reasonable Maximum Exposure  $\phantom{0}$  USEPA, 1997: Exposure Factors Handbook CT = Central Tendency Exposure  $\phantom{0}$  USEPA, 2002: Supplemental Guidance For I

 $\cdot \, USEPA, 2002: \, \, Supplemental \,\, Guidance \,\, For \,\, Developing \,\, Soil \,\, Screening \,\, Levels \,\, For \,\, Superfund \,\, Sites. \,\, December.$ 

USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final

#### Intake Equations

 $\begin{array}{ll} \mbox{Ingestion} & \mbox{Daily Intake (DI) (mg/kg-day)} = \mbox{EPC x IR x EF x ED x CF x FI / (BW x AT)} \\ \mbox{Dermal} & \mbox{DI (mg/kg-day)} = \mbox{EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)} \\ \end{array}$ 

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

## SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe: Future

Medium: Ditch Soil

Exposure Medium: Ditch Soil

Exposure Point: SEAD-121C and SEAD-121I

Receptor Population: Industrial Worker

Receptor Age: Adult

| EXPOSURE ROUTE | PARAMETER<br>CODE | PARAMETER DEFINITION       | UNITS        | RME<br>VALUE | RME RATIONALE                          | RME REFERENCE         | CT<br>VALUE | CT RATIONALE                           | CT REFERENCE          |
|----------------|-------------------|----------------------------|--------------|--------------|--|-----------------------|-------------|--|-----------------------|
| Ingestion of   | EPC               | Soil EPC                   | mg/kg        |              | Surface soils.                         | See Table 6-4C & 6-5B |             | Surface soils.                         | See Table 6-4C & 6-5B |
| Ditch Soil     | BW                | Body Weight                | kg           | 70           | Default value for industrial worker.   | USEPA, 2002.          | 70          | Default value for industrial worker.   | USEPA, 2002.          |
|                | IR                | Ingestion Rate             | mg/day       | 100          | Default value for outdoor worker.      | USEPA, 2002.          | 50          | Mean adult soil ingestion rate.        | USEPA, 1997.          |
|                | FI                | Fraction Ingested          | unitless     | 1            | Assumng 100% ingestion from site.      | BPJ.                  | 1           | Assuming 100% ingestion from site.     | BPJ.                  |
|                | EF                | Exposure Frequency         | days/yr      | 50           | Default value for industrial worker.   | USEPA, 2002, 2004.    | 50          | Default value for industrial worker.   | USEPA, 2004.          |
|                | ED                | Exposure Duration          | year         | 25           | Default value for industrial worker.   | USEPA, 2002, 2004.    | 9           | Default value for industrial worker.   | USEPA, 2004.          |
|                | CF                | Conversion Factor          | kg/mg        | 1E-6         |  |                       | 1E-6        |  |                       |
|                | AT(Nc)            | Averaging Time - Nc        | days         | 9,125        | 25 years.                              |                       | 3,285       | 9 years.                               |                       |
|                | AT(Car)           | Averaging Time - Car       | days         | 25,550       | 70 years, default value for industrial | USEPA, 2002.          | 25,550      | 70 years, default value for industrial | USEPA, 2002.          |
|                |                   |                            |              |              | worker.                                |                       |             | worker.                                |                       |
| Dermal         | EPC               | Soil EPC                   | mg/kg        |              | Surface soils.                         | See Table 6-4C & 6-5B |             | Surface soils.                         | See Table 6-4C & 6-5B |
| Contact of     | BW                | Body Weight                | kg           | 70           | Default value for industrial worker.   | USEPA, 2002.          | 70          | Default value for industrial worker.   | USEPA, 2002.          |
| Ditch Soil     | SA                | Skin Contact Surface Area  | cm2          | 3,300        | Default value for industrial worker.   | USEPA, 2002, 2004.    | 3,300       | Default value for industrial worker.   | USEPA, 2002, 2004.    |
|                | AF                | Soil/Skin Adherence Factor | mg/cm2-event | 0.2          | Default value for adherence factor.    | USEPA, 2002, 2004.    | 0.02        | Default value for adherence factor.    | USEPA, 2004.          |
|                | ABS               | Dermal Absorption Fraction | unitless     |              | Chemical-specific                      | USEPA, 2004.          |             | Chemical-specific                      | USEPA, 2004.          |
|                | EV                | Event Frequency            | events/day   | 1            | Default value for industrial worker.   | USEPA, 2004.          | 1           | Default value for industrial worker.   | USEPA, 2002, 2004.    |
|                | EF                | Exposure Frequency         | days/yr      |              | Default value for industrial worker.   | BPJ.                  | 50          | Default value for industrial worker.   | USEPA, 2004.          |
|                |                   | Exposure Duration          | year         | 25           | Default value for industrial worker.   | USEPA, 2002, 2004.    | 9           | Default value for industrial worker.   | USEPA, 2004.          |
|                | CF                | Conversion Factor          | kg/mg        | 1E-6         |  |                       | 1E-6        |  |                       |
|                |                   | Averaging Time - Nc        | days         | 9,125        |  |                       | 3,285       |  |                       |
|                | AT(Car)           | Averaging Time - Car       | days         | 25,550       |  | USEPA, 2002.          | 25,550      |  | USEPA, 2002.          |
|                |                   |                            |              |              |  |                       |             |  |                       |

Source References:

· BPJ: Best Professional Judgment.

RME = Reasonable Maximum Exposure

CT = Central Tendency Exposure

· USEPA, 1997: Exposure Factors Handbook

 $\cdot \, USEPA, 2002: \, \, Supplemental \,\, Guidance \,\, For \,\, Developing \,\, Soil \,\, Screening \,\, Levels \,\, For \,\, Superfund \,\, Sites. \,\, December.$ 

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equations

Notes:

 $\begin{array}{ll} \mbox{Ingestion} & \mbox{Daily Intake (DI) (mg/kg-day)} = \mbox{EPC x IR x EF x ED x CF x FI / (BW x AT)} \\ \mbox{Dermal} & \mbox{DI (mg/kg-day)} = \mbox{EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)} \\ \end{array}$ 

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

## SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe: Future Medium: Soil Exposure Medium: Air

Exposure Point: SEAD-121C and SEAD-121I

Receptor Population: Industrial Worker

Receptor Age: Adult

| EXPOSURE<br>ROUTE | PARAMETER<br>CODE | PARAMETER<br>DEFINITION | UNITS   | RME<br>VALUE | RME RATIONALE                          | RME REFERENCE             | CT<br>VALUE | CT RATIONALE                                   | CT REFERENCE              |
|-------------------|-------------------|-------------------------|---------|--------------|--|---------------------------|-------------|--|---------------------------|
| Inhalation of     | EPC               | Air EPC                 | mg/m3   |              | Surface soils.                         | See Table 6-4B/C & 6-5A/B |             | Surface soils.                                 | See Table 6-4B/C & 6-5A/B |
| Dust in           | BW                | Body Weight             | kg      | 70           | Default value for industrial worker.   | USEPA, 2002.              | 70          | Default value for industrial worker.           | USEPA, 2002.              |
| Ambient Air       | IR                | Inhalation Rate         |         | 20           | Default value for industrial worker.   | USEPA, 2002.              | 10.4        | Assumes average inhalation rate of 1.3 m3/hr   | USEPA, 1997 & BPJ.        |
|                   |                   |                         |         |              |  |                           |             | for outdoor worker for 8 hrs/day.              | USEPA, 2004.              |
|                   | EF                | Exposure Frequency      | days/yr | 250          | Default value for industrial worker.   | USEPA, 2002, 2004.        | 219         | Default value for industrial worker.           | USEPA, 2004.              |
|                   | ED                | Exposure Duration       | year    | 25           | Default value for industrial worker.   | USEPA, 2002, 2004.        | 9           | Default value for industrial worker.           |                           |
|                   | AT(Nc)            | Averaging Time - Nc     | days    | 9,125        | 25 years.                              |                           | 3,285       | 9 years.                                       | USEPA, 2002.              |
|                   | AT(Car)           | Averaging Time - Car    | days    | 25,550       | 70 years, default value for industrial | USEPA, 2002.              | 25,550      | 70 years, default value for industrial worker. |                           |
|                   |                   |                         | · ·     |              | worker.                                |                           |             |  |                           |
|                   |                   |                         |         |              |  |                           |             |  |                           |
|                   |                   |                         |         |              |  |                           |             |  |                           |

Source References:

Notes:

RME = Reasonable Maximum Exposure

CT = Central Tendency Exposure

· BPJ: Best Professional Judgement.

· USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation

Inhalation Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I

## SEAD-121C and SEAD-121I Remedial Investigation

#### Seneca Army Depot Activity

Scenario Timeframe: Future

Medium: Groundwater

Exposure Medium: Groundwater

Exposure Point: SEAD-121C and SEAD-121I

Receptor Population: Industrial Worker

Receptor Age: Adult

| EXPOSURE ROUTE | PARAMETER<br>CODE | PARAMETER DEFINITION | UNITS   | RME<br>VALUE | RME RATIONALE                          | RME REFERENCE      | CT<br>VALUE | CT RATIONALE                                   | CT<br>REFERENCE |
|----------------|-------------------|----------------------|---------|--------------|--|--------------------|-------------|--|-----------------|
| Intake of      | EPC               | Groundwater EPC      | mg/L    |              | See Table 6-4D                         | See Table 6-4D     |             | See Table 6-4D                                 | See Table 6-4D  |
| Groundwater    | BW                | Body Weight          | kg      | 70           | Default value for industrial worker.   | USEPA, 2002.       | 70          | Default value for industrial worker.           | USEPA, 2002.    |
|                | IR                | Intake Rate          | L/day   | 1            | Default intake rate for                | USEPA, 1991.       | 0.7         | Average adult tap water intake is 1.41 L/day,  | USEPA, 1997 &   |
|                |                   |                      |         |              | commercial/industrial worker.          |                    |             | assuming half occurs at work.                  | BPJ.            |
|                | EF                | Exposure Frequency   | days/yr | 250          | Default value for industrial worker.   | USEPA, 2002, 2004. | 219         | Default value for industrial worker.           | USEPA, 2004.    |
|                | ED                | Exposure Duration    | year    | 25           | Default value for industrial worker.   | USEPA, 2002, 2004. | 9           | Default value for industrial worker.           | USEPA, 2004.    |
|                | AT(Nc)            | Averaging Time - Nc  | days    | 9,125        | 25 years.                              |                    | 3,285       | 9 years.                                       |                 |
|                | AT(Car)           | Averaging Time - Car | days    | 25,550       | 70 years, default value for industrial | USEPA, 2002.       | 25,550      | 70 years, default value for industrial worker. | USEPA, 2002.    |
|                |                   |                      | -       |              | worker.                                |                    |             | _  |                 |
|                |                   |                      |         |              |  |                    |             |  |                 |
|                |                   |                      |         |              |  |                    |             |  |                 |

Notes:

RME = Reasonable Maximum Exposure CT = Central Tendency Exposure Source References:

· BPJ: Best Professional Judgment.

· USEPA, 1991: Human Health Evaluation Manual. OSWER Directive 9285.6-03. Jun 25.

· USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:

Daily Intake (DI)  $(mg/kg-day) = EPC \times IR \times EF \times ED/(BW \times AT)$ 

#### TABLE 6-9C EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Current/Future Scenario Timeframe: Medium: Soil Exposure Medium: Soil Exposure Point: SEAD-121C and SEAD-121I Receptor Population: Adolescent Trespasser (11-16yr) Receptor Age: Adolescent (11-16yr)

| EXPOSURE<br>ROUTE | PARAMETER<br>CODE | PARAMETER DEFINITION       | UNITS                     | RME<br>VALUE | RME RATIONALE   | RME REFERENCE             | CT<br>VALUE | CT RATIONALE  | CT REFERENCE              |
|-------------------|-------------------|----------------------------|---------------------------|--------------|---|---------------------------|-------------|---|---------------------------|
| Ingestion of Soil | EPC               | Soil EPC                   | mg/kg                     |              | Surface soils.  | See Table 6-4B/C & 6-5A/B |             | Surface soils.  | See Table 6-4B/C & 6-5A/B |
|                   | BW                | Body Weight                | kg                        | 50           | Average weight for adolescent ages 11-16 (Table 7-3).       | USEPA, 2002.              | 50          | Average weight for adolescent ages 11-16 (Table 7-3).       | USEPA, 2002.              |
|                   | IR                | Ingestion Rate             | mg/day                    | 100          | Default soil ingestion rate for adult                       | USEPA, 2002.              | 50          | Mean soil ingestion rate for adult                          | USEPA, 1997.              |
|                   | FI                | Fraction Ingested          | unitless                  | 1            | Assuming 100% ingestion from site                           | BPJ.                      | 1           | Assuming 100% ingestion from site                           | ВРЈ.                      |
|                   | EF                | Exposure Frequency         | days/yr                   | 14           | Assumption.   | BPJ.                      | 14          | Assumption.   | BPJ.                      |
|                   |                   | Exposure Duration          | year                      |              | Assumption.   | BPJ.                      | 5           | Assumption.   | BPJ.                      |
|                   | CF                | Conversion Factor          | kg/mg                     | 1.E-06       |   |                           | 1.E-06      |   |                           |
|                   | AT(Nc)            | Averaging Time - No        | days                      | 1,825        | 5 years.  |                           | 1,825       | 5 years.  |                           |
|                   | AT(Car)           | Averaging Time - Car       | days                      | 25,550       | 70 years, default value for human life span                 | USEPA, 2002.              | 25,550      | 70 years, default value for human life span                 | USEPA, 2002.              |
| Dermal Contact    | EPC               | Soil EPC                   | mg/kg                     |              | Surface soils.  | See Table 6-4B/C & 6-5A/B |             | Surface soils.  | See Table 6-4B/C & 6-5A/B |
| of Soil           | BW                | Body Weight                | kg                        | 50           | Average weight for adolescent ages 11-16 (Table 7-3).       | USEPA, 2002.              | 50          | Average weight for adolescent ages 11-16 (Table 7-3).       | USEPA, 2002.              |
|                   | SA                | Skin Contact Surface Area  | cm <sup>2</sup>           | 5,867        | Average surface area for adolescent child (11-16) including | USEPA, 1997.              | 5,867       | Average surface area for adolescent child (11-16) including | USEPA, 1997.              |
|                   |                   |                            |                           |              | head, hands, forearms, lower legs, and feet.                |                           |             | head, hands, forearms, lower legs, and feet.                |                           |
|                   | AF                | Soil/Skin Adherence Factor | mg/cm <sup>2</sup> -event | 0.07         | Default value for adult.                                    | USEPA, 2004.              | 0.01        | Default value for adult.                                    | USEPA, 2004.              |
|                   | ABS               | Dermal Absorption Fraction | unitless                  |              | Chemical-specific   | USEPA, 2004.              |             | Chemical-specific   | USEPA, 2004.              |
|                   | EV                | Event Frequency            | events/day                | 1            | Default value for residential child.                        | USEPA, 2004.              | 1           | Default value for residential child.                        | USEPA, 2004.              |
|                   | EF                | Exposure Frequency         | days/yr                   | 14           | Assumption.   | BPJ.                      | 14          | Assumption.   | ВРЈ.                      |
|                   | ED                | Exposure Duration          | year                      | 5            | Assumption.   | BPJ.                      | 5           | Assumption.   | ВРЈ.                      |
|                   | CF                | Conversion Factor          | kg/mg                     | 1E-06        |   |                           | 1E-06       |   |                           |
|                   | AT(Nc)            | Averaging Time - Nc        | days                      | 1,825        | 5 years.  |                           | 1,825       | 5 years.  |                           |
|                   | AT(Car)           | Averaging Time - Car       | days                      | 25,550       | 70 years, default value for human life span.                | USEPA, 2002.              | 25,550      | 70 years, default value for human life span.                | USEPA, 2002.              |

Source References:

 $RME = Reasonable\ Maximum\ Exposure$ 

CT = Central Tendency Exposure

· BPJ: Best Professional Judgment.

· USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equations:

Ingestion Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT) Dermal  $DI (mg/kg-day) = EPC \times SA \times AF \times ABS \times EV \times EF \times ED \times CF/(BW \times AT)$ 

#### TABLE 6-9C EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Scenario Timeframe:  | Current/Future                  |
|----------------------|---------------------------------|
| Medium:              | Soil                            |
| Exposure Medium:     | Air                             |
| Exposure Point:      | SEAD-121C and SEAD-121I         |
| Receptor Population: | Adolescent Trespasser (11-16yr) |
| Receptor Age:        | Adolescent (11-16vr)            |

| EXPOSURE ROUTE         | PARAMETER<br>CODE | PARAMETER<br>DEFINITION        | UNITS             | RME<br>VALUE | RME RATIONALE                                | RME REFERENCE             | CT<br>VALUE | CT RATIONALE  | CT REFERENCE                       |
|------------------------|-------------------|--------------------------------|-------------------|--------------|--|---------------------------|-------------|---|------------------------------------|
| Inhalation of          | EPC               | Air EPC                        | mg/m <sup>3</sup> |              | Surface soils.                               | See Table 6-4B/C & 6-5A/B |             | Surface soils.  | See Table 6-4B/C & 6-5A/B          |
| Dust in Ambient<br>Air |                   | Body Weight<br>Inhalation Rate |                   | 1.6          |  |                           | 1.6         | Average weight for adolescent ages 11-16 (Table 7-3)<br>Average inhalation rate for moderate activity is 1.6 m/hr.<br>Assuming 1 hr/day exposure. | USEPA, 2002.<br>USEPA, 1997 & BPJ. |
|                        | EF                | Exposure Frequency             | days/yr           | 14           | Assumption.                                  | BPJ.                      | 14          | Assumption.   | BPJ.                               |
|                        | ED                | Exposure Duration              | year              | 5            | Assumption.                                  | BPJ.                      | 5           | Assumption.   | BPJ.                               |
|                        | AT(Nc)            | Averaging Time - Nc            | days              | 1,825        | 6 years.                                     |                           | 1,825       | 5 years.  | 1                                  |
|                        | AT(Car)           | Averaging Time - Car           | days              | 25,550       | 70 years, default value for human life span. | USEPA, 2002.              | 25,550      | 70 years, default value for human life span.  | USEPA, 2002.                       |

Source References:

Notes: • BPJ: Best Professional Judgment.

CT = Central Tendency Exposure USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:

Inhalation Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

#### TABLE 6-9C

#### EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| Scenario Timeframe:                     | Current/Future                  |
|---|---------------------------------|
| Medium:                                 | Groundwater                     |
| Exposure Medium:                        | Groundwater                     |
| Exposure Point: SEAD-121C and SEAD-121I |                                 |
| Receptor Population:                    | Adolescent Trespasser (11-16yr) |
| Receptor Age:                           | Adolescent (11-16yr)            |

| EXPOSURE ROUTE | PARAMETER<br>CODE | PARAMETER DEFINITION | UNITS   | RME<br>VALUE | RME RATIONALE   | RME REFERENCE  | CT<br>VALUE | CT RATIONALE  | CT REFERENCE   |
|----------------|-------------------|----------------------|---------|--------------|---|----------------|-------------|---|----------------|
| Intake of      | EPC               | Groundwater EPC      | mg/L    |              | See Table 6-4D  | See Table 6-4D |             | See Table 6-4D  | See Table 6-4D |
| Groundwater    | BW                | Body Weight          | kg      | 50           | Average weight for adolescent ages 11-16 (Table 7-3). | USEPA, 2002.   | 50          | Average weight for adolescent ages 11-16 (Table 7-3). | USEPA, 2002.   |
|                | IR                | Intake Rate          | L/day   | 2            | 95th percentile for 11-19 yr old.                     | USEPA, 1997.   | 0.97        | Average for 11-19 yr old.                             | USEPA, 1997.   |
|                | EF                | Exposure Frequency   | days/yr | 14           | Assumption.   | BPJ.           | 14          | Assumption.   | BPJ.           |
|                | ED                | Exposure Duration    | year    | 5            | Assumption.   | BPJ.           | 5           | Assumption.   | BPJ.           |
|                | AT(Nc)            | Averaging Time - Nc  | days    | 1,825        | 5 years.  |                | 365         | 5 years.  |                |
|                | AT(Car)           | Averaging Time - Car | days    | 25,550       | 70 years, default value for human life span.          | USEPA, 2002.   | 25,550      | 70 years, default value for human life span.          | USEPA, 2002.   |

#### Source References:

· BPJ: Best Professional Judgment.

RME = Reasonable Maximum Exposure · USEPA, 1997: Exposure Factors Handbook CT = Central Tendency Exposure

USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
 USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:

Notes:

Ingestion Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT)

#### TABLE 6-9C

# EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| Scenario Timeframe:  | Current/Future                  |
|----------------------|---------------------------------|
| Medium:              | Surface Water                   |
| Exposure Medium:     | Surface Water                   |
| Exposure Point:      | SEAD-121C and SEAD-121I         |
| Receptor Population: | Adolescent Trespasser (11-16yr) |
| Receptor Age:        | Adolescent (11-16yr)            |

| EXPOSURE ROUTE | PARAMETER<br>CODE  | PARAMETER DEFINITION      | UNITS           | RME<br>VALUE | RME RATIONALE                                 | RME REFERENCE  | CT<br>VALUE | CT RATIONALE                                  | CT REFERENCE   |
|----------------|--------------------|---------------------------|-----------------|--------------|---|----------------|-------------|---|----------------|
| Dermal Contact | EPC                | Surface Water EPC         | mg/L            |              | See Table 6-4E                                | See Table 6-4E |             | See Table 6-4E                                | See Table 6-4E |
| of Surface     | BW                 | Body Weight               | kg              | 50           | Average weight for adolescent ages 11-16 (T   | USEPA, 2002.   | 50          | Average weight for adolescent ages 11-16 (T   | USEPA, 2002.   |
| Water          | SA                 | Skin Surface Area         | cm <sup>2</sup> | 5,867        | Average surface area for adolescent child (11 | USEPA, 1997.   | 5,867       | Average surface area for adolescent child (11 | USEPA, 1997.   |
|                |                    |                           |                 |              | 16) including head, hands, forearms, lower    |                |             | 16) including head, hands, forearms, lower    |                |
|                |                    |                           |                 |              | legs, and feet.                               |                |             | legs, and feet.                               |                |
|                | ED                 | Exposure Duration         | years           | 5            | Assumption.                                   | BPJ.           | 5           | Assumption.                                   | BPJ.           |
|                | EF                 | Exposure Frequency        | days/yr         | 14           | Assumption.                                   | BPJ.           | 14          | Assumption.                                   | BPJ.           |
|                | EV                 | Event Frequency           | events/day      | 1            | Default RME for water contact.                | USEPA, 2004.   | 1           | Default CT for water contact.                 | USEPA, 2004.   |
|                | t <sub>event</sub> | Event Duration (hr/event) | hr/event        | 0.5          | Assumption.                                   | BPJ.           | 0.33        | Default CT for showering/bathing.             | USEPA, 2004.   |
|                | AT(Nc)             | Averaging Time - Nc       | days            | 1,825        | 5 years.                                      |                | 1,825       | 5 years.                                      |                |
|                | AT(Car)            | Averaging Time - Car      | days            | 25,550       | 70 years, default value for human life span   | USEPA, 2002.   | 25,550      | 70 years, default value for human life span   | USEPA, 2002.   |

Source References:

· BPJ: Best Professional Judgment.

· USEPA, 1997: Exposure Factors Handbook

· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equations:

RME = Reasonable Maximum Exposure

CT = Central Tendency Exposure

Ingestion Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT) DI (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)

Dermal  $DI (mg/kg-day) = DA_{event} x EV x EF x ED x SA/(BW x AT)$ 

Where: DA<sub>event</sub> = Absorbed dose per event (mg/cm<sup>2</sup>-event)

For organic compounds: If  $t_{event}$  <=  $t^*$ , then: DA\_{event} = 2 FA x K\_p x EPC ( (6  $\tau_{event}$  x  $t_{event}$  /  $\pi$  )  $^{1/2}$ 

If  $t_{event} > t^*$ , then:  $DA_{event} = FA \times K_D \times EPC \left[ (t_{event} / 1 + B) + 2 \tau_{event} ((1 + 3 B + 3 B^2) / (1 + B)^2) \right]$ 

Where:  $t^* = \text{Time to reach steady - state (hr)}$ 

 $\tau_{event}$  = Lag Time per event (hr / event)

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

 $B = Kp (MW)^{1/2} / 2.6$ 

If B<= 0.6, then  $t*=2.4\tau_{event}$ 

If B > 0.6, then  $t^* = 6\tau \text{event} (b\text{-SQRT}(t^2\text{-}c^2))$ 

 $\tau_{event} = 0.105 \times 10^{(0.0056MW)}$ 

 $Kp = 10^{-2.80 + 0.66(log K_{ow}) - 0.0056(MW)}$ 

For inorganic compounds:  $DA_{event} = K_p x EPC x t_{event}$ 

# TABLE 6-10 SUSPENDED PARTICULATE CONCENTRATIONS MEASURED AT SEDA SEAD-121C AND SEAD-121I RI REPORT

**Seneca Army Depot Activity** 

| PARTICULATE DATA                    | SITE #1<br>PM 10    | SITE #2<br>PM 10    | SITE #3<br>PM 10   | SITE #4<br>PM 10   |
|-------------------------------------|---------------------|---------------------|--------------------|--------------------|
| Peak Concentration (ug/m3)          | 37 on<br>23 July 95 | 37 on<br>23 July 95 | 37 on<br>5 July 95 | 37 on<br>5 July 95 |
| Arithmetic Mean (ug/m3)             | 16.9                | 16.6                | 16.4               | 15.8               |
| Standard Deviation                  | 21.4                | 21.1                | 23.0               | 23.0               |
| Geometric Mean (ug/m3)              | 15.1                | 14.8                | 14.8               | 14.2               |
| No. of 24-hr. Avgs. Above 150 ug/m3 | 0                   | 0                   | 0                  | 0                  |
| Number of Valid Samples             | 29                  | 32                  | 29                 | 31                 |
| Percent Data Recovery               | 90.6                | 100.0               | 90.6               | 96.9               |

Cumulative Summary for April 1, 1995 through July 31, 1995

# Table 6-11A NON-CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C and SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern | Chronic/<br>Subchronic | Oral RfD<br>Value | Oral RfD<br>Units | Oral to Dermal<br>Adjustment<br>Factor (1) | Adjusted<br>Dermal<br>RfD (2) | Units     | Primary<br>Target<br>Organ | Combined<br>Uncertainty/Modifying<br>Factors | Sources of RfD:<br>Target Organ | Dates of RfD:<br>Target Organ (3)<br>(MM/DD/YY) |
|-------------------------------------|------------------------|-------------------|-------------------|--|-------------------------------|-----------|----------------------------|--|---------------------------------|---|
| 1,1,2,2-Tetrachloroethane           | Chronic                | 6.0E-02           | mg/kg-day         | 1  | 6.0E-02                       | mg/kg-day | N/A                        | N/A  | PPRTV                           | 4/7/2005  |
| 1,2-Dichloropropane                 | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 1,4-Dichlorobenzene                 | Chronic                | 3.0E-02           | N/A               | 1  | 3.0E-02                       | mg/kg-day | N/A                        | N/A  | NCEA                            | 4/7/2005  |
| Benzene                             | Chronic                | 4.0E-03           | mg/kg-day         | 1  | 4.0E-03                       | mg/kg-day | Blood                      | 300  | IRIS                            | 3/24/2005                                       |
| Vinyl chloride                      | Chronic                | 3.0E-03           | mg/kg-day         | 1  | 3.0E-03                       | mg/kg-day | Liver                      | 30   | IRIS                            | 3/10/2005                                       |
| 2-Methylnaphthalene                 | Chronic                | 4.0E-03           | mg/kg-day         | 1  | 4.0E-03                       | mg/kg-day | Lungs                      | 1000   | IRIS                            | 3/10/2005                                       |
| Benzo(a)anthracene                  | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Benzo(a)pyrene                      | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Benzo(b)fluoranthene                | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Benzo(k)fluoranthene                | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Chrysene                            | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Dibenz(a,h)anthracene               | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Indeno(1,2,3-cd)pyrene              | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Naphthalene                         | Chronic                | 2.0E-02           | mg/kg-day         | 1  | 2.0E-02                       | mg/kg-day | Body Weight                | 3000   | IRIS                            | 3/15/2005                                       |
| Phenanthrene                        | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Aroclor-1242                        | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Aroclor-1254                        | Chronic                | 2.0E-05           | mg/Kg-day         | 1  | 2.0E-05                       | mg/kg-day | Eye, Immune<br>System      | 300  | IRIS                            | 3/24/2005                                       |
| Aroclor-1260                        | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDD                            | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDE                            | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDT                            | Chronic                | 5.0E-04           | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 100  | IRIS                            | 12/03/2004                                      |
| Alpha-BHC                           | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Beta-BHC                            | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Delta-BHC                           | N/A                    | N/A               | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Dieldrin                            | Chronic                | 5.0E-05           | mg/kg-day         | 1  | 5.0E-05                       | mg/kg-day | Liver                      | 100  | IRIS                            | 3/15/2005                                       |
| Gamma-Chlordane (4)                 | Chronic                | 5.0E-04           | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 300  | IRIS                            | 3/15/2005                                       |
| Heptachlor                          | Chronic                | 1.3E-05           | mg/kg-day         | 1  | 1.3E-05                       | mg/kg-day | Liver                      | 1000   | IRIS                            | 12/03/2004                                      |
| Heptachlor epoxide                  | Chronic                | 5.0E-04           | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 300  | IRIS                            | 3/15/2005                                       |
| Antimony                            | Chronic                | 4.0E-04           | mg/kg-day         | 0.15                                       | 6.0E-05                       | mg/kg-day | Whole Body<br>Blood        | 1000   | IRIS                            | 12/03/2004                                      |

#### Table 6-11A

# NON-CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C and SEAD-121I

## SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern |      | Chronic/<br>Subchronic | Oral RfD<br>Value | Oral RfD<br>Units | Oral to Dermal Adjustment Factor (1) | Adjusted<br>Dermal<br>RfD (2) | Units     | Primary<br>Target<br>Organ | Combined<br>Uncertainty/Modifying<br>Factors | Sources of RfD:<br>Target Organ | Dates of RfD:<br>Target Organ (3)<br>(MM/DD/YY) |
|-------------------------------------|------|------------------------|-------------------|-------------------|--------------------------------------|-------------------------------|-----------|----------------------------|--|---------------------------------|---|
| Arsenic                             |      | Chronic                | 3.0E-04           | mg/kg-day         | 1                                    | 3.0E-04                       | mg/kg-day | Skin                       | 3  | IRIS                            | 12/03/2004                                      |
| Cadmium                             | (5)  | Chronic                | 5.0E-04           | mg/kg-day         | 0.05                                 | 2.5E-05                       | mg/kg-day | Kidney                     | 10   | IRIS                            | 3/24/2005                                       |
| Chromium                            | (6)  | Chronic                | 3.0E-03           | mg/kg-day         | 0.025                                | 7.5E-05                       | mg/kg-day | N/A                        | 900  | IRIS                            | 3/24/2005                                       |
| Copper                              |      | Chronic                | 4.0E-02           | mg/kg-day         | 1                                    | 4.0E-02                       | mg/kg-day | Gastrointestinal           |  | HEAST                           | 3/24/2005                                       |
| Cyanide, Total                      | (7)  | Subchronic             | 2.0E-02           | mg/kg-day         | 1                                    | 2.0E-02                       | mg/kg-day | Whole Body,<br>Thyroid     | 500  | IRIS                            | 3/15/2005                                       |
| Iron                                |      | Chronic                | 3.0E-01           | mg/kg-day         | 1                                    | 3.0E-01                       | mg/kg-day | N/A                        | 1  | NCEA                            | 4E+04   |
| Manganese                           | (8)  | Chronic                | 2.3E-02           | mg/kg-day         | 0.04                                 | 9.3E-04                       | mg/kg-day | Central<br>Nervous System  | 3  | IRIS                            | 12/23/2004                                      |
| Mercury                             | (9)  | Chronic                | 3.0E-04           | mg/kg-day         | 0.07                                 | 2.1E-05                       | mg/kg-day | Immune System              | 1000   | IRIS                            | 3/16/2005                                       |
| Nickel                              |      | Chronic                | 2.0E-02           | mg/kg-day         | 0.04                                 | 8.0E-04                       | mg/kg-day | Whole Body,<br>Organs      | 300  | IRIS                            | 3/15/2005                                       |
| Silver                              |      | Chronic                | 5.0E-03           | mg/kg-day         | 0.04                                 | 2.0E-04                       | mg/kg-day | Skin                       | 3  | IRIS                            | 3/15/2005                                       |
| Thallium                            | (10) | Chronic                | 6.5E-04           | mg/kg-day         | 1                                    | 6.5E-04                       | mg/kg-day | Liver, Blood,<br>Hair      | 3000   | IRIS                            | 12/23/2004                                      |
| Vanadium                            |      | Chronic                | 7.0E-03           | mg/kg-day         | 0.026                                | 1.8E-04                       | mg/kg-day | N/A                        | 100  | HEAST                           | 3/15/2005                                       |

N/A = Not Applicable

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessmen

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

- (1) Source: Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Final. USEPA. 2004. A default value of 1 was used if no value was available in the USEPA (2004) document.
- (2) Dermal RfD = Oral RfD x Adjustment Factor
- (3) For IRIS values, the date was the last time IRIS was checked.

For NCEA values, the date was the date of the article provided by NCEA.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

- (4) The chronic oral RfD for gamma-chlordane was based on the chronic RfD of chlordane.
- (5) The chronic oral RfD for cadmium was based on water, since cadmium is only a COC for surface water
- (6) The chronic oral RfD for chromium was based on the chronic RfD of chromium (VI).
- (7) The chronic oral RfD for cyanide was based on the chronic RfD of hydrogen cyanide.
- (8) The chronic oral RfD for manganese was adjusted by using a modifying factor of 3 in accordance with the IRIS recommendation.

  In addition, dietary exposure (assumed 5 mg/day) was subtracted. Thus, the RfD used in this risk assessment is 1/6 of the value listed in the IRIS.
- (9) The chronic oral RfD for mercury was based on the chronic RfD of mercuric chloride.
- (10) The chronic oral RfD for thallium was based on the chronic oral RfD of thallium sulfate adjusted for molecular weight differences.

# Table 6-11B NON-CANCER TOXICITY DATA -- INHALATION SEAD-121C and SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Seneca A | Army | Depot A | Activity |
|----------|------|---------|----------|
|          |      |         |          |

|                           |            |            |                   |            |           |                    |                       |              |            | $\Box$ |
|---------------------------|------------|------------|-------------------|------------|-----------|--------------------|-----------------------|--------------|------------|--------|
| Chemical                  | Chronic/   | Value      | Units             | Adjusted   | Units     | Primary            | Combined              | Sources of   | Dates (2)  | Notes  |
| of Potential              | Subchronic | Inhalation |                   | Inhalation |           | Target             | Uncertainty/Modifying | RfC:RfD:     | (MM/DD/YY) |        |
| Concern                   |            | RfC        |                   | RfD (1)    |           | Organ              | Factors               | Target Organ |            |        |
| 1,1,2,2-Tetrachloroethane | Chronic    | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| 1,2-Dichloropropane       | Chronic    | 4.0E-03    | mg/m <sup>3</sup> | 1.1E-03    | mg/kg-day | respiratory system | 300                   | IRIS         | 3/10/2005  |        |
| 1,4-Dichlorobenzene       | Chronic    | 8.0E-01    | mg/m <sup>3</sup> | 2.3E-01    | mg/kg-day | liver              | 100                   | IRIS         | 3/10/2005  |        |
| Benzene                   | Chronic    | 3.0E-02    | mg/m <sup>3</sup> | 8.6E-03    | mg/kg-day | Blood              | 300                   | IRIS         | 3/24/2005  |        |
| Vinyl chloride            | Chronic    | 1.0E-01    | mg/m <sup>3</sup> | 2.9E-02    | mg/kg-day | liver              | 30                    | IRIS         | 3/10/2005  |        |
| 2-Methylnaphthalene       | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Benzo(a)anthracene        | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Benzo(a)pyrene            | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Benzo(b)fluoranthene      | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Benzo(ghi)perylene        | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Benzo(k)fluoranthene      | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Chrysene                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Dibenz(a,h)anthracene     | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Indeno(1,2,3-cd)pyrene    | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Napthalene                | Chronic    | 3.0E-03    | mg/m <sup>3</sup> | 8.6E-04    | mg/kg-day | respiratory system | 3000                  | IRIS         | 3/15/2005  |        |
| Phenanthrene              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Aroclor-1242              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Aroclor-1254              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Aroclor-1260              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| 4,4'-DDD                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| 4,4'-DDE                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| 4,4'-DDT                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Alpha-BHC                 | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Beta-BHC                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Delta-BHC                 | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |
| Dieldrin                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |        |

#### **Table 6-11B**

## NON-CANCER TOXICITY DATA -- INHALATION

# SEAD-121C and SEAD-121I

### SEAD-121C AND SEAD-121I RI REPORT

#### **Seneca Army Depot Activity**

|                    |            |            |                   |            |           |                           |                       |              |            | $\Box$ |
|--------------------|------------|------------|-------------------|------------|-----------|---------------------------|-----------------------|--------------|------------|--------|
| Chemical           | Chronic/   | Value      | Units             | Adjusted   | Units     | Primary                   | Combined              | Sources of   | Dates (2)  | Notes  |
| of Potential       | Subchronic | Inhalation |                   | Inhalation |           | Target                    | Uncertainty/Modifying | RfC:RfD:     | (MM/DD/YY) |        |
| Concern            |            | RfC        |                   | RfD (1)    |           | Organ                     | Factors               | Target Organ |            |        |
| Gamma-Chlordane    | Chronic    | 7.0E-04    | mg/m <sup>3</sup> | 2.0E-04    | mg/kg-day | Liver                     | 1000                  | IRIS         | 3/14/2005  |        |
| Heptachlor         | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Heptachlor epoxide | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Antimony           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Arsenic            | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Cadmium            | Chronic    | 2.0E-04    | mg/m <sup>3</sup> | 5.7E-05    | mg/kg-day | N/A                       | N/A                   | NCEA         | 4/7/2005   |        |
| Chromium           | Chronic    | 1.0E-04    | mg/m <sup>3</sup> | 2.9E-05    | mg/kg-day | respiratory system        | 300                   | IRIS         | 3/24/2005  | (3)    |
| Copper             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Cyanide, Total     | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        | $\Box$ |
| Iron               | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Lead               | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Manganese          | Chronic    | 5.0E-05    | mg/m <sup>3</sup> | 1.4E-05    | mg/kg-day | Central Nervous<br>System | 1000                  | IRIS         | 12/23/04   |        |
| Mercury            | Chronic    | 3.0E-04    | mg/m3             | 8.6E-05    | mg/kg-day | Body, Brain               | 30                    | IRIS         | 3/14/05    | (4)    |
| Nickel             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Silver             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Thallium           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |
| Vanadium           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |        |

Notes:

N/A = Not Applicable

IRIS = Integrated Risk Information System

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

- (1) Inhalation RfD was adjusted based on the assumption of 70 kg body weight and 20 m³/day inhalation rate.
- (2) For IRIS values, the date was the last time IRIS was checked.
  For PPRTV or NCEA values, the date was the date of the Region III RBC table, where the PPRTV was cited from.
- (3) The chronic oral RfD for chromium was based on the chronic RfD of chromium (VI).
- (4) The chronic data for mercury was based on the chronic data of elemental mercury.

# Table 6-11C CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C and SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern | Oral Cancer Slope Factor | Oral Cancer Slope Factor<br>Source | Oral to Dermal Adjustment Factor (1) | Adjusted Dermal<br>Cancer Slope Factor (2) | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (3)<br>(MM/DD/YY) |
|-------------------------------------|--------------------------|------------------------------------|--------------------------------------|--|---------------------------|--|---------------------------------|------------------------|
|                                     |                          |                                    |                                      |  |                           |  |                                 |                        |
| 1,1,2,2-Tetrachloroethane           | 2.0E-01                  | IRIS                               | 1                                    | 2.0E-01                                    | (mg/kg-day)-1             | C  | IRIS                            | 3/14/2005              |
| 1,2-Dichloropropane                 | 6.8E-02                  | HEAST, 1997                        | 1                                    | 6.8E-02                                    | (mg/kg-day)-1             | B2   | HEAST, 1997                     | 3/14/2005              |
| 1,4-Dichlorobenzene                 | 2.4E-02                  | HEAST, 1997                        | 1                                    | 2.4E-02                                    | (mg/kg-day)-1             | С  | HEAST, 1997                     | 3/14/2005              |
| Benzene                             | 5.5E-02                  | IRIS                               | 1                                    | 5.5E-02                                    | (mg/kg-day)-1             | A  | IRIS                            | 3/24/2005              |
| Vinyl chloride                      | 1.4E+00                  | IRIS                               | 1                                    | 1.4E+00                                    | (mg/kg-day)-1             | A  | IRIS                            | 3/14/2005              |
| 2-Methylnaphthalene                 | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | N/A  | N/A                             | N/A                    |
| Acenaphthylene                      | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(a)anthracene                  | 7.3E-01                  | NCEA                               | 1                                    | 7.3E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(a)pyrene                      | 7.3E+00                  | IRIS                               | 1                                    | 7.3E+00                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(b)fluoranthene                | 7.3E-01                  | NCEA                               | 1                                    | 7.3E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(ghi)perylene                  | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(k)fluoranthene                | 7.3E-02                  | NCEA                               | 1                                    | 7.3E-02                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Carbazole                           | 2.0E-02                  | HEAST, 1997                        | 1                                    | 2.0E-02                                    | (mg/kg-day) <sup>-1</sup> | N/A  | N/A                             | N/A                    |
| Chrysene                            | 7.3E-03                  | NCEA                               | 1                                    | 7.3E-03                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Dibenz(a,h)anthracene               | 7.3E+00                  | NCEA                               | 1                                    | 7.3E+00                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Indeno(1,2,3-cd)pyrene              | 7.3E-01                  | NCEA                               | 1                                    | 7.3E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Naphthalene                         | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | С  | IRIS                            | 3/15/2005              |
| Phenanthrene                        | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 12/03/2004             |
| Aroclor-1242                        | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1254                        | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1260                        | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| 4,4'-DDD                            | 2.4E-01                  | IRIS                               | 1                                    | 2.4E-01                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| 4,4'-DDE                            | 3.4E-01                  | IRIS                               | 1                                    | 3.4E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| 4,4'-DDT                            | 3.4E-01                  | IRIS                               | 1                                    | 3.4E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Alpha-BHC                           | 6.3E+00                  | IRIS                               | 1                                    | 6.3E+00                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Beta-BHC                            | 1.8E+00                  | IRIS                               | 1                                    | 1.8E+00                                    | (mg/kg-day) <sup>-1</sup> | С  | IRIS                            | 3/15/2005              |

#### Table 6-11C

# CANCER TOXICITY DATA -- ORAL/DERMAL

# SEAD-121C and SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern | Oral Cancer Slope Factor | Oral Cancer Slope Factor<br>Source | Oral to Dermal Adjustment Factor (1) | Adjusted Dermal<br>Cancer Slope Factor (2) | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (3)<br>(MM/DD/YY) |
|-------------------------------------|--------------------------|------------------------------------|--------------------------------------|--|---------------------------|--|---------------------------------|------------------------|
| Delta-BHC                           | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 3/15/2005              |
| Dieldrin                            | 1.6E+01                  | IRIS                               | 1                                    | 1.6E+01                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| Gamma-Chlordane                     | 3.5E-01                  | IRIS                               | 1                                    | 3.5E-01                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| Heptachlor epoxide                  | 9.1E+00                  | IRIS                               | 1                                    | 9.1E+00                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Heptachlor                          | 4.5E+00                  | IRIS                               | 1                                    | 4.5E+00                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Antimony                            | N/A                      | N/A                                | 0.15                                 | N/A  | N/A                       | N/A  | N/A                             | N/A                    |
| Arsenic                             | 1.5E+00                  | IRIS                               | 1                                    | 1.5E+00                                    | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 12/03/2004             |
| Cadmium                             | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | B1   | IRIS                            | 3/24/2005              |
| Chromium                            | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 3/24/2005              |
| Copper                              | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 3/24/2005              |
| Cyanide, Total                      | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 3/15/2005              |
| Iron                                | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | N/A  | N/A                             | N/A                    |
| Manganese                           | N/A                      | N/A                                | 0.04                                 | N/A  | N/A                       | D  | N/A                             | N/A                    |
| Mercury                             | N/A                      | N/A                                | 0.07                                 | N/A  | N/A                       | D  | IRIS                            | 3/15/2005              |
| Nickel                              | N/A                      | N/A                                | 0.04                                 | N/A  | N/A                       | N/A  | N/A                             | N/A                    |
| Silver                              | N/A                      | N/A                                | 0.04                                 | N/A  | N/A                       | D  | N/A                             | N/A                    |
| Thallium                            | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | N/A                             | N/A                    |
| Vanadium                            | N/A                      | N/A                                | 0.026                                | N/A  | N/A                       | N/A  | N/A                             | N/A                    |

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

EPA Group:

- A Human carcinogen
- $B1\mbox{ -} Probable\mbox{ human carcinogen -} indicates\mbox{ that } limited\mbox{ human data}\mbox{ are available}$
- B2 Probable human carcinogen indicates sufficient evidence in animals and inadequate or no evidence in humans
- C Possible human carcinogen
- D Not classifiable as a human carcinogen
- E Evidence of noncarcinogenicity

#### Notes:

- (1) Source: USEPA (2004) Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Final. A default value of 1 was used if no value was available in the USEPA (2004) document.
- (2) Dermal Cancer Slope Factor = Oral Cancer Slope Factor/Adjustment Factor
- (3) For IRIS values, the date was the last time IRIS was checked.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

# Table 6-11D CANCER TOXICITY DATA -- INHALATION SEAD-121C and SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

| Chemical<br>of Potential<br>Concern | Unit Risk | Units           | Unit<br>Risk<br>Source | Adjustment (1) | Inhalation Cancer<br>Slope Factor | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (2)<br>(MM/DD/YY) |
|-------------------------------------|-----------|-----------------|------------------------|----------------|-----------------------------------|---------------------------|--|---------------------------------|------------------------|
| 1,1,2,2-Tetrachloroethane           | 5.8E-05   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 2.0E-01                           | (mg/kg-day)-1             | С  | IRIS                            | 3/14/2005              |
| 1,2-Dichloropropane                 | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| 1,4-Dichlorobenzene                 | N/A       | N/A             | N/A                    | N/A            | 2.2E-02                           | (mg/kg-day) <sup>-1</sup> | С  | HEAST                           | 3/14/2005              |
| Benzene                             | 7.8E-06   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 2.7E-02                           | (mg/kg-day)-1             | A  | IRIS                            | 3/24/2005              |
| Vinyl chloride                      | 8.8E-06   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 3.1E-02                           | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 3/14/2005              |
| 2-Methylnaphthalene                 | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Acenaphthylene                      | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(a)anthracene                  | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Benzo(a)pyrene                      | 8.9E-04   | $(ug/m^3)^{-1}$ | NCEA                   | 3500           | 3.1E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(b)fluoranthene                | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Benzo(ghi)perylene                  | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(k)fluoranthene                | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Carbazole                           | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Chrysene                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Dibenz(a,h)anthracene               | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Indeno(1,2,3-cd)pyrene              | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Napthalene                          | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | С  | IRIS                            | 3/15/2005              |
| Phenanthrene                        | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/03/2004             |
| Aroclor-1242                        | 5.7E-04   | N/A             | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1254                        | 5.7E-04   | N/A             | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1260                        | 5.7E-04   | N/A             | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| 4,4'-DDD                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 3/15/2005              |
| 4,4'-DDE                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| 4,4'-DDT                            | 9.7E-05   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 3.4E-01                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Alpha-BHC                           | 1.8E-03   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 6.3E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Beta-BHC                            | 5.3E-04   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 1.9E+00                           | (mg/kg-day) <sup>-1</sup> | С  | IRIS                            | 3/15/2005              |
| Delta-BHC                           | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/15/2005              |

#### **Table 6-11D**

# **CANCER TOXICITY DATA -- INHALATION**

# SEAD-121C and SEAD-121I

# SEAD-121C AND SEAD-121I RI REPORT

# **Seneca Army Depot Activity**

| Chemical<br>of Potential<br>Concern | Unit Risk | Units           | Unit<br>Risk<br>Source | Adjustment (1) | Inhalation Cancer<br>Slope Factor | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (2)<br>(MM/DD/YY) |
|-------------------------------------|-----------|-----------------|------------------------|----------------|-----------------------------------|---------------------------|--|---------------------------------|------------------------|
| Dieldrin                            | 4.6E-03   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 1.6E+01                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Gamma-Chlordane                     |           | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 3.5E-01                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Heptachlor epoxide                  |           | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 9.1E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Heptachlor                          |           | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 4.6E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Antimony                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Arsenic                             | 4.3E-03   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 1.5E+01                           | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 12/03/2004             |
| Cadmium                             |           | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 6.3E+00                           | (mg/kg-day) <sup>-1</sup> | B1   | IRIS                            | 3/24/2005              |
| Chromium                            | 1.2E-02   | $(ug/m^3)^{-1}$ | IRIS                   | 3500           | 4.2E+01                           | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 3/24/2005              |
| Copper                              | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/24/2005              |
| Cyanide, Total                      | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/15/2005              |
| Iron                                | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Manganese                           | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/23/2004             |
| Mercury                             | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 03/15/05               |
| Nickel                              | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Silver                              | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 03/15/05               |
| Thallium                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/23/2004             |
| Vanadium                            | N/A       | N/A             | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |

IRIS = Integrated Risk Information System

Notes:

HEAST= Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

EPA Group:

- A Human carcinogen
- B1 Probable human carcinogen indicates that limited human data are available
- B2 Probable human carcinogen indicates sufficient evidence in animals and inadequate or no evidence in humans
- C Possible human carcinogen
- D Not classifiable as a human carcinogen
- E Evidence of noncarcinogenicity
- (1) The adjustment was based on an assumption of 70 kg body weight and 20 m<sup>3</sup>/day inhalation rate.
- (2) The date was the last time IRIS was checked.

#### Table 6-12A

# CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-121C REASONABLE MAXIMUM EXPOSURE (RME) AND CENTRAL TENDENCY (CT)

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

|                                   |   | REASONABLE MAXIMUM EXPOSURE (RME) |              |              | CENTRAL TENDENCY (CT) |              |              |              |              |
|-----------------------------------|---|-----------------------------------|--------------|--------------|-----------------------|--------------|--------------|--------------|--------------|
| DECERTOR                          | ENDOSTINE BOTTE                           | HAZ                               |              | CANO<br>RIS  |                       | HAZ.<br>IND  |              | CANO<br>RIS  |              |
| RECEPTOR                          | EXPOSURE ROUTE                            | IND                               | Percent      | RIS          | Percent               | IND          | Percent      | RIS          | Percent      |
|                                   |   | Hazard Index                      | Contribution | Cancer Risk  | Contribution          | Hazard Index | Contribution | Cancer Risk  | Contribution |
| INDUSTRIAL WORKER<br>(Soil)       | Inhalation of Dust in Ambient Air (Soil)  | NQ                                | 0%           | 1E-07        | 0%                    | NQ           | 0%           | 2E-08        | 1%           |
| _                                 | Ingestion of Soil                         | 3E-01                             | 93%          | 1E-05        | 58%                   | 1E-01        | 99%          | 2E-06        | 87%          |
|                                   | Dermal Contact to Soil                    | 2E-02                             | 7%           | 1E-05        | 42%                   | 2E-03        | 1%           | 3E-07        | 13%          |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>4E-01</u>                      | 100%         | <u>3E-05</u> | 100%                  | <u>2E-01</u> | 100%         | <u>3E-06</u> | 100%         |
| INDUSTRIAL WORKER<br>(Ditch Soil) | Inhalation of Dust in Ambient Air (Ditch) | NQ                                | 0%           | 8E-08        | 6%                    | NQ           | 0%           | 1E-08        | 7%           |
| (Ditti Son)                       | Ingestion of Ditch Soil                   | 2E-02                             | 96%          | 9E-07        | 62%                   | 8E-03        | 99%          | 2E-07        | 84%          |
|                                   | Dermal Contact to Ditch Soil              | 6E-04                             | 4%           | 5E-07        | 32%                   | 6E-05        | 1%           | 2E-08        | 9%           |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>2E-02</u>                      | 100%         | <u>1E-06</u> | 100%                  | <u>9E-03</u> | 100%         | <u>2E-07</u> | 100%         |
| CONSTRUCTION WORKER<br>(Soil)     | Inhalation of Dust in Ambient Air (Soil)  | 4E-06                             | 0%           | 2E-07        | 13%                   | 4E-06        | 0%           | 2E-07        | 25%          |
| (501)                             | Ingestion of Soil                         | 7E-01                             | 97%          | 1E-06        | 67%                   | 2E-01        | 91%          | 3E-07        | 38%          |
|                                   | Dermal Contact to Soil                    | 2E-02                             | 3%           | 4E-07        | 20%                   | 2E-02        | 9%           | 3E-07        | 37%          |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | Dermal Contact to Groundwater             | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>8E-01</u>                      | 100%         | <u>2E-06</u> | 100%                  | <u>2E-01</u> | 100%         | <u>9E-07</u> | 100%         |
| CONSTRUCTION WORKER (Ditch Soil)  | Inhalation of Dust in Ambient Air (Ditch) | NQ                                | 0%           | 2E-08        | 3%                    | NQ           | 0%           | 2E-08        | 6%           |
| (Dich Son)                        | Ingestion of Ditch Soil                   | 3E-01                             | 86%          | 6E-07        | 78%                   | 7E-02        | 66%          | 2E-07        | 52%          |
|                                   | Dermal Contact to Ditch Soil              | 5E-03                             | 1%           | 1E-07        | 18%                   | 4E-03        | 4%           | 1E-07        | 41%          |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | Dermal Contact to Groundwater             | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | Dermal Contact to Surface Water           | 4E-02                             | 13%          | 5E-09        | 1%                    | 3E-02        | 30%          | 4E-09        | 1%           |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E-01</u>                      | 100%         | <u>7E-07</u> | 100%                  | <u>1E-01</u> | 100%         | <u>3E-07</u> | 100%         |
| ADOLESCENT TRESPASSER<br>(Soil)   | Inhalation of Dust in Ambient Air (Soil)  | NQ                                | 0%           | 1E-10        | 0%                    | NQ           | 0%           | 1E-10        | 0%           |
| (501)                             | Ingestion of Soil                         | 3E-02                             | 96%          | 2E-07        | 69%                   | 1E-02        | 99%          | 1E-07        | 89%          |
|                                   | Dermal Contact to Soil                    | 1E-03                             | 4%           | 1E-07        | 31%                   | 2E-04        | 1%           | 1E-08        | 11%          |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E-02</u>                      | 100%         | <u>3E-07</u> | 100%                  | <u>1E-02</u> | 100%         | <u>1E-07</u> | 100%         |
| ADOLESCENT TRESPASSER             | Inhalation of Dust in Ambient Air (Ditch) | NQ                                | 0%           | 1E-10        | 0%                    | NQ           | 0%           | 1E-10        | 0%           |
| (Ditch Soil)                      | Ingestion of Ditch Soil                   | 7E-03                             | 25%          | 7E-08        | 67%                   | 3E-03        | 15%          | 3E-08        | 69%          |
|                                   | Dermal Contact to Ditch Soil              | 2E-04                             | 1%           | 2E-08        | 22%                   | 2E-05        | 0%           | 3E-09        | 6%           |
|                                   | Intake of Groundwater                     | ND                                | 0%           | ND           | 0%                    | ND           | 0%           | ND           | 0%           |
|                                   | Dermal Contact to Surface Water           | 2E-02                             | 74%          | 1E-08        | 12%                   | 2E-02        | 85%          | 1E-08        | 24%          |
|                                   | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E-02</u>                      | 100%         | <u>1E-07</u> | 100%                  | 2E-02        | 100%         | 5E-08        | 100%         |
|                                   | <del></del>                               |                                   |              |              |                       |              |              |              |              |

NQ= Not quantified due to lack of toxicity data.

ND = Not quantified since no COPCs were detected above screening levels.

#### Table 6-12B

### CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-121I REASONABLE MAXIMUM EXPOSURE (RME) AND CENTRAL TENDENCY (CT) SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

|                                |  | REASONABLE MAXIMUM EXPOSURE (RME) |                         |              |                         |              | CENTRAL TE              | NDENCY (CT)  |                         |  |
|--------------------------------|--|-----------------------------------|-------------------------|--------------|-------------------------|--------------|-------------------------|--------------|-------------------------|--|
| RECEPTOR                       | EXPOSURE ROUTE                           | HAZ.                              |                         | CAN<br>RIS   |                         | HAZ/<br>IND  |                         | CANO<br>RIS  |                         |  |
|                                |  | Hazard Index                      | Percent<br>Contribution | Cancer Risk  | Percent<br>Contribution | Hazard Index | Percent<br>Contribution | Cancer Risk  | Percent<br>Contribution |  |
| INDUSTRIAL WORKER              | Inhalation of Dust in Ambient Air (Soil  | 2E+01                             | 82%                     | 4E-06        | 6%                      | 1E+01        | 84%                     | 7E-07        | 9%                      |  |
| (Soil)                         | Ingestion of Soil                        | 5E+00                             | 16%                     | 4E-05        | 54%                     | 2E+00        | 15%                     | 6E-06        | 79%                     |  |
|                                | Dermal Contact to Soil                   | 8E-01                             | 2%                      | 3E-05        | 39%                     | 7E-02        | 0%                      | 9E-07        | 11%                     |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | 3E+01                             | 100%                    | 7E-05        | 100%                    | <u>1E+01</u> | 100%                    | <u>8E-06</u> | 100%                    |  |
| INDUSTRIAL WORKER (Ditch Soil) | Inhalation of Dust in Ambient Air (Ditch | 3E+00                             | 94%                     | 1E-06        | 6%                      | 1E+00        | 94%                     | 2E-07        | 7%                      |  |
| (Ditti Soil)                   | Ingestion of Ditch Soil                  | 1E-01                             | 5%                      | 1E-05        | 62%                     | 7E-02        | 6%                      | 2E-06        | 84%                     |  |
|                                | Dermal Contact to Ditch Soil             | 2E-02                             | 1%                      | 6E-06        | 32%                     | 2E-03        | 0%                      | 2E-07        | 9%                      |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | 3E+00                             | 100%                    | 2E-05        | 100%                    | 1E+00        | 100%                    | 3E-06        | 100%                    |  |
| CONSTRUCTION WORKER (Soil)     | Inhalation of Dust in Ambient Air (Soil  | 2E+02                             | 91%                     | 1E-06        | 14%                     | 1E+02        | 96%                     | 1E-06        | 26%                     |  |
| (5011)                         | Ingestion of Soil                        | 2E+01                             | 9%                      | 5E-06        | 64%                     | 4E+00        | 3%                      | 1E-06        | 35%                     |  |
|                                | Dermal Contact to Soil                   | 1E+00                             | 1%                      | 2E-06        | 21%                     | 1E+00        | 1%                      | 1E-06        | 39%                     |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | 2E+02                             | 100%                    | <u>8E-06</u> | 100%                    | <u>1E+02</u> | 100%                    | <u>4E-06</u> | 100%                    |  |
| CONSTRUCTION WORKER            | Inhalation of Dust in Ambient Air (Ditch | 2E+01                             | 86%                     | 3E-07        | 3%                      | 1E+01        | 95%                     | 3E-07        | 6%                      |  |
| (Ditch Soil)                   | Ingestion of Ditch Soil                  | 2E+00                             | 13%                     | 8E-06        | 79%                     | 6E-01        | 4%                      | 2E-06        | 53%                     |  |
|                                | Dermal Contact to Ditch Soil             | 2E-01                             | 1%                      | 2E-06        | 18%                     | 2E-01        | 1%                      | 2E-06        | 41%                     |  |
|                                | Dermal Contact to Surface Water          | NQ                                | 0%                      | NQ           | 0%                      | NQ           | 0%                      | NQ           | 0%                      |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | <u>2E+01</u>                      | 100%                    | <u>1E-05</u> | 100%                    | <u>2E+01</u> | 100%                    | <u>4E-06</u> | 100%                    |  |
| ADOLESCENT TRESPASSER (Soil)   | Inhalation of Dust in Ambient Air (Soil  | 2E-01                             | 28%                     | 6E-09        | 1%                      | 2E-01        | 45%                     | 6E-09        | 2%                      |  |
| (5011)                         | Ingestion of Soil                        | 4E-01                             | 66%                     | 6E-07        | 68%                     | 2E-01        | 53%                     | 3E-07        | 87%                     |  |
|                                | Dermal Contact to Soil                   | 4E-02                             | 7%                      | 3E-07        | 31%                     | 5E-03        | 2%                      | 4E-08        | 11%                     |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | 6E-01                             | 100%                    | 9E-07        | 100%                    | <u>3E-01</u> | 100%                    | <u>4E-07</u> | 100%                    |  |
| ADOLESCENT TRESPASSER          | Inhalation of Dust in Ambient Air (Ditch | 2E-02                             | 20%                     | 1E-09        | 0%                      | 2E-02        | 35%                     | 1E-09        | 0%                      |  |
| (Ditch Soil)                   | Ingestion of Ditch Soil                  | 6E-02                             | 73%                     | 1E-06        | 76%                     | 3E-02        | 64%                     | 5E-07        | 91%                     |  |
|                                | Dermal Contact to Ditch Soil             | 6E-03                             | 7%                      | 3E-07        | 24%                     | 8E-04        | 2%                      | 4E-08        | 8%                      |  |
|                                | Dermal Contact to Surface Water          | NQ                                | 0%                      | NQ           | 0%                      | NQ           | 0%                      | NQ           | 0%                      |  |
|                                | TOTAL RECEPTOR RISK (Nc & Car)           | 8E-02                             | 100%                    | <u>1E-06</u> | 100%                    | 5E-02        | 100%                    | 5E-07        | 100%                    |  |
|                                |  |                                   | -                       |              |                         |              |                         |              |                         |  |

 $NQ\!\!=\!Not$  quantified due to lack of toxicity data. Shading indicates that the HQ>1, or the cancer risk is greater than 10-4.

# Table 6-13 Contributing COPCs to Human Health Risk at SEAD-121I SEAD-121I

# SEAD-121C AND SEAD-121I RI REPORT

|                     | Exposure  | Contributing | Hazard   | Percent      |
|---------------------|---|--------------|----------|--------------|
| Receptors           | Route   | COPC         | Quotient | Contribution |
| Industrial Worker   | Inhalation of Dust in Ambient Air Due to Soil       | Manganese    | 2E+01    | 100%         |
|                     | Ingestion of Soil                                   | Manganese    | 4E+00    | 95%          |
|                     | Inhalation of Dust in Ambient Air Due to Ditch Soil | Manganese    | 3E+00    | 100%         |
| Construction Worker | Inhalation of Dust in Ambient Air Due to Soil       | Manganese    | 2E+02    | 100%         |
|                     | Ingestion of Soil                                   | Manganese    | 1E+01    | 95%          |
|                     | Dermal Contact to Soil                              | Manganese    | 1E+00    | 97%          |
|                     | Inhalation of Dust in Ambient Air Due to Ditch Soil | Manganese    | 2E+01    | 100%         |
|                     | Ingestion of Ditch Soil                             | Arsenic      | 7E-01    | 27%          |
|                     |   | Iron         | 2E-01    | 9%           |
|                     |   | Manganese    | 1E+00    | 61%          |

#### **TABLE 6-14A**

# CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C & SEAD-27 (low flow) SEAD-121C AND SEAD-121I RI REPORT

## Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Groundwater (mg/L)
IR = Intake Rate
BW=Bodyweight
EF = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                        | Oral         | Carc. Slope   | EPC         |            | Industria   | l Worker     |        |            | Constructi   | on Worker     |        |            | Adolescent    | Trespasser    |         |
|------------------------|--------------|---------------|-------------|------------|-------------|--------------|--------|------------|--------------|---------------|--------|------------|---------------|---------------|---------|
| Analyte                | RfD          | Oral          | Groundwater | Int        | ake         | Hazard       | Cancer | Int        | ake          | Hazard        | Cancer | Int        | ake           | Hazard        | Cancer  |
|                        |              |               |             | (mg/k      | g-day)      | Quotient     | Risk   | (mg/k      | g-day)       | Quotient      | Risk   | (mg/k      | g-day)        | Quotient      | Risk    |
|                        | (mg/kg-day)  | (mg/kg-day)-1 | (mg/liter)  | (Nc)       | (Car)       |              |        | (Nc)       | (Car)        |               |        | (Nc)       | (Car)         |               |         |
| Volatile Organic Compo | unds         |               |             |            |             |              |        |            |              |               |        |            |               |               |         |
| 1,2-Dichloropropane    | N/A          | 6.8E-02       | 2.9E-03     | 2.8E-05    | 1.0E-05     |              | 7E-07  | 2.8E-05    | 4.0E-07      |               | 3E-08  | 4.4E-06    | 3.1E-07       |               | 2E-08   |
| Vinyl chloride         | 3.00E-03     | 1.4E+00       | 2.7E-03     | 2.7E-05    | 9.5E-06     | 9E-03        | 1E-05  | 2.7E-05    | 3.8E-07      | 9E-03         | 5E-07  | 4.2E-06    | 3.0E-07       | 1E-03         | 4E-07   |
| Metals                 |              |               |             |            |             |              |        |            |              |               |        |            |               |               |         |
| Arsenic                | 3.00E-04     | 1.5E+00       | 2.8E-03     | 2.7E-05    | 9.7E-06     | 9E-02        | 1E-05  | 2.7E-05    | 3.9E-07      | 9E-02         | 6E-07  | 4.2E-06    | 3.0E-07       | 1E-02         | 5E-07   |
| Iron                   | 3.00E-01     | N/A           | 2.5E+02     | 2.4E+00    | 8.6E-01     | 8E+00        |        | 2.4E+00    | 3.5E-02      | 8E+00         |        | 3.8E-01    | 2.7E-02       | 1E+00         |         |
| Manganese              | 9.33E-04     | N/A           | 9.6E-01     | 9.4E-03    | 3.4E-03     | 1E+01        |        | 9.4E-03    | 1.3E-04      | 1E+01         |        | 1.5E-03    | 1.1E-04       | 2E+00         |         |
| Thallium               | 6.47E-04     | N/A           | 2.7E-03     | 2.7E-05    | 9.5E-06     | 4E-02        |        | 2.7E-05    | 3.8E-07      | 4E-02         |        | 4.2E-06    | 3.0E-07       | 6E-03         |         |
| Total Hazard Quotie    | nt and Cance | r Risk:       |             |            |             | 2E+01        | 3E-05  |            |              | 2E+01         | 1E-06  |            |               | 3E+00         | 9E-07   |
|                        |              |               |             | Assu       | mptions for | Industrial W | orker  | Assum      | ptions for C | onstruction V | Vorker | Assum      | ptions for Ac | lolescent Tre | spasser |
|                        |              |               |             |            |             |              |        |            |              |               |        |            |               |               |         |
|                        |              |               |             | BW =       | 70          | kg           |        | BW =       | 70           | kg            |        | BW =       | 50            | kg            |         |
|                        |              |               |             | IR =       | 1           | liters/day   |        | IR =       | 1            | liters/day    |        | IR =       | 2             | liters/day    |         |
|                        |              |               |             | EF =       | 250         | days/year    |        | EF =       | 250          | days/year     |        | EF =       | 14            | days/year     |         |
|                        |              |               |             | ED =       | 25          | years        |        | ED =       | 1            | years         |        | ED =       | 5             | years         |         |
|                        |              |               |             | AT (Nc) =  | 9,125       | days         |        | AT (Nc) =  | 365          | days          |        | AT (Nc) =  | 1,825         | days          |         |
|                        |              |               |             | AT (Car) = | 25,550      | days         |        | AT (Car) = | 25,550       | days          |        | AT (Car) = | 25,550        | days          |         |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

# TABLE 6-14B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C & SEAD-27 (low flow)

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| Equation for Dermal (mg/kg-day) =  | DA x SA x EF x ED x EV<br>BW x AT                                | Equation for Absorbed Dose per Event (DA):   | K <sub>p</sub> = Permeability Coefficient,cm/hr<br>EPC = EPC in Groundwater, mg/L  |   |
|--|--|--|--|---|
|  |  | For inorganics DA = Kp x EPC x $t_{event}$ x C   | C = Conversion Factor, 10 <sup>3</sup> L/cm <sup>3</sup>   |   |
|  |  | For organics: If $t_{event} \le t^*$ , then: $DA_{event} = 2 \text{ FA x } K_p$                  | x EPC x C ( $(6 \tau_{event} \times t_{event}) / \pi$ ) <sup>1/2</sup>   |   |
| Variables (Assumptions for Each Receptor are Listed at the Bo                                | ottom):  | if $t_{event} > t^*$ , then: $DA_{event} = FA \times K_p \times F$                               | $PC \ x \ C \ [\ (t_{event} /\ 1 + B) + 2\ \tau_{event} \ (\ (1 + 3\ B + 3\ B^2) \ /\ (1 + B)^2\ )\ ]$                           | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RfD) |
| DA = Absorbed Dose per Event, mg/cm²-event SA = Surface Area Contact EF = Exposure Frequency | ED = Exposure Duration<br>BW = Bodyweight<br>AT = Averaging Time |  | bility coefficient of a compound through the stratum corneum<br>ent across the viable epidermis (ve) (dimensionless)<br>ionless) | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor          |
| EV = Event Frequency   |  | $B = Kp (MW)^{1/2} / 2.6$  | If B<= 0.6, then t*=2.4 $\tau_{event}$   |   |
|  |  | $\tau_{event}$ is Lag Time per event (hr/event) = 0.105 x $10^{0.00}$                            | $^{56MV}$ If B > 0.6, then $t^* = 6t_{event} (b-SQRT(b^2-c^2))$  |   |
|  |  | <pre>t* is time to reach steady-state (hr) t<sub>event</sub> = duration of event, hr/event</pre> | $b = ((2(1+B)^2)/\pi) - c$ $c = (1+3B+3B^2)/3(1+B)$  |   |
|  |  |  |  |   |

|                             | Dermal       | Carc. Slope   | Permeability |                    | Fraction |          |          | EPC      | Absorbed       | Indus       | strial Wor   | ker      |                         | Construction   | n Worker     |        | Adolescent     | Trespasser   |        |
|-----------------------------|--------------|---------------|--------------|--------------------|----------|----------|----------|----------|----------------|-------------|--------------|----------|-------------------------|----------------|--------------|--------|----------------|--------------|--------|
| Analyte                     | RfD          | Dermal        | Coefficient  | τ <sub>event</sub> | Absorbed | В        | t*       | Ground   | Dose/Event     | Intake      | Hazard       | Cancer   | In                      | take           | Hazard       | Cancer | Intake         | Hazard       | Cancer |
|                             |              |               | Kp           |                    | Water    |          |          | Water    |                | (mg/kg-day) | Quotient     | Risk     | (mg/l                   | kg-day)        | Quotient     | Risk   | (mg/kg-day)    | Quotient     | Risk   |
|                             | (mg/kg-day)  | (mg/kg-day)-1 | (cm/hr)      | (hr/event)         |          |          | (hour)   | (mg/L)   | (mg/cm2-event) | (Nc) (Car)  |              |          | (Nc)                    | (Car)          |              |        | (Nc) (Car)     |              |        |
| Volatile Organic Compounds  |              |               |              |                    |          |          |          |          |                |             |              |          |                         |                |              |        |                |              |        |
| 1,2-Dichloropropane         | N/A          | 6.8E-02       | 7.8.E-03     | 4.5.E-01           | 1.0.E+00 | 3.2.E-02 | 1.1.E+00 | 2.9.E-03 | 2.9.E-08       |             |              |          |                         | 4.07E-09       |              | 3E-10  |                |              |        |
| Vinyl chloride              | 3.E-03       | 1.4E+00       | 5.6.E-03     | 2.4.E-01           | 1.0.E+00 | 1.7.E-02 | 5.6.E-01 | 2.7.E-03 | 1.4.E-08       | Dermal Con  | tact to Gro  | undwater | 1.41E-07                | 2.01E-09       | 5E-05        | 3E-09  | Dermal Contact | to Groundw   | ater   |
| Metals                      |              |               |              |                    |          |          |          |          |                |             | t Applicable |          |                         |                |              |        |                | plicable     |        |
| Arsenic                     | 3.E-04       | 1.5E+00       | 1.9.E-03     | 2.8.E-01           |          |          |          | 2.8.E-03 | 2.7.E-09       |             | lustrial Wor |          | 2.60E-08                | 3.72E-10       | 9E-05        | 6E-10  | for Adolesce   |              |        |
| Iron                        | 3.0.E-01     | N/A           | 2.5.E-04     | 2.2.E-01           |          |          |          | 2.5.E+02 | 3.1.E-05       | 101 1110    |              |          | 2.97E-04                |                | 1E-03        | l      | Tor Tradicace  | не ттеориосе |        |
| Manganese                   | 9.3.E-04     | N/A           | 1.3.E-03     | 2.1.E-01           |          |          |          | 9.6.E-01 | 6.1.E-07       |             |              |          | 5.99E-06                |                | 6E-03        |        |                |              |        |
| Thallium                    | 6.5.E-04     | N/A           | 1.6.E-04     | 1.5.E+00           |          |          |          | 2.7.E-03 | 2.1.E-10       |             |              |          | 2.08E-09                |                | 3E-06        |        |                |              |        |
| Total Hazard Quotient and ( | Cancer Risk: | :             |              |                    |          |          |          |          |                |             |              |          |                         |                | 8E-03        | 4E-09  |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | Assun                   | nptions for Co | nstruction W | orker  |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | BW =                    |                | kg           |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | SA =                    | 2,490          |              |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | EV=                     |                | event/day    |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | EF =                    |                | days/year    |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | ED =                    |                | year         |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | t <sub>event</sub> =    |                | hr/event     |        |                |              |        |
|                             |              |               |              |                    |          |          |          |          |                |             |              |          | AT (Nc) =<br>AT (Car) = | 25,550         | days         |        |                |              |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity dat

Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exibit B-1 or B-2, Kp was calculated using: Kp = 10^(-2.80+0.66(logKow)-0.0056(MW))

DERMGW 27\_121C\RME

Table 6-15
Comparison of Risk Due to Dermal Contact to Wet vs. Dry Ditch Soil (RME)
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

|               | Industria | l Worker | Constr. | Worker | Adolescent | Trespasser |
|---------------|-----------|----------|---------|--------|------------|------------|
|               | HI        | Cancer   | HI      | Cancer | HI         | Cancer     |
| SEAD-121C dry | 6E-04     | 5E-07    | 2E-04   | 2E-08  | 2E-04      | 2E-08      |
| SEAD-121C wet | 3E-03     | 2E-06    | 2E-02   | 5E-07  | 2E-03      | 3E-07      |
| SEAD-121I dry | 2E-02     | 6E-06    | 2E-01   | 2E-06  | 6E-03      | 3E-07      |
| SEAD-121I wet | 1E-01     | 3E-05    | 6E-01   | 6E-06  | 8E-02      | 4E-06      |

# Table 7-1A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

## SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| CAS Number     | Chemical                       | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration <sup>1</sup> | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                         | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|----------------|--------------------------------|--|---|--|---|--|------------------------|--|--|-------------------------------|--|--------------|---|
| Volatile Organ | ic Compounds                   |  |   |  |   |  |                        |  |  |                               |  |              |   |
| 67-64-1        | Acetone                        | 0.0032                                   | J | 0.028                                    | J | SB121C-4   | 22 / 67                | 0.0022 - 0.03  |  | 2.5                           | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 71-43-2        | Benzene                        | 0.002                                    | J | 1.8                                      | J | SBDRMO-9   | 3 / 68                 | 0.0022 - 0.012                                       |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 75-15-0        | Carbon disulfide               | 0.0022                                   | J | 0.0047                                   |   | SBDRMO-9   | 2 / 68                 | 0.0022 - 0.012                                       |  | 0.094                         | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 67-66-3        | Chloroform                     | 0.002                                    | J | 0.0048                                   | J | SB121C-4<br>(dup)                                    | 4 / 68                 | 0.0022 - 0.012                                       |  | 0.3                           | Region III BTAG - soil fauna                                   | NO           | BSL   |
| 100-41-4       | Ethyl benzene                  | 0.001005                                 | J | 24                                       | J | SBDRMO-9   | 3 / 68                 | 0.0022 - 0.012                                       |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| SA0078         | Meta/Para Xylene               | 0.002                                    | J | 130                                      | J | SBDRMO-9   | 4 / 56                 | 0.0022 - 0.0033                                      |  | 0.1                           | Region III BTAG - soil fauna for xylene                        | YES          | ASL   |
| 78-93-3        | Methyl ethyl ketone            | 0.0032                                   |   | 0.0076                                   | J | SBDRMO-14  | 2 / 68                 | 0.0022 - 0.012                                       |  | 35                            | Dutch - Indicative Level                                       | NO           | BSL   |
| 75-09-2        | Methylene chloride             | 0.0026                                   | J | 0.0035                                   |   | SBDRMO-24  | 3 / 68                 | 0.00084 - 0.012                                      |  | 0.3                           | Region III BTAG - soil fauna                                   | NO           | BSL   |
| 95-47-6        | Ortho Xylene                   | 0.016                                    |   | 0.075                                    |   | SBDRMO-9   | 2 / 56                 | 0.0022 - 0.0033                                      |  | 0.1                           | Region III BTAG - soil fauna for xylene                        | NO           | BSL   |
| 100-42-5       | Styrene                        | 0.0027                                   | J | 0.0027                                   | J | SBDRMO-9   | 1 / 68                 | 0.0022 - 0.012                                       |  | 0.1                           | Region III BTAG - soil fauna                                   | NO           | BSL   |
| 108-88-3       | Toluene                        | 0.002                                    | J | 0.084                                    |   | SBDRMO-9   | 13 / 68                | 0.0022 - 0.005                                       |  | 0.1                           | Region III BTAG - soil fauna                                   | NO           | BSL   |
| Semivolatile O | rganic Compounds               |  |   |  |   |  |                        |  |  |                               |  |              |   |
| 121-14-2       | 2,4-Dinitrotoluene             | 0.045                                    | J | 0.045                                    | J | SB121C-2   | 1 / 68                 | 0.069 - 1.8  |  | 1.28                          | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 91-57-6        | 2-Methylnaphthalene            | 0.0055                                   | J | 2.5                                      | J | SBDRMO-12  | 13 / 68                | 0.069 - 1.8  |  | 3.24                          | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 83-32-9        | Acenaphthene                   | 0.0065                                   | J | 2.6                                      |   | SSDRMO-12  | 14 / 68                | 0.0715 - 1.8   |  | 20                            | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1 | YES          | IBC   |
| 208-96-8       | Acenaphthylene                 | 0.042                                    | J | 2.5                                      |   | SBDRMO-24  | 12 / 68                | 0.069 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 120-12-7       | Anthracene                     | 0.0065                                   | J | 7.1                                      |   | SSDRMO-12  | 23 / 68                | 0.0715 - 1.8   |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 56-55-3        | Benzo(a)anthracene             | 0.0046                                   | J | 10                                       | J | SSDRMO-12  | 33 / 67                | 0.072 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 50-32-8        | Benzo(a)pyrene                 | 0.006                                    | J | 8.7                                      | J | SSDRMO-12  | 30 / 66                | 0.0715 - 0.43  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 205-99-2       | Benzo(b)fluoranthene           | 0.0058                                   | J | 12                                       | J | SSDRMO-12  | 38 / 66                | 0.072 - 0.43   |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 191-24-2       | Benzo(ghi)perylene             | 0.0062                                   | J | 3.2                                      | J | SSDRMO-7<br>(dup)                                    | 32 / 66                | 0.0715 - 0.43  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 207-08-9       | Benzo(k)fluoranthene           | 0.0057                                   | J | 7.5                                      | J | SSDRMO-12  | 28 / 66                | 0.0715 - 0.43  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 117-81-7       | Bis(2-<br>Ethylhexyl)phthalate | 0.0072                                   | J | 0.2                                      |   | SS121C-3   | 35 / 68                | 0.073 - 1.8  |  | 0.925                         | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 85-68-7        | Butylbenzylphthalate           | 0.0064                                   | J | 0.12                                     | J | SSDRMO-14  | 8 / 68                 | 0.0715 - 1.8   |  | 0.239                         | Region 5 - Ecological Screening<br>Value                       | NO           | BSL   |
| 86-74-8        | Carbazole                      | 0.014                                    | J | 4.2                                      |   | SSDRMO-12  | 20 / 68                | 0.0715 - 1.8   |  | NA                            |  | YES          | NSV   |
| 218-01-9       | Chrysene                       | 0.0055                                   | J | 9.1                                      | J | SSDRMO-12  | 32 / 67                | 0.072 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 53-70-3        | Dibenz(a,h)anthracene          | 0.0076                                   | J | 0.47                                     | J | SSDRMO-7<br>(dup)                                    | 15 / 66                | 0.0715 - 0.43  |  | 0.1                           | Region III BTAG - soil fauna                                   | YES          | ASL   |
| 132-64-9       | Dibenzofuran                   | 0.008                                    | J | 1.7                                      |   | SSDRMO-12  | 13 / 68                | 0.069 - 1.8  |  | NA                            |  | YES          | NSV   |

# Table 7-1A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| CAS Number               | Chemical               | Minimum Detected Concentration 1 (mg/kg) | Q  | Maximum Detected Concentration 1 (mg/kg) | Q  | Location of<br>Maximum<br>Concentration <sup>1</sup> | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                             | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|--------------------------|------------------------|--|----|--|----|--|------------------------|--|--|-------------------------------|--|--------------|---|
| 84-66-2                  | Diethylphthalate       | 0.0047                                   | J  | 0.25                                     | J  | SBDRMO-24  | 11 / 68                | 0.073 - 1.8  |  | 100                           | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | NO           | BSL   |
| 84-74-2                  | Di-n-butylphthalate    | 0.0053                                   | J  | 0.13                                     | J  | SSDRMO-7<br>(dup)                                    | 7 / 68                 | 0.069 - 1.8  |  | 200                           | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | NO           | BSL   |
| 117-84-0                 | Di-n-octylphthalate    | 0.0038                                   | J  | 0.023                                    | J  | SB121C-1<br>(dup)                                    | 5 / 68                 | 0.0715 - 1.8   |  | NA                            |  | YES          | NSV   |
| 206-44-0                 | Fluoranthene           | 0.0048                                   | J  | 27                                       | ш  | SSDRMO-12  | 43 / 68                | 0.072 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | ASL   |
| 86-73-7                  | Fluorene               | 0.005                                    | J  | 3.5                                      |    | SSDRMO-12  | 17 / 68                | 0.0715 - 1.8   |  | 30                            | Oak Ridge - Benchmark<br>concentrations for earthworms,<br>Table 1 | YES          | IBC   |
| 118-74-1                 | Hexachlorobenzene      | 0.0085                                   | J  | 0.0085                                   | J  | SB121C-2   | 1 / 68                 | 0.069 - 1.8  |  | 0.199                         | Region 5 - Ecological Screening<br>Value                           | YES          | IBC   |
| 193-39-5                 | Indeno(1,2,3-cd)pyrene | 0.0059                                   | J  | 0.97                                     | J  | SSDRMO-7<br>(dup)                                    | 28 / 68                | 0.0715 - 1.8   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | ASL   |
| 91-20-3                  | Naphthalene            | 0.004                                    | J  | 1.9                                      | J  | SBDRMO-12  | 13 / 68                | 0.0715 - 1.8   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | ASL   |
| 86-30-6                  | N-Nitrosodiphenylamine | 0.0048                                   | J  | 0.0048                                   | J  | SB121C-2   | 1 / 68                 | 0.069 - 1.8  | 7  | 20                            | Oak Ridge - Benchmark<br>concentrations for earthworms,<br>Table 1 | NO           | BSL   |
| 85-01-8                  | Phenanthrene           | 0.0059                                   | J  | 29                                       |    | SSDRMO-12  | 33 / 68                | 0.072 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | ASL   |
| 129-00-0                 | Pyrene                 | 0.0047                                   | J  | 34                                       | J  | SSDRMO-12  | 40 / 68                | 0.072 - 1.8  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | ASL   |
| PCBs                     |                        |  |    |  | 1  |  |                        |  |  |                               |  |              |   |
| 53469-21-9               | Aroclor-1242           | 0.058                                    | J  | 0.058                                    | J  | SS121C-4   | 1 / 68                 | 0.0024 - 0.038                                       |  | 0.1                           | Region III BTAG - soil flora                                       | YES          | IBC   |
| 11097-69-1               | Aroclor-1254           | 0.044                                    | J  | 0.93                                     | ш  | SBDRMO-18  | 9 / 68                 | 0.011 - 0.038  |  | 0.1                           | Region III BTAG - soil flora                                       | YES          | ASL   |
| 11096-82-5<br>Pesticides | Aroclor-1260           | 0.009                                    | J  | 0.20                                     |    | SB121C-2   | 8 / 68                 | 0.0021 - 0.038                                       | _  | 0.1                           | Region III BTAG - soil flora                                       | YES          | ASL   |
| 72-54-8                  | 4,4'-DDD               | 0.0019                                   | J  | 0.044                                    | J  | SBDRMO-18  | 5 / 59                 | 0.00022 - 0.0039                                     |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | IBC   |
| 72-55-9                  | 4,4'-DDE               | 0.0025                                   | J  | 0.069                                    | J  | SS121C-3   | 18 / 67                | 0.00022 - 0.0038                                     |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | IBC   |
| 50-29-3                  | 4,4'-DDT               | 0.0021                                   | J  | 0.12                                     | J  | SS121C-3   | 16 / 67                | 0.00022 - 0.0038                                     |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | IBC   |
| 309-00-2                 | Aldrin                 | 0.0045                                   |    | 0.014                                    | J  | SBDRMO-16<br>(dup)                                   | 4 / 68                 | 0.00011 - 0.0022                                     |  | 0.1                           | Region III BTAG - soil fauna                                       | YES          | IBC   |
| 5103-71-9                | Alpha-Chlordane        | 0.001                                    | J  | 0.063                                    | J  | SBDRMO-16<br>(dup)                                   | 4 / 68                 | 0.00032 - 0.0022                                     |  | 0.1                           | Region III BTAG for chlordane                                      | YES          | IBC   |
| 319-86-8                 | Delta-BHC              | 0.000975                                 | J  | 0.002                                    | J  | SS121C-4   | 4 / 68                 | 0.00022 - 0.0022                                     |  | 0.00398                       | Region 5 - Ecological Screening<br>Value                           | YES          | IBC   |
| 60-57-1                  | Dieldrin               | 0.039                                    | J  | 0.041                                    | J  | SBDRMO-16<br>(dup)                                   | 2 / 67                 | 0.00011 - 0.0038                                     |  | 0.00003                       | USEPA 2005 mammalian   | YES          | ASL   |
| 959-98-8                 | Endosulfan I           | 0.00575                                  |    | 0.19                                     | J  | SSDRMO-7<br>(dup)                                    | 19 / 68                | 0.00054 - 0.0022                                     |  | 0.119                         | Region 5 - Ecological Screening<br>Value                           | YES          | ASL   |
| 33213-65-9               | Endosulfan II          | 0.009                                    |    | 0.009                                    |    | SBDRMO-24  | 1 / 67                 | 0.00034 - 0.0038                                     |  | 0.119                         | Region 5 - Ecological Screening<br>Value                           | YES          | IBC   |
| 72-20-8                  | Endrin                 | 0.0215                                   | J  | 0.023                                    | J  | SBDRMO-16  | 2 / 67                 | 0.00086 - 0.0038                                     |  | 0.1                           | Region III BTAG for chlordane                                      | YES          | IBC   |
| 53494-70-5               | Endrin ketone          | 0.0034                                   | NJ | 0.0097                                   | NJ | SBDRMO-16  | 4 / 68                 | 0.00011 - 0.0038                                     |  | NA                            |  | YES          | NSV   |

# Table 7-1A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

## SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| CAS Number     | Chemical           | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration <sup>1</sup> | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                             | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|----------------|--------------------|--|---|--|---|--|------------------------|--|--|-------------------------------|--|--------------|---|
| 5103-74-2      | Gamma-Chlordane    | 0.0012                                   | T | 0.0012                                   | ĭ | SS121C-4   | 1 / 68                 | 0.00032 - 0.0022                                     |  | 0.1                           | Region III BTAG for chlordane                                      | YES          | IBC   |
| 76-44-8        | Heptachlor         | 0.0012                                   | J |  | J | SBDRMO-18  | 2 / 67                 | 0.00032 - 0.0022                                     |  | 0.00598                       | Region 5 - Ecological Screening Value                              | YES          | ASL   |
| 1024-57-3      | Heptachlor epoxide | 0.0011                                   | J | 0.0028                                   | J | SS121C-3   | 3 / 65                 | 0.00032 - 0.0022                                     |  | 0.1                           | Region III BTAG for chlordane                                      | YES          | IBC   |
| Metals         |                    |  |   |  |   |  |                        |  |  |                               |  |              |   |
| 7429-90-5      | Aluminum           | 1,730                                    |   | 17,600                                   |   | SBDRMO-13  | 68 / 68                |  | 20,500   | NA                            |  | NO           | NPH   |
| 7440-36-0      | Antimony           | 0.32                                     | J | 236                                      |   | SSDRMO-24  | 43 / 68                | 0.26 - 1.2   | 6.55   | 0.27                          | USEPA, 2005, mammalian   | YES          | ASL   |
| 7440-38-2      | Arsenic            | 2.4                                      | J | 11.6                                     |   | SSDRMO-24  | 68 / 68                |  | 21.5   | 18                            | USEPA, 2005, plants  | YES          | IBC   |
| 7440-39-3      | Barium             | 18.1                                     |   | 2,030                                    | J | SSDRMO-24  | 68 / 68                |  | 159  | 330                           | USEPA, 2005, soil invertebrates                                    | YES          | ASL   |
| 7440-41-7      | Beryllium          | 0.21                                     |   | 1.2                                      |   | SBDRMO-8   | 68 / 68                |  | 1.4  | 21                            | USEPA, 2005, mammalian   | NO           | BSL   |
| 7440-43-9      | Cadmium            | 0.06                                     | J | 29.1                                     |   | SSDRMO-14  | 31 / 68                | 0.06 - 0.16  | 2.9  | 0.36                          | USEPA, 2005, mammalian   | YES          | ASL   |
| 7440-70-2      | Calcium            | 2,100                                    | J | 296,000                                  |   | SS121C-4   | 68 / 68                | 0.00   | 293,000  | NA                            |  | NO           | NUT   |
| 7440-47-3      | Chromium           | 3.8                                      |   | 74.8                                     |   | SBDRMO-18  | 68 / 68                |  | 32.7   | 26                            | USEPA, 2005, avian, Cr (IV)  | YES          | ASL   |
| 7440-48-4      | Cobalt             | 3.5                                      |   | 19.7                                     |   | SB121C-4   | 55 / 55                |  | 29.1   | 13                            | USEPA, 2005, plants  | YES          | ASL   |
| 7440-50-8      | Copper             | 8.8                                      | J | 9,750                                    |   | SB121C-2   | 68 / 68                |  | 62.8   | 61                            | USEPA, 2005, soil invertebrates                                    | YES          | ASL   |
| 7439-89-6      | Iron               | 4,230                                    |   | 54,100                                   |   | SB121C-2   | 68 / 68                |  | 38,600   | NA                            |  | NO           | NPH   |
| 7439-92-1      | Lead               | 6.2                                      | J | 18,900                                   |   | SSDRMO-24  | 68 / 68                |  | 266  | 11                            | USEPA, 2005, avian   | YES          | ASL   |
| 7439-95-4      | Magnesium          | 3,610                                    |   | 24,900                                   | J | SBDRMO-23  | 68 / 68                |  | 29,100   | 4,400                         | Region III BTAG  | NO           | NUT   |
| 7439-96-5      | Manganese          | 213                                      |   | 858                                      |   | SSDRMO-11  | 68 / 68                |  | 2,380  | 100                           | Oak Ridge - microorganisms and microbial process                   | YES          | ASL   |
| 7439-97-6      | Mercury            | 0.01                                     |   | 0.47                                     |   | SBDRMO-18  | 62 / 67                | 0.04 - 0.06  | 0.13   | 0.1                           | Oak Ridge - Benchmark<br>concentrations for earthworms,<br>Table 1 | YES          | ASL   |
| 7440-02-0      | Nickel             | 11.6                                     |   | 224                                      |   | SS121C-2   | 68 / 68                |  | 62.3   | 30                            | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | YES          | ASL   |
| 7440-09-7      | Potassium          | 787                                      | J | 1,990                                    |   | SB121C-2   | 68 / 68                |  | 3,160  | NA                            |  | NO           | NUT   |
| 7782-49-2      | Selenium           | 0.49                                     | J | 1.3                                      |   | SSDRMO-14  | 10 / 68                | 0.36 - 1.1   | 1.7  | 1                             | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | YES          | ASL   |
| 7440-22-4      | Silver             | 0.34                                     |   | 21.8                                     |   | SS121C-1   | 20 / 68                | 0.28 - 0.49  | 0.87   | 2                             | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | YES          | ASL   |
| 7440-23-5      | Sodium             | 58.2                                     |   | 478                                      |   | SSDRMO-14  | 56 / 68                | 106 - 141  | 269  | NA                            |  | NO           | NUT   |
| 7440-28-0      | Thallium           | 0.5                                      | J | 1.8                                      | J | SBDRMO-24  | 12 / 68                | 0.32 - 1.5   | 1.2  | 1                             | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     |              | ASL   |
| 7440-62-2      | Vanadium           | 5.1                                      |   | 27                                       | J | SBDRMO-13  | 68 / 68                |  | 32.7   | 2                             | Oak Ridge - Effects on Terrestrial<br>Plants 1997 Rev, Table 1     | YES          | ASL   |
| 7440-66-6      | Zinc               | 29.8                                     |   | 3,610                                    |   | SBDRMO-15  | 68 / 68                |  | 126  | 120                           | LISERA 2000 soil invertebrata                                      | YES          | ASL   |
| Other Analytes |                    | 29.8                                     |   | 5,010                                    |   | SDDKMO-15  | 08 / 08                |  | 120  | 120                           | USEPA, 2000, soil invertebrate                                     | 1ES          | ASL   |

#### Table 7-1A

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL

#### SEAD-121C

# SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

| CAS Number | Chemical                 | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration <sup>1</sup> | Frequency | Range of Reporting Limits <sup>1</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup> |    | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|------------|--------------------------|--|---|--|---|--|-----------|--|--|-------------------------------|--|----|---|
| SA0019     | Total Organic Carbon     | 2800                                     |   | 9,500                                    |   | SBDRMO-7   | 56 / 56   |  |  | NA                            |  | NO | ICE   |
| SA0020     | Total Petroleum Hydrocar | 43                                       | J | 7,600                                    | J | SBDRMO-17  | 14 / 56   | 42.5 - 53                                      |  | NA                            |  | NO | ICE   |

#### Notes:

4. Rationale codes

1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only. The maximum detected concentration was used for screening.

2. Background value is the maximum detected concentration of the Seneca background dataset.

3. Source of Screening Values: USEPA Ecological Soil Screen Levels, 2000, 2003, 2005

USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997
Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision
Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadian Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000

Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL) Individual Chemicals Evaluated (ICE) Neutral pH Value Expected for Soil (NPH)

Definitions: COPC = Chemical of Potential Concern

 $\begin{aligned} Q &= Qualifier \\ J &= Estimated \ Value \end{aligned}$ 

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 7-1B

OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

## SEAD-121C and SEAD-121I Remedial Investigation

| CAS<br>Number        | Chemical               | Minimum<br>Detected<br>Concentratio<br>1<br>(mg/kg) | Q<br>n | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>   | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|----------------------|------------------------|---|--------|--|---|---|---------|---|--|-------------------------------|--|--------------|---|
| Volatile O           | rganic Compounds       | 1   |        |  |   |   |         | İ                                       |  |                               |  |              |   |
| 67-64-1              | Acetone                | 0.012   | J      | 0.15                                     | J | SDDRMO-3                                | 7 / 10  | 0.0029 - 0.012                          |  | 2.5                           | Region 5 - Ecological<br>Screening Value | NO           | BSL   |
| 75-15-0              | Carbon disulfide       | 0.005   | J      | 0.012                                    | J | SDDRMO-6                                | 2 / 10  | 0.0028 - 0.026                          |  | 0.1                           | Region 5 - Ecological<br>Screening Value | NO           | BSL   |
| 78-93-3              | Methyl ethyl ketone    | 0.0036  | J      | 0.13                                     | J | SDDRMO-4                                | 3 / 10  | 0.0029 - 0.026                          |  | 35                            | Dutch - Indicative Level                 | NO           | BSL   |
| Semivolati           | le Organic Compounds   |   |        |  |   |   |         |   |  |                               |  |              |   |
| 106-44-5<br>108-39-4 | 3 or 4-Methylphenol    | 0.79  | J      | 0.79                                     | J | SDDRMO-3                                | 1 / 10  | 0.36 - 1.6                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 120-12-7             | Anthracene             | 0.1   | J      | 0.25                                     | J | SDDRMO-2                                | 2 / 10  | 0.36 1.7                                |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 56-55-3              | Benzo(a)anthracene     | 0.23  | J      | 1.1                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 50-32-8              | Benzo(a)pyrene         | 0.17  | J      | 0.9                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 205-99-2             | Benzo(b)fluoranthene   | 0.18  | J      | 1.1                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 191-24-2             | Benzo(ghi)perylene     | 0.29  | J      | 0.29                                     | J | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 207-08-9             | Benzo(k)fluoranthene   | 0.58  | J      | 0.58                                     | J | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 218-01-9             | Chrysene               | 0.24  | J      | 1.2                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 206-44-0             | Fluoranthene           | 0.52  | J      | 2.1                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 193-39-5             | Indeno(1,2,3-cd)pyrene | 0.27  | J      | 0.27                                     | J | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 85-01-8              | Phenanthrene           | 0.41  | J      | 1.1                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| 129-00-0             | Pyrene                 | 0.44  | J      | 2.1                                      | J | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              |  | 0.1                           | Region III BTAG - soil fauna             | YES          | ASL   |
| Metals               |                        |   | _      |  | Е |   |         |   |  |                               | -  |              |   |
| 7429-90-5            | Aluminum               | 2,850   |        | 21,500                                   |   | SDDRMO-9                                | 10 / 10 |   | 20,500   | NA                            |  | NO           | NPH   |
| 7440-36-0            | Antimony               | 0.97  | J      | 4.9                                      | J | SDDRMO-9                                | 5 / 10  | 1.2 - 4.3                               | 6.55   | 0.3                           | USEPA, 2005, mammalian                   | YES          | ASL   |
| 7440-38-2            |                        | 1.1   |        | 6.1                                      | J | SDDRMO-2                                | 10 / 10 |   | 21.5   | 18                            | USEPA, 2005, plants                      | YES          | IBC   |
| 7440-39-3            | Barium                 | 36.6  | J      | 291                                      | I | SDDRMO-9                                | 10 / 10 |   | 159  | 330                           | USEPA, 2005, soil invertebrates          | NO           | BSL   |
| 7440-41-7            | Beryllium              | 0.2   |        | 0.8                                      | J | SDDRMO-8<br>(dup)                       | 8 / 10  | 0.64 - 0.68                             | 1.4  | 21                            | USEPA, 2005, mammalian                   | NO           | BSL   |
| 7440-43-9            | Cadmium                | 1.5   | J      | 14.3                                     |   | SDDRMO-9                                | 5 / 10  | 0.13 - 0.33                             | 2.9  | 0.36                          | USEPA, 2005, mammalian                   | YES          | ASL   |
| 7440-70-2            |                        | 13,200  |        | 161,000                                  | - | SDDRMO-9                                | 10 / 10 |   | 293,000  | NA                            |  | NO           | NUT   |
| 7440-47-3            | Chromium               | 7.3   |        | 29.8                                     | J | SDDRMO-2                                | 10 / 10 |   | 32.7   | 26                            | USEPA, 2005, avian, Cr (IV)              | YES          | ASL   |
| 7440-48-4            | Cobalt                 | 3   |        | 15.8                                     | J | SDDRMO-8<br>(dup)                       | 10 / 10 |   | 29.1   | 13                            | USEPA, 2005, plants                      | YES          | ASL   |

# ${\it Table 7-1B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

| CAS<br>Number | Chemical                     | Minimum<br>Detected<br>Concentratio<br>1<br>(mg/kg) | Q   | Maximum Detected Concentration 1 (mg/kg) | Q  | Location of<br>Maximum<br>Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                             | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|------------------------------|---|-----|--|----|---|---------|---|--|-------------------------------|--|--------------|---|
| 7440-50-8     | Copper                       | 16.2  |     | 1,190                                    |    | SDDRMO-9                                | 10 / 10 |   | 62.8   | 61                            | USEPA, 2005, soil invertebrates                                    | YES          | ASL   |
| PA0002        | Cyanide, Amenable            | 2.36  | J   | 2.36                                     | J  | SDDRMO-4                                | 1 / 10  | 0.55 - 2.63                             |  | 0.005                         | Region III BTAG for cyanide  | YES          | ASL   |
| SA0008        | Cyanide, Total               | 2.36  | J   | 2.36                                     | J  | SDDRMO-4                                | 1 / 10  | 0.552 - 2.63                            |  | 0.005                         | Region III BTAG for cyanide  | YES          | ASL   |
| 7439-89-6     | Iron                         | 5,650   |     | 27,300                                   | J  | SDDRMO-8<br>(dup)                       | 10 / 10 |   | 38,600   | NA                            |  | YES          | NSV   |
| 7439-92-1     | Lead                         | 13.3  |     | 436                                      |    | SDDRMO-9                                | 10 / 10 |   | 266  | 11                            | USEPA, 2005, avian   | YES          | ASL   |
| 7439-95-4     | Magnesium                    | 3,340   |     | 17,600                                   | 1  | SDDRMO-9                                | 10 / 10 |   | 29,100   | 4,400                         | Region III BTAG  | NO           | NUT   |
| 7439-96-5     | Manganese                    | 126   |     | 918                                      | J  | SDDRMO-5                                | 10 / 10 |   | 2,380  | 100                           | Oak Ridge - microorganisms and microbial process                   | YES          | ASL   |
| 7439-97-6     | Mercury                      | 0.04  | Ì   | 0.3                                      | J  | SDDRMO-2                                | 10 / 10 |   | 0.13   | 0.1                           | Oak Ridge - Benchmark<br>concentrations for<br>earthworms, Table 1 | YES          | ASL   |
| 7440-02-0     | Nickel                       | 8.2   |     | 42.7                                     | J  | SDDRMO-5                                | 10 / 10 |   | 62.3   | 30                            | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | YES          | ASL   |
| 7440-09-7     | Potassium                    | 368   |     | 1,410                                    | J  | SDDRMO-5                                | 10 / 10 |   | 3,160  | NA                            |  | NO           | NUT   |
| 7782-49-2     | Selenium                     | 0.73  |     | 2.5                                      | J  | SDDRMO-4                                | 4 / 10  | 0.55 - 2.1                              | 1.7  | 1                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | YES          | ASL   |
| 7440-22-4     | Silver                       | 0.825   | J   | 2.6                                      | J  | SDDRMO-5                                | 5 / 10  | 0.35 - 1.4                              | 0.87   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | YES          | ASL   |
| 7440-23-5     | Sodium                       | 167   |     | 1,120                                    | J  | SDDRMO-4                                | 10 / 10 |   | 269  | NA                            |  | NO           | NUT   |
| 7440-62-2     | Vanadium                     | 8.6   |     | 29.1                                     | J  | SDDRMO-2                                | 10 / 10 |   | 32.7   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | YES          | ASL   |
| 7440-66-6     | Zinc                         | 51.4  | J   | 566                                      |    | SDDRMO-5                                | 10 / 10 |   | 126  | 120                           | USEPA, 2000, soil invertebrate                                     | YES          | ASL   |
| Other Ana     | lytes                        |   | × - |  | 13 | c 3                                     | c =     |   | ec -   |                               |  |              |   |
| SA0019        | Total Organic Carbon         | 4,200   |     | 9,100                                    | J  | SDDRMO-10                               | 10 / 10 |   |  | NA                            |  | NO           | ICE   |
| SA0020        | Total Petroleum Hydrocarbons | 1,000   |     | 2,600                                    | J  | SDDRMO-2                                | 2 / 10  | 53 - 211                                |  | NA                            |  | NO           | ICE   |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only. The maximum detected concentration was used for screening.
- 2. Background value is the maximum detected concentration of the Seneca background dataset.
- 3. Source of Screening Values: USEPA Ecological Soil

USEPA Ecological Soil Screen Levels, 2000, 2003, 2005

USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

#### Table 7-1B

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL

#### SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation

#### Seneca Army Depot Activity

| CAS    | Chemical | Minimum       | Q Maximum     | Q | Location of   | Detection | Range of         | Maximum            | Screening | Source of Screening Value 3 | COPC | Rationale for |
|--------|----------|---------------|---------------|---|---------------|-----------|------------------|--------------------|-----------|-----------------------------|------|---------------|
| Number |          | Detected      | Detected      |   | Maximum       | Frequency | Reporting Limits | Background         | Value     |                             | Flag | Contaminant   |
|        |          | Concentration | Concentration |   | Concentration | 1         | 1                | Value <sup>2</sup> | (mg/kg)   |                             |      | Deletion or   |
|        |          | 1             | 1             |   | 1             |           | (mg/kg)          | (mg/kg)            |           |                             |      | Selection 4   |
|        |          | (mg/kg)       | (mg/kg)       |   |               |           |                  |                    |           |                             |      |               |
|        |          |               |               |   |               |           |                  |                    |           |                             |      |               |

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997

Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision

Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadian Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 200

Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL) Individual Chemicals Evaluated (ICE)

Neutral pH Value Expected for Soil (NPH)

Definitions: COPC = Chemical of Potential Concern

4. Rationale codes

Q = Qualifier J = Estimated Value

#### Table 7-1C

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE WATER SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation SENECA ARMY DEPOT ACTIVITY

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (ug/L) | Q | Maximum Detected Concentration 1 (ug/L) | Q | Location of<br>Maximum<br>Concentration | Freq | ection<br>quency<br>1 | Range of<br>Reporting<br>Limits <sup>1</sup><br>(ug/L) | Screening<br>Value<br>(ug/L) | Source of<br>Screening Value <sup>2</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>3</sup> |
|---------------|------------------------------|---|---|---|---|---|------|-----------------------|--|------------------------------|---|--------------|---|
|               | le Organic Compounds         |   |   |   |   |   |      |                       |  |                              |   |              |   |
|               | Bis(2-Ethylhexyl)phthalate   | 4.2                                     | J | 4.2                                     | J | SWDRMO-2                                | 1 /  | 10                    | 10 - 10  | 0.6                          | NYSDEC Class C                            | YES          | ASL   |
| Metals        |                              |   |   |   |   |   |      |                       |  |                              |   |              |   |
|               | Aluminum                     | 14.4                                    |   | 8,760                                   |   | SWDRMO-2                                | 10 / |                       |  | 100                          | NYSDEC Class C                            | YES          | ASL   |
|               | Arsenic                      | 50.3                                    |   | 50.3                                    |   | SWDRMO-2                                | 1 /  | 10                    | 2.8 - 2.8  | 150                          | NYSDEC Class C                            | YES          | IBC   |
| 7440-39-3     |                              | 37.2                                    |   | 423                                     |   | SWDRMO-2                                | 10 / |                       |  | 10,000                       | Region III BTAG                           | NO           | BSL   |
| 7440-41-7     |                              | 0.12                                    | J | 0.86                                    | J | SWDRMO-2                                | 9 /  | 10                    | 0.1 - 0.1  | 1,100                        | NYSDEC Class C                            | NO           | BSL   |
|               | Cadmium                      | 0.46                                    |   | 19.5                                    |   | SWDRMO-2                                | 4 /  | 10                    | 0.4 - 0.4  | 0.42                         | NRWQC, CCC                                | YES          | ASL   |
| 7440-70-2     | Calcium                      | 66,700                                  |   | 166,000                                 |   | SWDRMO-3                                | 10 / | 10                    |  | NA                           |   | NO           | NUT   |
| 7440-47-3     | Chromium                     | 0.69                                    |   | 129                                     |   | SWDRMO-2                                | 8 /  | 10                    | 0.6 - 0.6  | 11                           | NRWQC, CCC for<br>Cr(VI)                  | YES          | ASL   |
| 7440-48-4     | Cobalt                       | 0.6                                     |   | 47                                      |   | SWDRMO-2                                | 7 /  | 10                    | 0.6 - 0.6  | 5                            | NYSDEC Class C                            | YES          | ASL   |
| 7440-50-8     | Copper                       | 1.7                                     |   | 1,160                                   |   | SWDRMO-2                                | 10 / | 10                    |  | 17                           | NRWQC, CCC<br>NYSDEC Class C              | YES          | ASL   |
| 7439-89-6     | Iron                         | 26.6                                    | J | 110,000                                 |   | SWDRMO-2                                | 8 /  | 10                    | 17.3 - 17.3  | 300                          | NYSDEC Class C                            | YES          | ASL   |
| 7439-92-1     | Lead                         | 4.4                                     | J | 839                                     |   | SWDRMO-2                                | 10 / | 10                    |  | 5.8                          | NRWOC, CCC                                | YES          | ASL   |
| 7439-95-4     | Magnesium                    | 11,100                                  |   | 26,200                                  |   | SWDRMO-2                                | 10 / | 10                    |  | NA                           |   | NO           | NUT   |
|               | Manganese                    | 3.2                                     |   | 2,380                                   |   | SWDRMO-2                                | 10 / |                       |  | 14,500                       | Region III BTAG<br>(@hardness=36<br>mg/L) | NO           | BSL   |
| 7439-97-6     | Mercury                      | 0.26                                    |   | 2.1                                     |   | SWDRMO-2                                | 2/   | 10                    | 0.2 - 0.2  | 0.0007                       | NYSDEC Class C                            | YES          | ASL   |
|               | Nickel                       | 10.6                                    |   | 154                                     |   | SWDRMO-2                                |      | 10                    | 1.8 - 1.8  | 100                          | NRWQC, CCC<br>NYSDEC, Class C             | YES          | ASL   |
| 7440-09-7     | Potassium                    | 2,070                                   | J | 5,350                                   | J | SWDRMO-3                                | 10 / | 10                    |  | NA                           | ,   | NO           | NUT   |
|               | Selenium                     | 7                                       | J | 4.6                                     | J | SWDRMO-2                                | 1/   | 10                    | 3 - 3  | 4.6                          | NYSDEC Class C                            | YES          | IBC   |
|               | Silver                       | 1.7                                     |   | 8                                       | Ĺ | SWDRMO-2                                | 2/   | 10                    | 1 - 1  | 0.1                          | NYSDEC Class C                            | YES          | ASL   |
|               | Sodium                       | 4,490                                   |   | 123,000                                 | J | SWDRMO-1                                | 10 / |                       |  | NA                           |   | NO           | NUT   |
|               | Thallium                     |   | J | 6.3                                     | Ť | SWDRMO-4                                | 2 /  |                       | 5.4 - 5.4  | 8                            | NYSDEC Class C                            | NO           | BSL   |
|               | Vanadium                     | 0.89                                    | Ĺ | 233                                     |   | SWDRMO-2                                | 5 /  | 10                    | 0.7 - 0.7  | 14                           | NYSDEC Class C                            | YES          | ASL   |
|               | Zinc                         | 15.4                                    |   | 6.910                                   |   | SWDRMO-2                                | 10 / |                       |  | 159                          | NYSDEC Class C                            | YES          | ASL   |
| Other Anal    |                              |   |   | .,                                      |   |   |      |                       |  |                              | 2222 21233 0                              |              |   |
|               | Total Petroleum Hydrocarbons | 8.080                                   |   | 8.080                                   |   | SWDRMO-2                                | 1/   | 9                     | 1000 - 1000  | NA                           |   | NO           | ICE   |
| Notes:        | 10th 1 cholean Hydrocarbons  | 5,560                                   |   | 0,000                                   | _ | 5 11 DIGNO-2                            | 1 /  |                       | 1000 - 1000  | 11/1                         |   | 110          | ICL   |

1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only.

The maximum detected concentration was used for screening.

2. Source of Screening Values: NYSDEC. 1998 with addendum. New York State Ambient Water Quality Standards, Class C for Surface Water

USEPA. 2002. National Recommended Water Quality Criteria (NRWQC): 2002.

USEPA Region III. 1995. Region III BTAG Screening Levels.

3. Rationale codes Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

> Below Screening Level (BSL) Individual Chemicals Evaluated (ICE)

Neutral pH Value Expected for Soil (NPH)

Hardness for surface water was assumed to be 100 mg/L (CaCO<sub>3</sub>).

COPC = Chemical of Potential Concern Definitions: CCC = Criterion Continuous Concentration Q = Qualifier

J = Estimated Value

## Table 7-2A

# $OCCURRENCE, DISTRIBUTION\ AND\ SELECTION\ OF\ ECOLOGICAL\ CHEMICALS\ OF\ POTENTIAL\ CONCERN\ IN\ SEAD-121I\ SURFACE\ SOIL$

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

| CAS<br>Number | Chemical                   | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q |                 | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                             |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|----------------------------|--|---|--|---|-----------------|------------------------|--|--|-------------------------------|--|-----|---|
| Volatile Or   | ganic Compounds            |  |   |  |   |                 |                        |  |  |                               |  |     |   |
| 67-64-1       | Acetone                    | 0.0022                                   | J | 0.11                                     |   | SS121I-15       | 26 / 35                | 0.003 - 0.0715                                       |  | 2.5                           | Region 5 - Ecological Screening<br>Value                           | NO  | BSL   |
| 71-43-2       | Benzene                    | 0.0046                                   | J | 0.0405                                   | J | SS121I-29 (dup) | 6 / 35                 | 0.0023 - 0.0034                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | NO  | BSL   |
| 100-41-4      | Ethyl benzene              | 0.0021                                   | J | 0.0078                                   |   | SS121I-15       | 5 / 35                 | 0.0023 - 0.0034                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | NO  | BSL   |
|               | Meta/Para Xylene           | 0.0021                                   | J |  | J | SS121I-29 (dup) | 5 / 35                 | 0.0023 - 0.0034                                      |  | 0.1                           | Region III BTAG - soil fauna<br>for xylene                         | NO  | BSL   |
| 78-93-3       | Methyl ethyl ketone        | 0.0036                                   |   | 0.07                                     |   | SS121I-15       | 9 / 35                 | 0.0023 - 0.0034                                      |  | 35                            | Dutch - Indicative Level   | NO  | BSL   |
| 75-09-2       | Methylene chloride         | 0.0016                                   | J | 0.0028                                   | J | SB121I-4        | 9 / 35                 | 0.0023 - 0.0034                                      |  | 0.3                           | Region III BTAG - soil fauna                                       | NO  | BSL   |
| 95-47-6       | Ortho Xylene               | 0.0013                                   | J |  | J | SS121I-29 (dup) | 5 / 35                 | 0.0023 - 0.0034                                      |  | 0.1                           | Region III BTAG - soil fauna<br>for xylene                         | NO  | BSL   |
| 108-88-3      | Toluene                    | 0.0028                                   | J | 0.0305                                   | J | SS121I-29 (dup) | 6 / 35                 | 0.0023 - 0.0034                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | NO  | BSL   |
| Semivolatil   | e Organic Compounds        |  |   |  |   |                 |                        |  |  |                               |  |     |   |
| 91-57-6       | 2-Methylnaphthalene        | 0.054                                    | J | 0.26                                     | J | SS121I-20       | 3 / 39                 | 0.35 - 7.4   |  | 3.24                          | Region 5 - Ecological Screening<br>Value                           | NO  | BSL   |
| 83-32-9       | Acenaphthene               | 0.053                                    | J | 6.1                                      |   | SS121I-20       | 17 / 39                | 0.36 - 2.2   |  | 20                            | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | YES | IBC   |
| 208-96-8      | Acenaphthylene             | 0.064                                    | J | 0.56                                     | J | SS121I-21       | 2 / 39                 | 0.34 - 7.4   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 120-12-7      | Anthracene                 | 0.069                                    | J | 12                                       |   | SS121I-20       | 20 / 38                | 0.36 - 1.8   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 56-55-3       | Benzo(a)anthracene         | 0.043                                    | J | 28                                       | J | SS121I-20       | 36 / 39                | 0.37 - 0.38  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 50-32-8       | Benzo(a)pyrene             | 0.061                                    | J | 23                                       |   | SS121I-20       | 36 / 39                | 0.37 - 0.39  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 205-99-2      | Benzo(b)fluoranthene       | 0.052                                    | J | 29                                       |   | SS121I-20       | 37 / 39                | 0.37 - 0.38  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 191-24-2      | Benzo(ghi)perylene         | 0.05                                     | J | 29                                       | J | SS121I-20       | 33 / 39                | 0.36 - 0.39  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 207-08-9      | Benzo(k)fluoranthene       | 0.095                                    | J | 21                                       | J | SS121I-20       | 28 / 38                | 0.36 - 0.4   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.038                                    | J | 1.6                                      |   | SS121I-31       | 14 / 39                | 0.13 - 8.8   |  | 0.925                         | Region 5 - Ecological Screening<br>Value                           | YES | ASL   |
| 85-68-7       | Butylbenzylphthalate       | 0.055                                    | J | 0.13                                     | J | SB121I-1        | 2 / 36                 | 0.35 - 8.8   |  | 0.239                         | Region 5 - Ecological Screening<br>Value                           | NO  | BSL   |
| 86-74-8       | Carbazole                  | 0.06                                     | J | 6.8                                      |   | SS121I-20       | 20 / 39                | 0.36 - 1.8   |  | NA                            |  | YES | NSV   |
| 218-01-9      | Chrysene                   | 0.0625                                   | J | 32                                       | J | SS121I-20       | 35 / 39                | 0.37 - 0.39  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.072                                    | J | 4.6                                      | J | SS121I-2        | 10 / 32                | 0.36 - 2.1   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 132-64-9      | Dibenzofuran               | 0.029                                    | J | 2  |   | SS121I-20       | 9 / 39                 | 0.35 - 2.2   |  | NA                            |  | YES | NSV   |
| 84-66-2       | Diethylphthalate           | 0.64                                     | J | 0.64                                     | J | SS121I-29 (dup) | 1 / 39                 | 0.34 - 7.4   |  | 100                           | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | NO  | BSL   |
| 84-74-2       | Di-n-butylphthalate        | 0.045                                    | J | 0.045                                    | J | SS121I-1        | 1 / 38                 | 0.34 - 7.4   |  | 200                           | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1  | NO  | BSL   |
| 206-44-0      | Fluoranthene               | 0.08                                     | J | 62                                       |   | SS121I-20       | 37 / 39                | 0.37 - 0.38  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 86-73-7       | Fluorene                   | 0.043                                    | J | 4.2                                      |   | SS121I-20       | 13 / 39                | 0.35 - 2.2   |  | 30                            | Oak Ridge - Benchmark<br>concentrations for earthworms,<br>Table 1 | YES | IBC   |

# Table 7-2A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL SEAD-121I

# SEAD-121C AND SEAD-121I RI REPORT

| CAS<br>Number | Chemical               | Minimum Detected Concentration 1 (mg/kg) | Q  | Maximum Detected Concentration 1 (mg/kg) |    | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                             |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|------------------------|--|----|--|----|---|------------------------|--|--|-------------------------------|--|-----|---|
| 193-39-5      | Indeno(1,2,3-cd)pyrene | 0.061                                    | J  | 8.1                                      | J  | SS121I-20                               | 26 / 37                | 0.36 - 2.1   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 91-20-3       | Naphthalene            | 0.051                                    | ī  | 0.63                                     | J  | SS121I-20<br>SS121I-21                  | 5 / 39                 | 0.35 - 7.4   |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 85-01-8       | Phenanthrene           | 0.052                                    | ī  | 52                                       | 3  | SS121I-21<br>SS121I-20                  | 37 / 39                | 0.37 - 0.38  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 129-00-0      | Pyrene                 |  | J  | 64                                       | J  | SS1211-23                               | 37 / 39                | 0.37 - 0.38  |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| PCBs          | 1 yrene                | 0.072                                    |    | 0.                                       |    | 551211 25                               | 377 37                 | 0.57 0.50  |  | 0.1                           | region in 21110 son mane   | 125 | 1102  |
| 11097-69-1    | Aroclor-1254           | 0.03                                     | J  | 0.03                                     | J  | SS121I-22                               | 1 / 35                 | 0.018 - 0.022  |  | 0.1                           | Region III BTAG - soil flora                                       | YES | IBC   |
|               |                        | 0.0083                                   | J  | 0.046                                    | J  | SS121I-14                               | 2 / 35                 | 0.018 - 0.022  |  | 0.1                           | Region III BTAG - soil flora                                       | YES | IBC   |
| Pesticides    |                        |  |    |  |    |   |                        |  |  |                               |  |     |   |
| 72-55-9       | 4,4'-DDE               | 0.011                                    | NJ | 0.034                                    | NJ | SS121I-23                               | 4 / 35                 | 0.0018 - 0.0023                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | IBC   |
| 50-29-3       | 4,4'-DDT               | 0.024                                    | NJ | 0.039                                    | J  | SS121I-21                               | 2 / 34                 | 0.0018 - 0.0023                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | IBC   |
| 309-00-2      | Aldrin                 | 0.0032                                   | J  | 0.012                                    |    | SS121I-20                               | 4 / 35                 | 0.0018 - 0.0045                                      |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | IBC   |
| 60-57-1       | Dieldrin               | 0.016                                    | J  | 0.034                                    | J  | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      |  | 0.00003                       | USEPA 2005 mammalian   | YES | ASL   |
| 959-98-8      | Endosulfan I           | 0.0026                                   |    | 0.095                                    | J  | SS121I-20                               | 24 / 35                | 0.0018 - 0.002                                       |  | 0.1                           | Region 5 - Ecological Screening<br>Value                           | YES | IBC   |
| 72-20-8       | Endrin                 | 0.0065                                   | J  | 0.03                                     | J  | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      |  | 0.1                           | Region III BTAG for chlordane                                      | YES | IBC   |
| 1024-57-3     | Heptachlor epoxide     | 0.0061                                   |    | 0.055                                    | J  | SS121I-21                               | 8 / 33                 | 0.0018 - 0.0023                                      |  | 0.1                           | Region III BTAG for chlordane                                      | YES | IBC   |
| Metals        |                        |  |    |  |    |   |                        |  |  |                               |  |     |   |
| 7429-90-5     | Aluminum               | 1,510                                    |    | 13,200                                   |    | SB121I-5                                | 35 / 35                |  | 20,500   | NA                            |  | NO  | NPH   |
| 7440-36-0     | Antimony               | 0.99                                     |    | 7.5                                      |    | SS121I-28                               | 14 / 35                | 0.96 - 7.3   | 6.55   | 0.27                          | USEPA, 2005, mammalian   | YES | ASL   |
| 7440-38-2     | Arsenic                | 3.5                                      |    | 32.1                                     | J  | SB121I-2 (dup)                          | 24 / 24                |  | 21.5   | 18                            | USEPA, 2005, plants  | YES | ASL   |
| 7440-39-3     | Barium                 | 38.2                                     |    | 207                                      |    | SS121I-26                               | 35 / 35                |  | 159  | 330                           | USEPA, 2005, soil invertebrates                                    | NO  | BSL   |
| 7440-41-7     | Beryllium              | 0.16                                     |    | 0.68                                     |    | SB121I-5                                | 34 / 35                | 0.17 - 0.17  | 1.4  | 21                            | USEPA, 2005, mammalian   | NO  | BSL   |
| 7440-43-9     | Cadmium                | 0.15                                     |    | 6.6                                      |    | SB121I-3                                | 13 / 35                | 0.13 - 0.61  | 2.9  | 0.36                          | USEPA, 2005, mammalian   | YES | IBC   |
| 7440-70-2     | Calcium                | 5,370                                    | J  | 298,000                                  | J  | SS121I-26                               | 35 / 35                |  | 293,000  | NA                            | , ,  | NO  | NUT   |
| 7440-47-3     | Chromium               | 3.9                                      |    | 439                                      |    | SS121I-29 (dup)                         | 35 / 35                |  | 32.7   | 26                            | USEPA, 2005, avian, Cr (IV)  | YES | ASL   |
| 7440-48-4     | Cobalt                 | 4.6                                      |    | 205.5                                    | J  | SS121I-29 (dup)                         | 35 / 35                |  | 29.1   | 13                            | USEPA, 2005, plants  | YES | ASL   |
| 7440-50-8     | Copper                 | 10.4                                     | J  | 209                                      |    | SS121I-29 (dup)                         | 30 / 30                |  | 62.8   | 61                            | USEPA, 2005, soil invertebrates                                    | YES | ASL   |
|               | Cyanide, Total         | 0.559                                    | J  | 2.00                                     |    | SS121I-29 (dup)                         | 3 / 35                 | 0.526 - 0.61   |  | 0.005                         | Region III BTAG for cyanide  | YES | ASL   |
| 7439-89-6     | Iron                   | 5,720                                    |    | 58,400                                   |    | SS121I-29 (dup)                         | 35 / 35                |  | 38,600   | NA                            |  | NO  | NPH   |
| 7439-92-1     | Lead                   | 8.6                                      | J  | 122                                      |    | SS121I-25                               | 35 / 35                |  | 266  | 11                            | USEPA, 2005, avian   | YES | ASL   |
| 7439-95-4     | Magnesium              | 4,430                                    | J  | 22,300                                   | J  | SS121I-27                               | 35 / 35                |  | 29,100   | 4,400                         | Region III BTAG  | NO  | NUT   |
| 7439-96-5     | Manganese              | 377                                      |    | 310,500                                  |    | SS121I-29 (dup)                         | 35 / 35                |  | 2,380  | 100                           | Oak Ridge - microorganisms<br>and microbial process                | YES | ASL   |
| 7439-97-6     | Mercury                | 0.01                                     |    | 0.07                                     |    | SB121I-1                                | 35 / 35                |  | 0.13   | 0.1                           | Oak Ridge - Benchmark<br>concentrations for earthworms,<br>Table 1 | NO  | BSL   |

#### Table 7-2A

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q |                               | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening Value <sup>3</sup>                            |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|------------------------------|--|---|--|---|-------------------------------|------------------------|--|--|-------------------------------|---|-----|---|
| 7440-02-0     | Nickel                       | 11.1                                     |   | 342                                      | J | SS121I-29 (dup),<br>SS121I-33 | 35 / 35                |  | 62.3   | 30                            | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1 | YES | ASL   |
| 7440-09-7     | Potassium                    | 634                                      |   | 1,300                                    |   | SS121I-30                     | 35 / 35                |  | 3,160  | NA                            |   | NO  | NUT   |
| 7782-49-2     | Selenium                     | 0.48                                     | J | 146                                      | J | SS121I-29 (dup)               | 20 / 35                | 0.43 - 0.61  | 1.7  | 1                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1 | YES | ASL   |
| 7440-22-4     | Silver                       | 0.29                                     |   | 3.1                                      | J | SB121I-2 (dup)                | 4 / 24                 | 0.3 - 1.2  | 0.87   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1 | YES | ASL   |
| 7440-23-5     | Sodium                       | 117                                      |   | 372                                      |   | SB121I-1                      | 29 / 35                | 106 - 595  | 269  | NA                            |   | NO  | NUT   |
| 7440-28-0     | Thallium                     | 0.38                                     |   | 163                                      | J | SS121I-29 (dup)               | 7 / 35                 | 0.32 - 1.2   | 1.2  | 1                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1 | YES | ASL   |
| 7440-62-2     | Vanadium                     | 5.9                                      |   | 182                                      | J | SS121I-29 (dup)               | 35 / 35                |  | 32.7   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997 Rev,<br>Table 1 | YES | ASL   |
| 7440-66-6     | Zinc                         | 42.75                                    | J | 329                                      |   | SS121I-33                     | 35 / 35                |  | 126  | 120                           | USEPA, 2000, soil invertebrate                                    | YES | ASL   |
| Other Anal    | lytes                        |  |   |  |   |                               |                        |  |  |                               |   |     |   |
|               | Total Organic Carbon         | 3,000                                    |   | 8,900                                    |   | SS121I-6                      | 35 / 35                |  |  | NA                            |   | NO  | ICE   |
|               | Total Petroleum Hydrocarbons | 100                                      | J | 2,200                                    |   | SS121I-27                     | 10 / 35                | 43 - 48  |  | NA                            |   | NO  | ICE   |

#### Notes:

Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
 Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only. The maximum detected concentration was used for screening.

2. Background value is the maximum detected concentration of the Seneca background dataset.

3. Source of Screening Values: USEPA Ecological Soil Screen Levels, 2000, 2003, 2005

USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997 Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision

Toxicological Benchmarks for Contaminants of Foreign C

Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadain Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000

4. Rationale codes Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE)

#### Table 7-2A

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| CAS    | Chemical | Minimum       | Q | Maximum       | Q | Location of   | Detection | Range of           | Maximum    | Screening | Source of Screening Value <sup>3</sup> | COPC | Rationale for |
|--------|----------|---------------|---|---------------|---|---------------|-----------|--------------------|------------|-----------|--|------|---------------|
| Number |          | Detected      |   | Detected      |   | Maximum       | Frequency | Reporting Limits 1 | Background | Value     |  | Flag | Contaminant   |
|        |          | Concentration |   | Concentration |   | Concentration | 1         | (mg/kg)            | Value 2    | (mg/kg)   |  |      | Deletion or   |
|        |          | 1             |   | 1             |   |               |           |                    | (mg/kg)    |           |  |      | Selection 4   |
|        |          | (mg/kg)       |   | (mg/kg)       |   |               |           |                    | , 5 0,     |           |  |      |               |
|        |          | 1             |   | · -           |   |               |           |                    |            |           |  |      |               |

Neutral pH Value Expected for Soil (NPH)

Definitions: COPC = Chemical of Potential Concern

Q = Qualifier

J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

# ${\it Table 7-2B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-121I DITCH SOIL SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

| CAS<br>Number | Chemical                   | Minimum Detected Concentration  (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening<br>Value <sup>3</sup><br>(mg/kg)              | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|----------------------------|---|---|--|---|---|------------------------|--|--|-------------------------------|---|--------------|---|
| Volatile Or   | rganic Compounds           | -1                                      |   |  |   |   |                        |  |  |                               |   |              |   |
| 67-64-1       | Acetone                    | 0.008                                   |   | 0.15                                     |   | SD121I-8                                | 10 / 10                |  |  | 2.5                           | Region 5 - Ecological<br>Screening Value                          | NO           | BSL   |
| 71-43-2       | Benzene                    | 0.0012                                  | J | 0.039                                    |   | SD121I-8                                | 3 / 10                 | 0.0032 - 0.0037                                      |  | 0.1                           | Region III BTAG - soil fauna                                      | NO           | BSL   |
| 100-41-4      | Ethyl benzene              | 0.0052                                  |   | 0.0052                                   |   | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044                                      |  | 0.1                           | Region III BTAG - soil fauna                                      | NO           | BSL   |
| SA0078        | Meta/Para Xylene           | 0.0048                                  |   | 0.0048                                   |   | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044                                      |  | 0.1                           | Region III BTAG - soil fauna for xylene                           | NO           | BSL   |
| 78-93-3       | Methyl ethyl ketone        | 0.0072                                  |   | 0.078                                    |   | SD121I-8                                | 2 / 10                 | 0.0031 - 0.0044                                      |  | 35                            | Dutch - Indicative Level  | NO           | BSL   |
| 95-47-6       | Ortho Xylene               | 0.003                                   |   | 0.003                                    |   | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044                                      |  | 0.1                           | Region III BTAG - soil fauna for xylene                           | NO           | BSL   |
| 108-88-3      | Toluene                    | 0.0017                                  | J | 0.026                                    |   | SD121I-8                                | 2 / 10                 | 0.0031 - 0.0044                                      |  | 0.1                           | Region III BTAG - soil fauna                                      | NO           | BSL   |
| Semivolatil   | le Organic Compounds       |   |   |  |   |   |                        |  |  |                               |   |              |   |
| 91-57-6       | 2-Methylnaphthalene        | 0.033                                   | J | 0.17                                     | J | SD121I-7 (dup)                          | 2 / 12                 | 0.38 - 4.4   |  | 3.24                          | Region 5 - Ecological<br>Screening Value                          | NO           | BSL   |
| 91-94-1       | 3,3'-Dichlorobenzidine     | 0.315                                   | J | 0.315                                    | J | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4   |  | 0.646                         | Region 5 - Ecological<br>Screening Value                          | NO           | BSL   |
| 83-32-9       | Acenaphthene               | 0.066                                   | J | 0.74                                     | J | SD121I-7 (dup)                          | 9 / 12                 | 0.38 - 0.46  |  | 20                            | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev. Table 1 | YES          | IBC   |
| 208-96-8      | Acenaphthylene             | 0.076                                   | J | 0.42                                     | J | SD121I-2EBS                             | 4 / 12                 | 0.38 - 0.53  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 120-12-7      | Anthracene                 | 0.11                                    | J | 1.8                                      | J | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 56-55-3       | Benzo(a)anthracene         | 0.049                                   | J | 14                                       |   | SD121I-2EBS                             | 10 / 12                | 0.38 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 50-32-8       | Benzo(a)pyrene             | 0.29                                    | J | 16                                       |   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 205-99-2      | Benzo(b)fluoranthene       | 0.044                                   | J | 22                                       |   | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 191-24-2      | Benzo(ghi)perylene         | 0.11                                    | J | 12                                       |   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 207-08-9      | Benzo(k)fluoranthene       | 0.14                                    | J | 23                                       |   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46  |  | 0.1                           | Region III BTAG - soil fauna                                      | YES          | ASL   |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.025                                   | J | 0.093                                    | J | SD121I-7 (dup)                          | 3 / 12                 | 0.38 - 4.4   |  | 0.925                         | Region 5 - Ecological<br>Screening Value                          | NO           | BSL   |
| 85-68-7       | Butylbenzylphthalate       | 0.42                                    | J | 0.42                                     | J | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4   |  | 0.239                         | Region 5 - Ecological<br>Screening Value                          | YES          | ASL   |

# ${\it Table 7-2B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-121I DITCH SOIL SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

| CAS<br>Number | Chemical               | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | 0 1               | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening<br>Value <sup>3</sup><br>(mg/kg)               | 1   | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|------------------------|--|---|--|---|---|------------------------|-------------------|--|-------------------------------|--|-----|---|
| 86-74-8       | Carbazole              | 0.1                                      | T | 1.6                                      | T | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46       |  | NA                            |  | YES | NSV   |
| 218-01-9      | Chrysene               | 0.34                                     | J | 25                                       | J | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 53-70-3       | Dibenz(a,h)anthracene  | 0.086                                    | J | 5  | J | SD121I-2EBS                             | 5 / 12                 | 0.38 - 0.53       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 132-64-9      | Dibenzofuran           | 0.058                                    | J | 0.356                                    | J | SD121I-7 (dup)                          | 5 / 12                 | 0.38 - 4.4        |  | NA                            |  | YES | NSV   |
| 117-84-0      | Di-n-octylphthalate    | 0.42                                     | J | 0.42                                     | J | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4        |  | 709                           | Region 5 - Ecological<br>Screening Value                           | NO  | BSL   |
| 206-44-0      | Fluoranthene           | 0.099                                    | J | 24                                       |   | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 86-73-7       | Fluorene               | 0.053                                    | J | 0.645                                    | J | SD121I-7 (dup)                          | 9 / 12                 | 0.38 - 0.46       |  | 30                            | Oak Ridge - Benchmark<br>concentrations for<br>earthworms, Table 1 | YES | IBC   |
| 193-39-5      | Indeno(1,2,3-cd)pyrene | 0.098                                    | J | 12                                       | J | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 78-59-1       | Isophorone             | 0.315                                    | J | 0.315                                    | J | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4        |  | 139                           | Region 5 - Ecological<br>Screening Value                           | NO  | BSL   |
| 91-20-3       | Naphthalene            | 0.065                                    | J | 0.35                                     | J | SD121I-7 (dup)                          | 2 / 12                 | 0.38 - 4.4        |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 98-95-3       | Nitrobenzene           | 0.315                                    | J | 0.315                                    | J | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4        |  | 1.31                          | Region 5 - Ecological<br>Screening Value                           | NO  | BSL   |
| 85-01-8       | Phenanthrene           | 0.05                                     | J | 6.25                                     |   | SD121I-7 (dup)                          | 11 / 12                | 0.46 - 0.46       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 108-95-2      | Phenol                 | 0.315                                    | J | 0.315                                    | J | SD121I-7 (dup)                          | 1 / 12                 | 0.39 - 4.4        |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| 129-00-0      | Pyrene                 | 0.078                                    | J | 17                                       |   | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46       |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | ASL   |
| PCBs          |                        |  |   |  |   |   |                        |                   |  |                               |  |     |   |
| 11097-69-1    | Aroclor-1254           | 0.067                                    |   | 0.067                                    |   | SD121I-5                                | 1 / 10                 | 0.012 - 0.022     |  | 0.1                           | Region III BTAG - soil<br>flora                                    | YES | IBC   |
| 11096-82-5    | Aroclor-1260           | 0.014                                    | J | 0.014                                    | J | SD121I-7 (dup)                          | 1 / 10                 | 0.0023 - 0.0033   |  | 0.1                           | Region III BTAG - soil<br>flora                                    | YES | IBC   |
| Pesticides    |                        |  |   |  |   |   |                        |                   |  |                               |  |     |   |
| 72-55-9       | 4,4'-DDE               | 0.0076                                   | J | 0.0076                                   | J | SD121I-7 (dup)                          | 1 / 10                 | 0.00024 - 0.00033 |  | 0.1                           | Region III BTAG - soil fauna                                       | YES | IBC   |
| Metals        |                        |  |   |  |   |   |                        |                   |  |                               |  |     |   |
| 7429-90-5     | Aluminum               | 4,180                                    |   | 10,300                                   |   | SD121I-6                                | 10 / 10                |                   | 20,500   | NA                            |  | NO  | NPH   |
| 7440-38-2     | Arsenic                | 2.6                                      |   | 104                                      |   | SD121I-8                                | 10 / 10                |                   | 21.5   | 18                            | USEPA, 2005, plants  | YES | ASL   |
| 7440-39-3     | Barium                 | 44.1                                     | J | 91.1                                     | J | SD121I-8                                | 10 / 10                |                   | 159  | 330                           | USEPA, 2005, soil invertebrates                                    | NO  | BSL   |

# ${\it Table 7-2B}$ OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-121I DITCH SOIL SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| CAS<br>Number | Chemical             | Minimum Detected Concentration  1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening<br>Value <sup>3</sup><br>(mg/kg)               |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|----------------------|---|---|--|---|---|------------------------|--|--|-------------------------------|--|-----|---|
| 7440-41-7     | Beryllium            | 0.3                                       |   | 0.66                                     |   | SD121I-6                                | 10 / 10                |  | 1.4  | 21                            | USEPA, 2005,<br>mammalian  | NO  | BSL   |
| 7440-43-9     | Cadmium              | 0.8                                       |   | 0.8                                      |   | SD121I-7 (dup)                          | 1 / 10                 | 0.14 - 0.19  | 2.9  | 0.36                          | USEPA, 2005,<br>mammalian  | YES | ASL   |
| 7440-70-2     | Calcium              | 8,990                                     |   | 127,500                                  |   | SD121I-7 (dup)                          | 10 / 10                |  | 293,000  | NA                            |  | NO  | NUT   |
| 7440-47-3     | Chromium             | 8.6                                       |   | 83.9                                     |   | SD121I-8                                | 10 / 10                |  | 32.7   | 26                            | USEPA, 2005, avian, Cr<br>(IV)                                     | YES | ASL   |
| 7440-48-4     | Cobalt               | 5.9                                       |   | 91.9                                     |   | SD121I-8                                | 10 / 10                |  | 29.1   | 13                            | USEPA, 2005, plants  | YES | ASL   |
| 7440-50-8     | Copper               | 17.1                                      | J | 130                                      |   | SD121I-4                                | 10 / 10                |  | 62.8   | 61                            | USEPA, 2005, soil invertebrates                                    | YES | ASL   |
| 7439-89-6     | Iron                 | 10,100                                    |   | 30,400                                   |   | SD121I-8                                | 10 / 10                |  | 38,600   | NA                            |  | NO  | NPH   |
| 7439-92-1     | Lead                 | 11.2                                      | J | 93.3                                     |   | SD121I-6                                | 10 / 10                |  | 266  | 11                            | USEPA, 2005, avian   | YES | ASL   |
| 7439-95-4     | Magnesium            | 2,150                                     |   | 11,300                                   |   | SD121I-5                                | 10 / 10                |  | 29,100   | 4,400                         | Region III BTAG  | NO  | NUT   |
| 7439-96-5     | Manganese            | 303                                       |   | 14,900                                   |   | SD121I-8                                | 10 / 10                |  | 2,380  | 100                           | Oak Ridge -<br>microorganisms and<br>microbial process             | YES | ASL   |
| 7439-97-6     | Mercury              | 0.02                                      |   | 0.18                                     |   | SD121I-3                                | 9 / 10                 | 0.12 - 0.12  | 0.13   | 0.1                           | Oak Ridge - Benchmark<br>concentrations for<br>earthworms, Table 1 | YES | ASL   |
| 7440-02-0     | Nickel               | 16.4                                      |   | 153                                      |   | SD121I-8                                | 10 / 10                |  | 62.3   | 30                            | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev, Table 1  | YES | ASL   |
| 7440-09-7     | Potassium            | 541                                       |   | 1,450                                    |   | SD121I-6                                | 10 / 10                |  | 3,160  | NA                            | ,  | NO  | NUT   |
| 7782-49-2     | Selenium             | 18  |   | 18                                       |   | SD121I-8                                | 1 / 10                 | 0.48 - 0.68  | 1.7  | 1                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev, Table 1  | YES | ASL   |
| 7440-22-4     | Silver               | 2.5                                       |   | 10.5                                     |   | SD121I-8                                | 2 / 10                 | 0.31 - 0.44  | 0.87   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev, Table 1  | YES | ASL   |
| 7440-23-5     | Sodium               | 162                                       |   | 266                                      |   | SD121I-10                               | 8 / 10                 | 118 - 132  | 269  | NA                            |  | NO  | NUT   |
| 7440-28-0     | Thallium             | 0.44                                      | J | 21.5                                     |   | SD121I-8                                | 2 / 10                 | 0.36 - 0.5   | 1.2  | 1                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev, Table 1  | YES | ASL   |
| 7440-62-2     | Vanadium             | 8.1                                       |   | 69.4                                     |   | SD121I-8                                | 10 / 10                |  | 32.7   | 2                             | Oak Ridge - Effects on<br>Terrestrial Plants 1997<br>Rev, Table 1  | YES | ASL   |
| 7440-66-6     | Zinc                 | 57.3                                      | J | 532                                      |   | SD121I-6                                | 10 / 10                |  | 126  | 120                           | USEPA, 2000, soil invertebrate                                     | YES | ASL   |
| Other Anal    |                      | 2.000                                     |   | 7.200                                    |   | GD1011.1                                | 10 / 10                |  |  | 27.4                          |  | NO  | ICE   |
| SA0019        | Total Organic Carbon | 2,800                                     |   | 7,200                                    | J | SD121I-1                                | 10 / 10                |  |  | NA                            |  | NO  | ICE   |

Page 3 of 4

#### Table 7-2B

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL

#### SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| CAS<br>Number | Chemical                     | Minimum Detected Concentration  1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency |         | Maximum<br>Background<br>Value <sup>2</sup><br>(mg/kg) | Screening<br>Value<br>(mg/kg) | Source of Screening<br>Value <sup>3</sup><br>(mg/kg) |    | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>4</sup> |
|---------------|------------------------------|---|---|--|---|---|------------------------|---------|--|-------------------------------|--|----|---|
| SA0020        | Total Petroleum Hydrocarbons | 150                                       |   | 910                                      |   | SD121I-9                                | 5 / 10                 | 52 - 66 |  | NA                            |  | NO | ICE   |

#### Notes:

Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
 Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
 The maximum detected concentration was used for screening.

2. Background value is the maximum detected concentration of the Seneca background dataset.

3. Source of Screening Values: USEPA Ecological Soil Screen Levels, 2000, 2003, 2005

USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997

Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision

Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadain Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000

4. Rationale codes Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE)

Neutral pH Value Expected for Soil (NPH)

Definitions: COPC = Chemical of Potential Concern

O = Qualifier

J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

#### Table 7-2C

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE WATER SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

| CAS        | Chemical              | Minimum                   | Q |                 | Q | Location of              | Detection | Range of    | Screening | Source of Screening | COPC | Rationale for             |
|------------|-----------------------|---------------------------|---|-----------------|---|--------------------------|-----------|-------------|-----------|---------------------|------|---------------------------|
| Number     |                       | Detected<br>Concentration |   | Detected        |   | Maximum<br>Concentration | Frequency | 11          | Value     | Value <sup>2</sup>  | Flag | Contaminan<br>Deletion or |
|            |                       | Concentration             |   | Concentration 1 |   | Concentration            |           | (ug/L)      | (ug/L)    |                     |      |                           |
|            |                       |                           |   | (ug/L)          |   |                          |           |             |           |                     |      | Selection <sup>3</sup>    |
|            |                       | (ug/L)                    |   |                 |   |                          |           |             |           |                     |      |                           |
| Semivolati | ile Organic Compounds |                           |   |                 |   |                          |           |             |           |                     |      |                           |
| 85-68-7    | Butylbenzylphthalate  | 1.1                       | J | 1.1             | J | SW121I-10                | 1 / 7     | 10 - 10     | 3.0       | Region III BTAG     | NO   | BSL                       |
| 206-44-0   | Fluoranthene          | 1.1                       | J | 1.1             | J | SW121I-6                 | 1 / 7     | 10 - 10     | 3,980.0   | Region III BTAG     | NO   | BSL                       |
| Metals     |                       |                           |   |                 |   |                          |           |             |           |                     |      |                           |
| 7429-90-5  | Aluminum              | 23.9                      |   | 2,050           |   | SW121I-6                 | 7 / 7     |             | 100       | NYSDEC Class C      | YES  | ASL                       |
| 7440-39-3  | Barium                | 22.5                      |   | 49.2            |   | SW121I-1                 | 6 / 7     | 9.9 - 9.9   | 10,000    | Region III BTAG     | NO   | BSL                       |
| 7440-41-7  | Beryllium             | 0.14                      |   | 0.28            |   | SW121I-6                 | 6 / 7     | 0.1 - 0.1   | 1,100     | NYSDEC Class C      | NO   | BSL                       |
| 7440-43-9  | Cadmium               | 0.54                      |   | 0.54            |   | SW121I-10                | 1 / 7     | 0.4 - 0.8   | 0.42      | NRWQC, CCC          | YES  | ASL                       |
| 7440-70-2  | Calcium               | 18,000                    |   | 74,200          |   | SW121I-1                 | 7 / 7     |             | NA        |                     | NO   | NUT                       |
| 7440-47-3  | Chromium              | 1.1                       |   | 6               |   | SW121I-6                 | 5 / 7     | 0.6 - 1.4   | 11        | NRWQC, CCC for      | YES  | IBC                       |
| 7440-48-4  | Cobalt                | 2.8                       |   | 3               |   | SW121I-6                 | 2 / 7     | 0.6 - 0.7   | 5         | NYSDEC Class C      | NO   | BSL                       |
| 7440-50-8  | Copper                | 1.2                       |   | 11.2            |   | SW121I-6                 | 6 / 7     | 3.6 - 3.6   | 17        | NRWQC, CCC          | YES  | IBC                       |
|            |                       |                           |   |                 |   |                          |           |             |           | NYSDEC Class C      |      |                           |
| 7439-89-6  | Iron                  | 32.3                      | J | 3,410           |   | SW121I-6                 | 5 / 7     | 17.3 - 17.3 | 300       | NYSDEC Class C      | YES  | ASL                       |
| 7439-92-1  | Lead                  | 4.3                       | J | 26.3            |   | SW121I-6                 | 4 / 7     | 2.1 - 3     | 5.8       | NRWQC, CCC          | YES  | ASL                       |
| 7439-95-4  | Magnesium             | 3,635                     |   | 11,100          |   | SW121I-1                 | 7 / 7     |             | NA        |                     | NO   | NUT                       |
| 7439-96-5  | Manganese             | 0.8                       |   | 206             |   | SW121I-6                 | 7 / 7     |             | 14,500    | Region III BTAG     | NO   | BSL                       |
| 7440-02-0  | Nickel                | 3.5                       |   | 3.6             |   | SW121I-6                 | 2 / 7     | 1.8 - 2     | 100       | NRWQC, CCC          | YES  | IBC                       |
|            |                       |                           |   |                 |   |                          |           |             |           | NYSDEC, Class C     |      |                           |
| 7440-09-7  | Potassium             | 645                       |   | 4,640           | J | SW121I-6                 | 7 / 7     |             | NA        |                     | NO   | NUT                       |
| 7782-49-2  | Selenium              | 2.45                      | J | 2.45            | J | SW121I-7                 | 1 / 7     | 3 - 3       | 4.6       | NYSDEC Class C      | YES  | IBC                       |
|            |                       |                           |   |                 |   | (dup)                    |           |             |           |                     |      |                           |
| 7440-23-5  | Sodium                | 2,240                     |   | 38,500          | J | SW121I-10                | 7 / 7     |             | NA        |                     | NO   | NUT                       |
| 7440-62-2  | Vanadium              | 2.1                       |   | 3.9             |   | SW121I-6                 | 3 / 7     | 0.7 - 1.4   | 14        | NYSDEC Class C      | NO   | BSL                       |
|            | Zinc                  | 12.5                      |   | 190             |   | SW121I-6                 | 7/7       |             | 159       | NYSDEC Class C      | YES  | ASL                       |

#### Notes:

1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Range of reporting limits were presented for nondetects only.

Laboratory duplicates were not included in the assessment. The maximum detected concentration was used for screening.

2. Source of Screening Values: NYSDEC. 1998 with addendum. New York State Ambient Water Quality Standards, Class C for Surface Water.

USEPA. 2002. National Recommended Water Quality Criteria: 2002.

USEPA Region III. 1995. Region III BTAG Screening Levels

Hardness for surface water was assumed to be 100 mg/L (CaCO3).

3. Rationale codes Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

Important Bioaccumulative Compounds (IBC)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE)

Neutral pH Value Expected for Soil (NPH)

Definitions: COPC = Chemical of Potential Concern

Q = Qualifier J = Estimated Value

# Table 7-3 Policy Goals, Ecological Assessment and Measurement Endpoints, and Decision Rules SEAD-121C and SEAD-121I RI Report

# **Seneca Army Depot Activity**

| Policy Goals  | Assessment Endpoint  | Measurement Endpoint  | Decision Rule  |
|---|--|---|--|
| Policy Goal: The protection of ecological species in undeveloped areas capable of sustaining wildlife populations in the vicinity of the sites. | Assessment Endpoint: Survival and reproduction of wildlife populations in the area of the sites. Four mammalian receptors (deer mouse, short-tailed shrew, meadow vole, and red fox) and one avian receptor (American robin) were selected to represent terrestrial populations at the sites. An additional avian receptor (great blue heron) was selected to evaluate potential exposure to ditch soil and surface water. | Measurement Endpoint: Chronic no-observed-adverse-effect-level (NOAEL) of COPCs on survival and reproduction of identified receptors. | Decision Rule for Assessment Endpoint: If ratios of estimated exposure dose predicted from COPC EPCs to NOAEL screening ecotoxicity values for adverse effects on identified receptors (HQs) are <1, then Assessment Endpoint is met and ecological species are not at risk. If ratios are > 1, the COPC is retained as a preliminary COC for further evaluation. Final COCs are recommended based on an evaluation of the available weight of evidence. |

COPC = Chemical of potential concern

COC = Chemical of concern

EPC = Exposure point concentration

HQ = Hazard quotient

NOAEL = No observed adverse effect level

#### Table 7-4

# **CONVERSION FACTORS**

# SEAD-121C and SEAD-121I RI Report

## **Seneca Army Depot Activity**

| Category of Uncertainty   | Conversion Factor <sup>(1)</sup> |
|---|----------------------------------|
| Study Duration Conversion Factor <sup>(a)</sup>                 |                                  |
| Chronic studies, equilibrium attained                           | 1                                |
| Subchronic studies  | 10                               |
| Subacute studies  | 10                               |
| Acute studies   | 10                               |
| Single dose   | 10                               |
| Unknown   | 10                               |
| Endpoint Conversion Factor (for NOAEL endpoint)                 |                                  |
| No-observed-effect level  | 1                                |
| No-observed-adverse-effect level                                | 1                                |
| Lowest-observed-effect level                                    | 10                               |
| Lowest-observed-adverse-effect level                            | 10                               |
| Effective concentration lethal to 50 percent of test population | 10                               |
| Unknown   | 10                               |
| Endpoint Conversion Factor (for LOAEL endpoint)                 |                                  |
| No-observed-effect level  | 0.1                              |
| No-observed-adverse-effect level                                | 0.1                              |
| Lowest-observed-effect level                                    | 1                                |
| Lowest-observed-adverse-effect level                            | 1                                |
| Effective concentration lethal to 50 percent of test population | 10                               |
| Unknown   | 10                               |

 $SEV = Screening \ Ecotoxicity \ Values$ 

NOAEL = No Observed Adverse Effect Level

LOAEL = Lowest Observed Adverse Effect Level

- (1) The product of the appropriate conversion factor from each uncertainty category becomes the conversion factor applied to develop the constituent-specific SEV.
- (a) For the purposes of the Ecological Screening Level Risk Assessment, the following study duration definitions were applied:

Chronic - Greater than 90 days (gestation day studies considered chronic exposure).

Subchronic - From 30 to 90 days.

Subacute - From 7 to 29 days.

Acute - Less than 7 days.

Diet-CF 7/21/2005

# NOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE

# SEAD-121C and SEAD-121I RI Report

| СОРС                       | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source                                    | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------------|------------------|---|---|----------------------------|----------------------------|-----------------------------------|
| Volatile Organic Compounds | •                | •   |   |                            |                            |                                   |
| Benzene                    | mouse            | LOAEL/oral gavage/days6-12 of gestation/reproduction  | Sample et al., 1996                       | 263.6                      | 10                         | 2.75E+01                          |
| Ethyl benzene              | rat              | NOAEL/oral gavage/182 days/oral bioassay  | Wolf et al., 1956, as cited in IRIS, 1991 | 97.1                       | 1                          | 1.17E+02                          |
| Meta/Para Xylene           | mouse            | NOAEL/oral gavage/days 6-15 of gestation/reproduction                                       | Sample et al., 1996                       | 2.1                        | 1                          | 2.19E+00                          |
| Semivolatile Organic Compo | unds             |   |   |                            |                            |                                   |
| 3 or 4-methylphenol        | mink             | NOAEL/food consumption/6 months/reproduction for 2-methylphenol                             | Sample et al., 1996                       | 219.2                      | 1                          | 2.82E+02                          |
| Acenaphthene               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Acenaphthylene             | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Anthracene                 | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Benzo(a)anthracene         | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Benzo(a)pyrene             | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                      | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Benzo(b)fluoranthene       | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Benzo(ghi)perylene         | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Benzo(k)fluoranthene       | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Bis(2-Ethylhexyl)phthalate | mouse            | NOAEL/food consumption/105 days/reproduction  | Sample et al., 1996                       | 18.3                       | 1                          | 1.91E+01                          |
| Butylbenzylphthalate       | rat              | NOAEL/diet, 6 months/body weight  | NTP, 1985, as cited in IRIS,<br>1993      | 159                        | 1                          | 1.92E+02                          |
| Carbazole                  | rat              | LD50/oral   | Sax, 1984                                 | 500                        | 100                        | 6.05E+00                          |
| Chrysene                   | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Dibenz(a,h)anthracene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                      | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Dibenzofuran               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                          |
| Di-n-octylphthalate        | mouse            | NOAEL/105 days  | USEPA, 1999                               | 7500                       | 1                          | 7.82E+03                          |

# NOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE

# SEAD-121C and SEAD-121I RI Report

| СОРС                   | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                                 | Source                            | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|------------------------|------------------|---|-----------------------------------|----------------------------|----------------------------|-----------------------------------|
| Fluoranthene           | mouse            | LOAEL/13 wks/hepatic effects  | ATSDR, 1995                       | 125                        | 10                         | 1.30E+01                          |
| Fluorene               | mouse            | LOAEL/13 wks/hepatic effects  | ATSDR, 1995                       | 125                        | 10                         | 1.30E+01                          |
| Hexachlorobenzene      | rat              | NOAEL/chronic(>247days)   | USEPA, 1999                       | 1.6                        | 1                          | 1.93E+00                          |
| Indeno(1,2,3-cd)pyrene | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate   | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Naphthalene            | mouse            | LOAEL/diet, 81 wks/respiratory  | ATSDR, 1995                       | 71.6                       | 10                         | 7.47E+00                          |
| Phenanthrene           | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate   | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Phenol                 | rat              | NOAEL/oral gavage, gestation/developmental  | NTP, 1983, as cited in IRIS, 2002 | 60                         | 1                          | 7.25E+01                          |
| Pyrene                 | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate   | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| PCBs                   | '                |   |                                   |                            |                            |                                   |
| Aroclor-1242           | mink             | LOAEL/diet, 7 months/reproduction   | Sample et al., 1996               | 0.69                       | 10                         | 8.88E-02                          |
| Aroclor-1254           | mink             | NOAEL/diet, 4.5 months/reproduction   | Sample et al., 1996               | 0.137                      | 1                          | 1.76E-01                          |
| Aroclor-1260           | mink             | NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate                         | Sample et al., 1996               | 0.137                      | 1                          | 1.76E-01                          |
| Pesticides             |                  |   |                                   |                            |                            |                                   |
| 4,4'-DDD               | mouse            | NOAEL/78 weeks, respiratory, female   | ATSDR, 2002                       | 142                        | 1                          | 1.48E+02                          |
| 4,4'-DDE               | rat              | NOAEL/5 weeks   | USEPA, 1999                       | 10                         | 10                         | 1.21E+00                          |
| 4,4'-DDT               | rat              | NOAEL/2 yr reproduction, oral   | Sample et al., 1996               | 0.8                        | 1                          | 9.67E-01                          |
| Aldrin                 | rat              | NOAEL/diet, 3 generations/reproduction  | Sample et al., 1996               | 0.2                        | 1                          | 2.42E-01                          |
| Alpha-Chlordane        | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                         | Sample et al., 1996               | 4.58                       | 1                          | 4.78E+00                          |
| Delta-BHC              | rat              | NOAEL/diet, 13 weeks/growth, blood chemistry, organic histology, beta-BHC used as a surrogate | Sample et al., 1996               | 4                          | 1                          | 4.84E+00                          |
| Dieldrin               | rat              | LOAEL/diet, 3 generations/reproduction  | Sample et al., 1996               | 0.2                        | 10                         | 2.42E-02                          |
| Endosulfan I           | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                    | Sample et al., 1996               | 1.5                        | 10                         | 1.81E-01                          |
| Endosulfan II          | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                    | Sample et al., 1996               | 1.5                        | 10                         | 1.81E-01                          |
| Endrin                 | mouse            | LOAEL/120 d, reproduction   | Sample et al., 1996               | 0.92                       | 10                         | 9.60E-02                          |
| Endrin ketone          | mouse            | LOAEL/120 d, reproduction, endrin used as surrogate   | Sample et al., 1996               | 0.92                       | 10                         | 9.60E-02                          |
| Gamma-Chlordane        | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                         | Sample et al., 1996               | 4.58                       | 1                          | 4.78E+00                          |

## NOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE

# SEAD-121C and SEAD-121I RI Report

# **Seneca Army Depot Activity**

| COPC                 | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source              | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------|------------------|--|---------------------|----------------------------|----------------------------|-----------------------------------|
| Heptachlor           | mink             | LOAEL/181 d, reproduction  | Sample et al., 1996 | 1                          | 10                         | 1.29E-01                          |
| Heptachlor epoxide   | mink             | LOAEL/181 d, reproduction, heptachlor used as a surrogate          | Sample et al., 1996 | 1                          | 10                         | 1.29E-01                          |
| Inorganics           |                  |  |                     |                            |                            |                                   |
| Aluminum             | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction                 | Sample et al., 1996 | 19.3                       | 10                         | 2.01E+00                          |
| Antimony             | mouse            | LOAEL/lifetime/lifespan, longevity                                 | Sample et al., 1996 | 1.25                       | 10                         | 1.30E-01                          |
| Arsenic              |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 1.04                       | 1                          | 1.04E+00                          |
| Barium               |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 51.8                       | 1                          | 5.18E+01                          |
| Cadmium              | rat              | NOAEL/6 wks through mating and gestation/reproduction              | Sample et al., 1996 | 1                          | 1                          | 1.21E+00                          |
| Chromium             | rat              | NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)               | Sample et al., 1996 | 2737                       | 1                          | 3.31E+03                          |
| Chromium, Hexavalent | rat              | NOAEL/1 yr/body weight and food consumption                        | Sample et al., 1996 | 3.28                       | 1                          | 3.97E+00                          |
| Cobalt               | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate                       | RTECS, 2004         | 140                        | 100                        | 1.95E+00                          |
| Copper               | mink             | NOAEL/357 d/reproduction   | Sample et al., 1996 | 11.7                       | 1                          | 1.51E+01                          |
| Cyanide              | rat              | NOAEL/diet, gestation and lactation/reproduction                   | Sample et al., 1996 | 68.7                       | 1                          | 8.31E+01                          |
| Iron                 | Child            | Based on the dietary reference intake for a child                  | Marilyn 2001        | 0.67                       | 1                          | 1.01E+00                          |
| Lead                 | Rat              | Reproductive / 3 generations oral / NOAEL                          | Sample et al. 1996  | 8                          | 1                          | 9.67E+00                          |
| Manganese            | rat              | NOAEL/through gestation for 224 day/reproduction                   | Sample et al. 1996  | 88                         | 1                          | 1.06E+02                          |
| Mercury              | mink             | NOAEL/1 yr/reproduction, mercuric sulfide                          | Sample et al. 1996  | 1.0                        | 1                          | 1.29E+00                          |
| Nickel               | Rat              | Reproduction / 3 generations diet / NOAEL                          | Sample et al. 1996  | 40                         | 1                          | 4.84E+01                          |
| Selenium             | rat              | NOAEL/1yr through 2 generations/reproduction                       | Sample et al. 1996  | 0.20                       | 1                          | 2.42E-01                          |
| Silver               | mouse            | LOAEL/125 days/hypoactivity  | USEPA, 1999         | 3.75                       | 10                         | 3.91E-01                          |
| Thallium             | rat              | LOAEL/60 days/testicular function                                  | USEPA, 1999         | 1.31                       | 10                         | 1.58E-01                          |
| Vanadium             |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 4.16                       | 1                          | 4.16E+00                          |
| Zinc                 | Rat              | Reproduction / day 1-16 of gestation diet / NOAEL                  | Sample et al. 1996  | 160                        | 1                          | 1.93E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### NOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE

# SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|   | COPC | Test     | Endpoint / Duration / Effect (survival, growth, reproduction) | Source | Effect Dose | Total      | SEV                 |
|---|------|----------|---|--------|-------------|------------|---------------------|
| ı |      | Organism |   |        | (mg/kg/day) | $CF^{(1)}$ | $(mg/kg/day)^{(2)}$ |
| L |      |          |   |        |             |            |                     |

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

For birds, the scaling factor was 1.

| From Test | To:             | Body Weight |
|-----------|-----------------|-------------|
| Species   | Deer Mouse      | (kg)        |
|           | Lab Mouse 1.04  | 0.03        |
|           | Rat 1.21        | 0.35        |
|           | Mink 1.29       | 1           |
|           | Rabbit 1.39     | 3.8         |
|           | Child 1.51      | 15          |
|           | Hamster 1.13    | 0.11        |
|           | Deer Mouse 1.00 | 0.0148      |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Eisler, R. 1985-1995. Contaminant Hazards Review Series, Biological Report Series, US Fish and Wildlife Service, Patuxent Wildlife Research Center, Laurel, MD.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Marilyn et al., 2001. Dietary Reference Intakes.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

National Research Council. 1994. Nutrient Requirements of Poultry.

USEPA. 2005. Ecological Soil Screening Levels.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

# **TABLE 7-5B**

# NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

# SEAD-121C and SEAD-121I RI Report

| СОРС                       | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                            | Source                                    | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|----------------------------|------------------|--|---|----------------------------|----------------------------|--------------------------------|
| Volatile Organic Compound  | s                |  |   |                            |                            |                                |
| Benzene                    | mouse            | LOAEL/oral gavage/days6-12 of gestation/reproduction                                     | Sample et al., 1996                       | 263.6                      | 10                         | 2.75E+01                       |
| Ethyl benzene              | rat              | NOAEL/oral gavage/182 days/oral bioasay  | Wolf et al., 1956, as cited in IRIS, 1991 | 97.1                       | 1                          | 1.17E+02                       |
| Meta/Para Xylene           | mouse            | NOAEL/oral gavage/days 6-15 of gestation/reproduction                                    | Sample et al., 1996                       | 2.1                        | 1                          | 2.19E+00                       |
| Semivolatile Organic Compo | ounds            |  |   |                            |                            |                                |
| 3 or 4-methylphenol        | mink             | NOAEL/food consumption/6 months/reproduction for 2-methylphenol                          | Sample et al., 1996                       | 219.2                      | 1                          | 2.82E+02                       |
| Acenaphthene               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Acenaphthylene             | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Anthracene                 | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Benzo(a)anthracene         | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Benzo(a)pyrene             | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                   | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Benzo(b)fluoranthene       | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |
| Benzo(ghi)perylene         | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                         | 10                         | 1.04E+00                       |

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

| COPC                       | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                            | Source                            | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------------|------------------|--|-----------------------------------|----------------------------|----------------------------|-----------------------------------|
| Benzo(k)fluoranthene       | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Bis(2-Ethylhexyl)phthalate | mouse            | NOAEL/food consumption/105 days/reproduction   | Sample et al., 1996               | 18.3                       | 1                          | 1.91E+01                          |
| Butylbenzylphthalate       | rat              | NOAEL/diet, 6 months/body weight   | NTP, 1985, as cited in IRIS, 1993 | 159                        | 1                          | 1.92E+02                          |
| Carbazole                  | rat              | LD50/oral  | Sax, 1984                         | 500                        | 100                        | 6.04E+00                          |
| Chrysene                   | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Dibenz(a,h)anthracene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Dibenzofuran               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Di-n-octylphthalate        | mouse            | NOAEL/105 days   | USEPA, 1999                       | 7500                       | 1                          | 7.82E+03                          |
| Fluoranthene               | mouse            | LOAEL/13 wks/hepatic effects   | ATSDR, 1995                       | 125                        | 10                         | 1.30E+01                          |
| Fluorene                   | mouse            | LOAEL/13 wks/hepatic effects   | ATSDR, 1995                       | 125                        | 10                         | 1.30E+01                          |
| Hexachlorobenzene          | rat              | NOAEL/chronic(>247days)  | USEPA, 1999                       | 1.6                        | 1                          | 1.93E+00                          |
| Indeno(1,2,3-cd)pyrene     | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Naphthalene                | mouse            | LOAEL/diet, 81 wks/respiratory   | ATSDR, 1995                       | 71.6                       | 10                         | 7.46E+00                          |
| Phenanthrene               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |
| Phenol                     | rat              | NOAEL/oral gavage, gestation/developmental   | NTP, 1983, as cited in IRIS, 2002 | 60                         | 1                          | 7.25E+01                          |
| Pyrene                     | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 1.04E+00                          |

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

| COPC            | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                                | Source              | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|-----------------|------------------|--|---------------------|----------------------------|----------------------------|-----------------------------------|
| PCBs            |                  |  |                     |                            |                            |                                   |
| Aroclor-1242    | mink             | LOAEL/diet, 7 months/reproduction  | Sample et al., 1996 | 0.69                       | 10                         | 8.88E-02                          |
| Aroclor-1254    | mink             | NOAEL/diet, 4.5 months/reproduction  | Sample et al., 1996 | 0.137                      | 1                          | 1.76E-01                          |
| Aroclor-1260    | mink             | NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate                        | Sample et al., 1996 | 0.137                      | 1                          | 1.76E-01                          |
| Pesticides      |                  |  |                     |                            |                            |                                   |
| 4,4'-DDD        | mouse            | NOAEL/78 weeks, respiratory, female  | ATSDR, 2002         | 142                        | 1                          | 1.48E+02                          |
| 4,4'-DDE        | rat              | NOAEL/5 weeks  | USEPA, 1999         | 10                         | 10                         | 1.21E+00                          |
| 4,4'-DDT        | rat              | NOAEL/2 yr reproduction, oral  | Sample et al., 1996 | 0.8                        | 1                          | 9.66E-01                          |
| Aldrin          | rat              | NOAEL/diet, 3 generations/reproduction   | Sample et al., 1996 | 0.2                        | 1                          | 2.42E-01                          |
| Alpha-Chlordane | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                        | Sample et al., 1996 | 4.58                       | 1                          | 4.77E+00                          |
| Delta-BHC       | rat              | NOAEL/diet, 13 weeks/growth, blood chemistry, organi histology, beta-BHC used as a surrogate | Sample et al., 1996 | 4                          | 1                          | 4.83E+00                          |
| Dieldrin        | rat              | LOAEL/diet, 3 generations/reproduction   | Sample et al., 1996 | 0.2                        | 10                         | 2.42E-02                          |
| Endosulfan I    | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                   | Sample et al., 1996 | 1.5                        | 10                         | 1.81E-01                          |
| Endosulfan II   | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                   | Sample et al., 1996 | 1.5                        | 10                         | 1.81E-01                          |
| Endrin          | mouse            | LOAEL/120 d, reproduction  | Sample et al., 1996 | 0.92                       | 10                         | 9.59E-02                          |
| Endrin ketone   | mouse            | LOAEL/120 d, reproduction, endrin used as surrogate  | Sample et al., 1996 | 0.92                       | 10                         | 9.59E-02                          |
| Gamma-Chlordane | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                        | Sample et al., 1996 | 4.58                       | 1                          | 4.77E+00                          |
| Heptachlor      | mink             | LOAEL/181 d, reproduction  | Sample et al., 1996 | 1                          | 10                         | 1.29E-01                          |

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

| СОРС                 | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source              | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------|------------------|--|---------------------|----------------------------|----------------------------|-----------------------------------|
| Heptachlor epoxide   | mink             | LOAEL/181 d, reproduction, heptachlor used as a surrogate          | Sample et al., 1996 | 1                          | 10                         | 1.29E-01                          |
| Inorganics           | '                |  |                     | •                          |                            |                                   |
| Aluminum             | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction                 | Sample et al., 1996 | 19.3                       | 10                         | 2.01E+00                          |
| Antimony             | mouse            | LOAEL/lifetime/lifespan, longevity                                 | Sample et al., 1996 | 1.25                       | 10                         | 1.30E-01                          |
| Arsenic              |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 1.04                       | 1                          | 1.04E+00                          |
| Barium               |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 51.8                       | 1                          | 5.18E+01                          |
| Cadmium              | rat              | NOAEL/6 wks through mating and gestation/reproduction              | Sample et al., 1996 | 1                          | 1                          | 1.21E+00                          |
| Chromium             | rat              | NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)               | Sample et al., 1996 | 2737                       | 1                          | 3.31E+03                          |
| Chromium, Hexavalent | rat              | NOAEL/1 yr/body weight and food consumption                        | Sample et al., 1996 | 3.28                       | 1                          | 3.96E+00                          |
| Cobalt               | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate                       | RTECS, 2004         | 140                        | 100                        | 1.95E+00                          |
| Copper               | mink             | NOAEL/357 d/reproduction   | Sample et al., 1996 | 11.7                       | 1                          | 1.51E+01                          |
| Cyanide              | rat              | NOAEL/diet, gestation and lactation/reproduction                   | Sample et al., 1996 | 68.7                       | 1                          | 8.30E+01                          |
| Iron                 | Child            | Based on the dietary reference intake for a child                  | Marilyn 2001        | 0.67                       | 1                          | 1.01E+00                          |
| Lead                 | Rat              | Reproductive / 3 generations oral / NOAEL                          | Sample et al. 1996  | 8                          | 1                          | 9.66E+00                          |
| Manganese            | rat              | NOAEL/through gestation for 224 day/reproduction                   | Sample et al. 1996  | 88                         | 1                          | 1.06E+02                          |
| Mercury              | mink             | NOAEL/1 yr/reproduction, mercuric sulfide                          | Sample et al. 1996  | 1.0                        | 1                          | 1.29E+00                          |
| Nickel               | Rat              | Reproduction / 3 generations diet / NOAEL                          | Sample et al. 1996  | 40                         | 1                          | 4.83E+01                          |
| Selenium             | rat              | NOAEL/1yr through 2 generations/reproduction                       | Sample et al. 1996  | 0.20                       | 1                          | 2.42E-01                          |

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source             | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------|------------------|--|--------------------|----------------------------|----------------------------|-----------------------------------|
| Silver   | mouse            | LOAEL/125 days/hypoactivity  | USEPA, 1999        | 3.75                       | 10                         | 3.91E-01                          |
| Thallium | rat              | LOAEL/60 days/testicular function                                  | USEPA, 1999        | 1.31                       | 10                         | 1.58E-01                          |
| Vanadium |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005        | 4.16                       | 1                          | 4.16E+00                          |
| Zinc     | Rat              | Reproduction / day 1-16 of gestation diet / NOAEL                  | Sample et al. 1996 | 160                        | 1                          | 1.93E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test          | To:                | Body Weight |
|--------------------|--------------------|-------------|
| Species            | Short-Tailed Shrew | (kg)        |
| Lab Mouse          | 1.04               | 0.03        |
| Rat                | 1.21               | 0.35        |
| Mink               | 1.29               | 1           |
| Rabbit             | 1.39               | 3.8         |
| Child              | 1.51               | 15          |
| Hamster            | 1.13               | 0.11        |
| Short-Tailed Shrew | 1.00               | 0.015       |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html. Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| COPC Te | est     | Endpoint / Duration / Effect (survival, | Source | Effect Dose | Total      | SEV                 |
|---------|---------|---|--------|-------------|------------|---------------------|
| O       | rganism | growth, reproduction)                   |        | (mg/kg/day) | $CF^{(1)}$ | $(mg/kg/day)^{(2)}$ |
|         |         |   |        |             |            |                     |

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Marilyn et al., 2001. Dietary Reference Intakes.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. 2005. Ecological Soil Screening Levels.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

| СОРС                       | Test Organism        | Endpoint / Duration / Effect (survival, growth, reproduction)                   | Source                      | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |  |  |  |
|----------------------------|----------------------|---|-----------------------------|-------------------------|----------------------------|-----------------------------------|--|--|--|
| Volatile Organic Compounds | s                    |   | •                           | •                       |                            | •                                 |  |  |  |
| Benzene                    |                      | Ecotoxicity values  | not identified              |                         |                            |                                   |  |  |  |
| Ethyl benzene              |                      | Ecotoxicity values not identified   |                             |                         |                            |                                   |  |  |  |
| Meta/Para Xylene           | Japanese quail       | NOAEL/diet, 5 days  | Hill and Camardese,<br>1986 | 667                     | 1                          | 6.67E+02                          |  |  |  |
| Semivolatile Organic Compo | ounds                |   |                             |                         |                            | 1                                 |  |  |  |
| 3 or 4-Methylphenol        | red-winged blackbird | LD50/diet, 18 hours/mortality   | Schafer et al., 1983        | 96                      | 100                        | 9.60E-01                          |  |  |  |
| Acenaphthene               | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Acenaphthylene             | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Anthracene                 | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Benzo(a)anthracene         | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Benzo(a)pyrene             | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Benzo(b)fluoranthene       | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Benzo(ghi)perylene         | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Benzo(k)fluoranthene       | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Bis(2-Ethylhexyl)phthalate | ringed dove          | NOAEL/diet 4 weeks/reproduction   | Sample et al., 1996         | 1.1                     | 1                          | 1.10E+00                          |  |  |  |
| Butylbenzylphthalate       | ringed dove          | NOAEL/diet 4 weeks/reproduction, bis(2-ethylhexyl)phthalate used as a surrogate | Sample et al., 1996         | 1.1                     | 1                          | 1.10E+00                          |  |  |  |
| Carbazole                  | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |
| Chrysene                   | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs                                | Eisler, 1987                | 285                     | 10                         | 2.85E+01                          |  |  |  |

### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

| СОРС                   | Test Organism        | Endpoint / Duration / Effect (survival, growth, reproduction)                              | Source               | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|------------------------|----------------------|--|----------------------|-------------------------|----------------------------|--------------------------------|
| Dibenz(a,h)anthracene  | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Dibenzofuran           | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Di-n-octylphthalate    | ring-necked pheasant | LD50/oral in diet, 5-days exposure; 3-days observation                                     | Hill et al., 1975    | 1160                    | 100                        | 1.16E+01                       |
| Fluoranthene           | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Fluorene               | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Hexachlorobenzene      | coturnix quail       | NOAEL/5 days   | USEPA, 1999          | 22.5                    | 10                         | 2.25E+00                       |
| Indeno(1,2,3-cd)pyrene | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Naphthalene            | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Phenanthrene           | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| Phenol                 | red-winged blackbird | LD50/oral, 18 hrs/mortality  | Schafer et al., 1983 | 113                     | 100                        | 1.13E+00                       |
| Pyrene                 | mallard              | LOAEL/diet 7 months/physiological for mixed PAHs   | Eisler, 1987         | 285                     | 10                         | 2.85E+01                       |
| PCBs                   |                      |  |                      |                         |                            |                                |
| Aroclor-1242           | screech owl          | NOAEL/diet, 2 generations/reproduction   | Sample et al., 1996  | 0.41                    | 1                          | 4.10E-01                       |
| Aroclor-1254           | ring-necked pheasant | LOAEL/oral via gelatin capsule, 17 weeks/reproduction                                      | Sample et al., 1996  | 1.8                     | 10                         | 1.80E-01                       |
| Aroclor-1260           | ring-necked pheasant | LOAEL/oral via gelatin capsule, 17 weeks/reproduction,<br>Aroclor-1254 used as a surrogate | Sample et al., 1996  | 1.8                     | 10                         | 1.80E-01                       |
| Pesticides             |                      |  | 1                    |                         | 1                          | 1                              |
| 4,4'-DDD               | Coturnix quail       | Acute (5 days) LOAEL (mortality), 4,4'-DDE used as surrogate                               | USEPA, 1999          | 84.5                    | 100                        | 8.45E-01                       |
| 4,4'-DDE               | Coturnix quail       | Acute (5 days) LOAEL (mortality)   | USEPA, 1999          | 84.5                    | 100                        | 8.45E-01                       |

#### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

| COPC               | Test Organism        | Endpoint / Duration / Effect (survival, growth, reproduction)                | Source               | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|--------------------|----------------------|--|----------------------|-------------------------|----------------------------|-----------------------------------|
| 4,4'-DDT           | brown pelican        | LOAEL/diet, 5 yr, reproduction   | Sample et al., 1996  | 0.028                   | 10                         | 2.80E-03                          |
| Aldrin             | starling             | LD50/oral, 18 hours/mortality  | Schafer et al., 1983 | 5                       | 100                        | 5.00E-02                          |
| Alpha-Chlordane    | red-winged blackbird | NOAEL/diet, 84 days/mortality  | Sample et al., 1996  | 2.14                    | 1                          | 2.14E+00                          |
| Delta-BHC          | Japanese quail       | NOAEL/diet, 90 days/reproduction for BHC mixed isomers                       | Sample et al., 1996  | 0.563                   | 1                          | 5.63E-01                          |
| Dieldrin           | barn owl             | NOAEL/diet, 2 years/reproductions  | Sample et al., 1996  | 0.077                   | 1                          | 7.70E-02                          |
| Endosulfan I       | gray patridge        | NOAEL/4 weeks critical lifestage, reproduction, endosulfan used as surrogate | Sample et al., 1996  | 10                      | 1                          | 1.00E+01                          |
| Endosulfan II      | gray patridge        | NOAEL/4 weeks critical lifestage, reproduction, endosulfan used as surrogate | Sample et al., 1996  | 10                      | 1                          | 1.00E+01                          |
| Endrin             | mallard duck         | NOAEL/>200d, reproduction  | Sample et al., 1996  | 0.3                     | 1                          | 3.00E-01                          |
| Endrin ketone      | mallard duck         | NOAEL/>200d, reproduction, endrin used as a surrogate                        | Sample et al., 1996  | 0.3                     | 1                          | 3.00E-01                          |
| Gamma-Chlordane    | red-winged blackbird | NOAEL/diet, 84 days/mortality  | Sample et al., 1996  | 2.14                    | 1                          | 2.14E+00                          |
| Heptachlor         | quail                | heptachlor used as a surrogate   | USEPA, 1999          | 6.5                     | 100                        | 6.50E-02                          |
| Heptachlor epoxide | quail                | LOAEL/5 days, mortality, heptachlor used as a surrogate                      | USEPA, 1999          | 6.5                     | 100                        | 6.50E-02                          |
| Inorganics         |                      |  |                      |                         |                            |                                   |
| Aluminum           | ringed dove          | NOAEL/4 months/reproduction  | Sample et al., 1996  | 109.7                   | 1                          | 1.10E+02                          |
| Antimony           |                      | Screening Ecological Va  | lue not available    |                         |                            |                                   |
| Arsenic            | cowbird              | NOAEL/7 months/mortality   | Sample et al., 1996  | 2.46                    | 1                          | 2.46E+00                          |
| Barium             | chick                | NOAEL/4 wk/mortality   | Sample et al., 1996  | 208.26                  | 10                         | 2.08E+01                          |
| Cadmium            | mallard ducks        | NOAEL/90 d/reproduction  | Sample et al., 1996  | 1.45                    | 1                          | 1.45E+00                          |

### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                 | Test Organism                            | Endpoint / Duration / Effect (survival, growth, reproduction)                                  | Source                                      | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|----------------------|--|--|---|-------------------------|----------------------------|--------------------------------|
| Chromium             |  | The geometric mean of the NOAEL values for reproduction and growth                             | USEPA, 2005                                 | 2.66                    | 1                          | 2.66E+00                       |
| Chromium, Hexavalent | black duck                               | NOAEL/10 month/reproduction for Cr(III)  | Sample et al., 1996                         | 1                       | 1                          | 1.00E+00                       |
| Cobalt               | chicken                                  | Toxic dietary concentration  | NRC 1994                                    | 100                     | 1                          | 1.00E+02                       |
| Copper               | chick                                    | NOAEL/10 weeks/growth, mortality   | Sample et al., 1996                         | 47                      | 1                          | 4.70E+01                       |
| Cyanide              | day-old chick                            | NOAEL/diet, 8 weeks/survival, growth, histology, hemoglobin, hematocrit, and lymphocyte number | Gomez et al. 1988, as cited in Eisler, 1987 | 4                       | 10                         | 4.00E-01                       |
| Iron                 | Chicken                                  | Toxic dietary concentration  | NRC, 1994                                   | 4500                    | 1                          | 4.50E+03                       |
| Lead                 | American Kestrels                        | NOAEL/7 months/reproduction  | Sample et al. 1996                          | 3.85                    | 1                          | 3.85E+00                       |
| Manganese            | Japanese quail                           | NOAEL/75 d/growth, aggressive behavior   | Sample et al. 1996                          | 977                     | 10                         | 9.77E+01                       |
| Mercury              | Japanese quail                           | NOAEL/1 yr/reproduction, mercuric chloride   | Sample et al. 1996                          | 0.45                    | 1                          | 4.50E-01                       |
| Nickel               | mallard duckling                         | NOAEL/90 d/mortality, growth, behavior   | Sample et al. 1996                          | 77.4                    | 1                          | 7.74E+01                       |
| Selenium             | mallard duck                             | NOAEL/78 days/reproduction   | Sample et al. 1996                          | 0.5                     | 1                          | 5.00E-01                       |
| Silver               | mallard                                  | NOAEL/14 days  | USEPA, 1999                                 | 1780                    | 10                         | 1.78E+02                       |
| Thallium             | wild bird                                | Lowest lethal dose to wild bird  | RTECS, 2004                                 | 37                      | 100                        | 3.70E-01                       |
| Vanadium             | mallard duck                             | NOAEL/12 wks/mortality, body weight, blood chemistry   | Sample et al. 1996                          | 11.4                    | 1                          | 1.14E+01                       |
| Zinc                 | Leghorn hen and New<br>Hampshire rooster | NOAEL/44 wks   | USEPA, 1999                                 | 130.9                   | 1                          | 1.31E+02                       |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

(1) For CFs, see Table 7-4

#### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON

#### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|      |               |   |        |             | <b></b>                  | GTV.                       |
|------|---------------|---|--------|-------------|--------------------------|----------------------------|
|      |               | Endpoint / Duration / Effect (survival, |        | Effect Dose | Total                    | SEV                        |
| COPC | Test Organism | growth, reproduction)                   | Source | (mg/kg/day) | <b>CF</b> <sup>(1)</sup> | (mg/kg/day) <sup>(2)</sup> |

(2) SEV = Effective Dose x Scaling Factor / Total CF

#### References:

Eisler, R. 1985-1995. Contaminant Hazards Review Series, Biological Report Series, US Fish and Wildlife Service, Patuxent Wildlife Research Center, Laurel, MD. Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

National Research Council. 1994. Nutrient Requirements of Poultry.

USEPA. ECOTOX Database. On-line resources available at http://www.epa.gov/ecotox/

| СОРС                        | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                            | Source                                       | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|-----------------------------|------------------|--|--|-------------------------|----------------------------|--------------------------------|
| Volatile Organic Compounds  | <b>.</b>         |  |  |                         |                            |                                |
| Benzene                     | mouse            | LOAEL/oral gavage/days6-12 of gestation/reproduction                                     | Sample et al., 1996                          | 263.6                   | 10                         | 2.59E+01                       |
| Ethyl benzene               | rat              | NOAEL/oral gavage/182 days/oral bioasay  | Wolf et al., 1956, as<br>cited in IRIS, 1991 | 97.1                    | 1                          | 1.11E+02                       |
| Meta/Para Xylene            | mouse            | NOAEL/oral gavage/days 6-15 of gestation/reproduction                                    | Sample et al., 1996                          | 2.1                     | 1                          | 2.07E+00                       |
| Semivolatile Organic Compou | ınds             |  |  |                         |                            | 1                              |
| 3 or 4-methylphenol         | mink             | NOAEL/food consumption/6 months/reproduction for 2-methylphenol                          | Sample et al., 1996                          | 219.2                   | 1                          | 2.66E+02                       |
| Acenaphthene                | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Acenaphthylene              | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Anthracene                  | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Benzo(a)anthracene          | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Benzo(a)pyrene              | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                   | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Benzo(b)fluoranthene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Benzo(ghi)perylene          | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Benzo(k)fluoranthene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                          | 10                      | 10                         | 9.84E-01                       |
| Bis(2-Ethylhexyl)phthalate  | mouse            | NOAEL/food consumption/105 days/reproduction   | Sample et al., 1996                          | 18.3                    | 1                          | 1.80E+01                       |

| СОРС                   | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source                            | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|------------------------|------------------|---|-----------------------------------|----------------------------|----------------------------|-----------------------------------|
| Butylbenzylphthalate   | rat              | NOAEL/diet, 6 months/body weight  | NTP, 1985, as cited in IRIS, 1993 | 159                        | 1                          | 1.81E+02                          |
| Carbazole              | rat              | LD50/oral   | Sax, 1984                         | 500                        | 100                        | 5.70E+00                          |
| Chrysene               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| Dibenz(a,h)anthracene  | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| Dibenzofuran           | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| Di-n-octylphthalate    | mouse            | NOAEL/105 days  | USEPA, 1999                       | 7500                       | 1                          | 7.38E+03                          |
| Fluoranthene           | mouse            | LOAEL/13 wks/hepatic effects  | ATSDR, 1995                       | 125                        | 10                         | 1.23E+01                          |
| Fluorene               | mouse            | LOAEL/13 wks/hepatic effects  | ATSDR, 1995                       | 125                        | 10                         | 1.23E+01                          |
| Hexachlorobenzene      | rat              | NOAEL/chronic(>247days)   | USEPA, 1999                       | 1.6                        | 1                          | 1.83E+00                          |
| Indeno(1,2,3-cd)pyrene | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| Naphthalene            | mouse            | LOAEL/diet, 81 wks/respiratory  | ATSDR, 1995                       | 71.6                       | 10                         | 7.05E+00                          |
| Phenanthrene           | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| Phenol                 | rat              | NOAEL/oral gavage, gestation/developmental  | NTP, 1983, as cited in IRIS, 2002 | 60                         | 1                          | 6.84E+01                          |
| Pyrene                 | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996               | 10                         | 10                         | 9.84E-01                          |
| PCBs                   |                  |   |                                   |                            |                            |                                   |
| Aroclor-1242           | mink             | LOAEL/diet, 7 months/reproduction   | Sample et al., 1996               | 0.69                       | 10                         | 8.38E-02                          |
| Aroclor-1254           | mink             | NOAEL/diet, 4.5 months/reproduction   | Sample et al., 1996               | 0.137                      | 1                          | 1.66E-01                          |
| Aroclor-1260           | mink             | NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate                       | Sample et al., 1996               | 0.137                      | 1                          | 1.66E-01                          |
| Pesticides             | <del></del>      |   |                                   |                            |                            |                                   |
| 4,4'-DDD               | mouse            | NOAEL/78 weeks, respiratory, female   | ATSDR, 2002                       | 142                        | 1                          | 1.40E+02                          |
| 4,4'-DDE               | rat              | NOAEL/5 weeks   | USEPA, 1999                       | 10                         | 10                         | 1.14E+00                          |

| СОРС               | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                                   | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|--------------------|------------------|---|---------------------|-------------------------|----------------------------|--------------------------------|
| 4,4'-DDT           | rat              | NOAEL/2 yr reproduction, oral   | Sample et al., 1996 | 0.8                     | 1                          | 9.13E-01                       |
| Aldrin             | rat              | NOAEL/diet, 3 generations/reproduction  | Sample et al., 1996 | 0.2                     | 1                          | 2.28E-01                       |
| Alpha-Chlordane    | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                           | Sample et al., 1996 | 4.58                    | 1                          | 4.51E+00                       |
| Delta-BHC          | rat              | NOAEL/diet, 13 weeks/growth, blood chemistry, organi<br>histology, beta-BHC used as a surrogate | Sample et al., 1996 | 4                       | 1                          | 4.56E+00                       |
| Dieldrin           | rat              | LOAEL/diet, 3 generations/reproduction  | Sample et al., 1996 | 0.2                     | 10                         | 2.28E-02                       |
| Endosulfan I       | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                      | Sample et al., 1996 | 1.5                     | 10                         | 1.71E-01                       |
| Endosulfan II      | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                      | Sample et al., 1996 | 1.5                     | 10                         | 1.71E-01                       |
| Endrin             | mouse            | LOAEL/120 d, reproduction   | Sample et al., 1996 | 0.92                    | 10                         | 9.06E-02                       |
| Endrin ketone      | mouse            | LOAEL/120 d, reproduction, endrin used as surrogate   | Sample et al., 1996 | 0.92                    | 10                         | 9.06E-02                       |
| Gamma-Chlordane    | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                           | Sample et al., 1996 | 4.58                    | 1                          | 4.51E+00                       |
| Heptachlor         | mink             | LOAEL/181 d, reproduction   | Sample et al., 1996 | 1                       | 10                         | 1.21E-01                       |
| Heptachlor epoxide | mink             | LOAEL/181 d, reproduction, heptachlor used as a surrogate                                       | Sample et al., 1996 | 1                       | 10                         | 1.21E-01                       |
| Inorganics         |                  |   |                     |                         |                            |                                |
| Aluminum           | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction  | Sample et al., 1996 | 19.3                    | 10                         | 1.90E+00                       |
| Antimony           | mouse            | LOAEL/lifetime/lifespan, longevity  | Sample et al., 1996 | 1.25                    | 10                         | 1.23E-01                       |
| Arsenic            |                  | The geometric mean of the NOAEL values for reproduction and growth                              | USEPA, 2005         | 1.04                    | 1                          | 1.04E+00                       |
| Barium             |                  | The geometric mean of the NOAEL values for reproduction and growth                              | USEPA, 2003         | 51.8                    | 1                          | 5.18E+01                       |
| Cadmium            | rat              | NOAEL/6 wks through mating and gestation/reproduction   | Sample et al., 1996 | 1                       | 1                          | 1.14E+00                       |
| Chromium           | rat              | NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)  | Sample et al., 1996 | 2737                    | 1                          | 3.12E+03                       |

### TABLE 7-5D NOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                 | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------|------------------|--|---------------------|-------------------------|----------------------------|-----------------------------------|
| Chromium, Hexavalent | rat              | NOAEL/1 yr/body weight and food consumption                        | Sample et al., 1996 | 3.28                    | 1                          | 3.74E+00                          |
| Cobalt               | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate                       | RTECS, 2004         | 140                     | 100                        | 1.84E+00                          |
| Copper               | mink             | NOAEL/357 d/reproduction   | Sample et al., 1996 | 11.7                    | 1                          | 1.42E+01                          |
| Cyanide              | rat              | NOAEL/diet, gestation and lactation/reproduction                   | Sample et al., 1996 | 68.7                    | 1                          | 7.84E+01                          |
| Iron                 | Child            | Based on the dietary reference intake for a child                  | Marilyn 2001        | 0.67                    | 1                          | 9.58E-01                          |
| Lead                 | Rat              | Reproductive / 3 generations oral / NOAEL                          | Sample et al. 1996  | 8                       | 1                          | 9.13E+00                          |
| Manganese            | rat              | NOAEL/through gestation for 224 day/reproduction                   | Sample et al. 1996  | 88                      | 1                          | 1.00E+02                          |
| Mercury              | mink             | NOAEL/1 yr/reproduction, mercuric sulfide                          | Sample et al. 1996  | 1.0                     | 1                          | 1.21E+00                          |
| Nickel               | Rat              | Reproduction / 3 generations diet / NOAEL                          | Sample et al. 1996  | 40                      | 1                          | 4.56E+01                          |
| Selenium             | rat              | NOAEL/1yr through 2 generations/reproduction                       | Sample et al. 1996  | 0.20                    | 1                          | 2.28E-01                          |
| Silver               | mouse            | LOAEL/125 days/hypoactivity  | USEPA, 1999         | 3.75                    | 10                         | 3.69E-01                          |
| Thallium             | rat              | LOAEL/60 days/testicular function                                  | USEPA, 1999         | 1.31                    | 10                         | 1.49E-01                          |
| Vanadium             |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 4.16                    | 1                          | 4.16E+00                          |
| Zinc                 | Rat              | Reproduction / day 1-16 of gestation diet / NOAEL                  | Sample et al. 1996  | 160                     | 1                          | 1.83E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

#### TABLE 7-5D

#### NOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE

#### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

|           | COPC        | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction) | Source   | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|-----------|-------------|------------------|---|----------|----------------------------|----------------------------|-----------------------------------|
| From Test |             | To:              |   | Weight   |                            |                            |                                   |
| Species   |             | Red Fox          |   | (kg)     | _                          |                            |                                   |
|           | Lab Mouse   | 0.98             |   | 0.03     | -                          |                            |                                   |
|           | Rat         | 1.14             |   | 0.35     |                            |                            |                                   |
|           | Mink        | 1.21             |   | 1        |                            |                            |                                   |
|           | Rabbit      | 1.32             |   | 3.8      |                            |                            |                                   |
|           | Child       | 1.43             |   | 15       |                            |                            |                                   |
|           | Hamster     | 1.06             |   | 0.11     |                            |                            |                                   |
|           | Meadow Vole | 1.00             |   | 3.90E-02 |                            |                            |                                   |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Marilyn et al., 2001. Dietary Reference Intakes.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

| COPC                      | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                            | Source                                    | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|---------------------------|------------------|--|---|-------------------------|----------------------------|-----------------------------------|
| Volatile Organic Compoun  | ds               |  |   |                         |                            |                                   |
| Benzene                   | mouse            | LOAEL/oral gavage/days6-12 of gestation/reproduction                                     | Sample et al., 1996                       | 263.6                   | 10                         | 1.97E+01                          |
| Ethyl benzene             | rat              | NOAEL/oral gavage/182 days/oral bioasay  | Wolf et al., 1956, as cited in IRIS, 1991 | 97.1                    | 1                          | 8.40E+01                          |
| Meta/Para Xylene          | mouse            | NOAEL/oral gavage/days 6-15 of gestation/reproduction                                    | Sample et al., 1996                       | 2.1                     | 1                          | 1.57E+00                          |
| Semivolatile Organic Comp | oounds           |  |   |                         |                            |                                   |
| 3 or 4-methylphenol       | mink             | NOAEL/food consumption/6 months/reproduction for 2-methylphenol                          | Sample et al., 1996                       | 219.2                   | 1                          | 2.02E+02                          |
| Acenaphthene              | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Acenaphthylene            | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Anthracene                | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Benzo(a)anthracene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Benzo(a)pyrene            | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                   | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Benzo(b)fluoranthene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |
| Benzo(ghi)perylene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996                       | 10                      | 10                         | 7.46E-01                          |

| СОРС                       | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                            | Source                            | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|----------------------------|------------------|--|-----------------------------------|-------------------------|----------------------------|--------------------------------|
| Benzo(k)fluoranthene       | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Bis(2-Ethylhexyl)phthalate | mouse            | NOAEL/food consumption/105 days/reproduction   | Sample et al., 1996               | 18.3                    | 1                          | 1.37E+01                       |
| Butylbenzylphthalate       | rat              | NOAEL/diet, 6 months/body weight   | NTP, 1985, as cited in IRIS, 1993 | 159                     | 1                          | 1.38E+02                       |
| Carbazole                  | rat              | LD50/oral  | Sax, 1984                         | 500                     | 100                        | 4.32E+00                       |
| Chrysene                   | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Dibenz(a,h)anthracene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Dibenzofuran               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Di-n-octylphthalate        | mouse            | NOAEL/105 days   | USEPA, 1999                       | 7500                    | 1                          | 5.60E+03                       |
| Fluoranthene               | mouse            | LOAEL/13 wks/hepatic effects   | ATSDR, 1995                       | 125                     | 10                         | 9.33E+00                       |
| Fluorene                   | mouse            | LOAEL/13 wks/hepatic effects   | ATSDR, 1995                       | 125                     | 10                         | 9.33E+00                       |
| Hexachlorobenzene          | rat              | NOAEL/chronic(>247days)  | USEPA, 1999                       | 1.6                     | 1                          | 1.38E+00                       |
| Indeno(1,2,3-cd)pyrene     | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Naphthalene                | mouse            | LOAEL/diet, 81 wks/respiratory   | ATSDR, 1995                       | 71.6                    | 10                         | 5.34E+00                       |
| Phenanthrene               | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |
| Phenol                     | rat              | NOAEL/oral gavage, gestation/developmental   | NTP, 1983, as cited in IRIS, 2002 | 60                      | 1                          | 5.19E+01                       |
| Pyrene                     | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996               | 10                      | 10                         | 7.46E-01                       |

| СОРС               | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                                | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|--------------------|------------------|--|---------------------|-------------------------|----------------------------|--------------------------------|
| PCBs               |                  |  |                     |                         |                            |                                |
| Aroclor-1242       | mink             | LOAEL/diet, 7 months/reproduction  | Sample et al., 1996 | 0.69                    | 10                         | 6.36E-02                       |
| Aroclor-1254       | mink             | NOAEL/diet, 4.5 months/reproduction  | Sample et al., 1996 | 0.137                   | 1                          | 1.26E-01                       |
| Aroclor-1260       | mink             | NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate                        | Sample et al., 1996 | 0.137                   | 1                          | 1.26E-01                       |
| Pesticides         |                  |  |                     |                         |                            |                                |
| 4,4'-DDD           | mouse            | NOAEL/78 weeks, respiratory, female  | ATSDR, 2002         | 142                     | 1                          | 1.06E+02                       |
| 4,4'-DDE           | rat              | NOAEL/5 weeks  | USEPA, 1999         | 10                      | 10                         | 8.65E-01                       |
| 4,4'-DDT           | rat              | NOAEL/2 yr reproduction, oral  | Sample et al., 1996 | 0.8                     | 1                          | 6.92E-01                       |
| Aldrin             | rat              | NOAEL/diet, 3 generations/reproduction   | Sample et al., 1996 | 0.2                     | 1                          | 1.73E-01                       |
| Alpha-Chlordane    | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                        | Sample et al., 1996 | 4.58                    | 1                          | 3.42E+00                       |
| Delta-BHC          | rat              | NOAEL/diet, 13 weeks/growth, blood chemistry, organi histology, beta-BHC used as a surrogate | Sample et al., 1996 | 4                       | 1                          | 3.46E+00                       |
| Dieldrin           | rat              | LOAEL/diet, 3 generations/reproduction   | Sample et al., 1996 | 0.2                     | 10                         | 1.73E-02                       |
| Endosulfan I       | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                   | Sample et al., 1996 | 1.5                     | 10                         | 1.30E-01                       |
| Endosulfan II      | rat              | NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate                   | Sample et al., 1996 | 1.5                     | 10                         | 1.30E-01                       |
| Endrin             | mouse            | LOAEL/120 d, reproduction  | Sample et al., 1996 | 0.92                    | 10                         | 6.87E-02                       |
| Endrin ketone      | mouse            | LOAEL/120 d, reproduction, endrin used as surrogate  | Sample et al., 1996 | 0.92                    | 10                         | 6.87E-02                       |
| Heptachlor epoxide | mink             | LOAEL/181 d, reproduction, heptachlor used as a surrogate                                    | Sample et al., 1996 | 1                       | 10                         | 9.21E-02                       |
| Gamma-Chlordane    | mouse            | NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate                        | Sample et al., 1996 | 4.58                    | 1                          | 3.42E+00                       |

| СОРС                 | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------------------|------------------|--|---------------------|-------------------------|----------------------------|-----------------------------------|
| Heptachlor           | mink             | LOAEL/181 d, reproduction  | Sample et al., 1996 | 1                       | 10                         | 9.21E-02                          |
| Heptachlor epoxide   | mink             | LOAEL/181 d, reproduction, heptachlor used as a surrogate          | Sample et al., 1996 | 1                       | 10                         | 9.21E-02                          |
| Inorganics           | <u>.</u>         |  |                     | •                       | •                          |                                   |
| Aluminum             | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction                 | Sample et al., 1996 | 19.3                    | 10                         | 1.44E+00                          |
| Antimony             | mouse            | LOAEL/lifetime/lifespan, longevity                                 | Sample et al., 1996 | 1.25                    | 10                         | 9.33E-02                          |
| Arsenic              |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005         | 1.04                    | 1                          | 1.04E+00                          |
| Barium               |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2003         | 51.8                    | 1                          | 5.18E+01                          |
| Cadmium              | rat              | NOAEL/6 wks through mating and gestation/reproduction              | Sample et al., 1996 | 1                       | 1                          | 8.65E-01                          |
| Chromium             | rat              | NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)               | Sample et al., 1996 | 2737                    | 1                          | 2.37E+03                          |
| Chromium, Hexavalent | rat              | NOAEL/1 yr/body weight and food consumption                        | Sample et al., 1996 | 3.28                    | 1                          | 2.84E+00                          |
| Cobalt               | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate                       | RTECS, 2004         | 140                     | 100                        | 1.40E+00                          |
| Copper               | mink             | NOAEL/357 d/reproduction   | Sample et al., 1996 | 11.7                    | 1                          | 1.08E+01                          |
| Cyanide              | rat              | NOAEL/diet, gestation and lactation/reproduction                   | Sample et al., 1996 | 68.7                    | 1                          | 5.94E+01                          |
| Iron                 | Child            | Based on the dietary reference intake for a child                  | Marilyn 2001        | 0.67                    | 1                          | 7.26E-01                          |
| Lead                 | Rat              | Reproductive / 3 generations oral / NOAEL                          | Sample et al. 1996  | 8                       | 1                          | 6.92E+00                          |
| Manganese            | rat              | NOAEL/through gestation for 224 day/reproduction                   | Sample et al. 1996  | 88                      | 1                          | 7.61E+01                          |
| Mercury              | mink             | NOAEL/1 yr/reproduction, mercuric sulfide                          | Sample et al. 1996  | 1.0                     | 1                          | 9.21E-01                          |
| Nickel               | Rat              | Reproduction / 3 generations diet / NOAEL                          | Sample et al. 1996  | 40                      | 1                          | 3.46E+01                          |

| СОРС     | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)      | Source             | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|----------|------------------|--|--------------------|----------------------------|----------------------------|-----------------------------------|
| Selenium | rat              | NOAEL/1yr through 2 generations/reproduction                       | Sample et al. 1996 | 0.20                       | 1                          | 1.73E-01                          |
| Silver   | mouse            | LOAEL/125 days/hypoactivity  | USEPA, 1999        | 3.75                       | 10                         | 2.80E-01                          |
| Thallium | rat              | LOAEL/60 days/testicular function                                  | USEPA, 1999        | 1.31                       | 10                         | 1.13E-01                          |
| Vanadium |                  | The geometric mean of the NOAEL values for reproduction and growth | USEPA, 2005        | 4.16                       | 1                          | 4.16E+00                          |
| Zinc     | Rat              | Reproduction / day 1-16 of gestation diet / NOAEL                  | Sample et al. 1996 | 160                        | 1                          | 1.38E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test | To:            | Weight |
|-----------|----------------|--------|
| Species   | Red Fox        | (kg)   |
|           | Lab Mouse 0.75 | 0.03   |
|           | Rat 0.86       | 0.35   |
|           | Mink 0.92      | 1      |
|           | Rabbit 1.00    | 3.8    |
|           | Child 1.08     | 15     |
|           | Hamster 0.81   | 0.11   |
|           | Red Fox 1.00   | 3.94   |

#### **TABLE 7-5E**

#### NOAEL SCREENING ECOTOXICITY VALUES - RED FOX

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|    |    | Test     | Endpoint / Duration / Effect (survival, |        | Effect Dose | Total             | SEV                        |
|----|----|----------|---|--------|-------------|-------------------|----------------------------|
| CO | PC | Organism | growth, reproduction)                   | Source | (mg/kg/day) | CF <sup>(1)</sup> | (mg/kg/day) <sup>(2)</sup> |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Marilyn et al., 2001. Dietary Reference Intakes.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

#### TABLE 7-6A

#### ${\bf LOAEL\ SCREENING\ ECOTOXICITY\ VALUES\ -\ DEER\ MOUSE}$

#### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| COPC                      | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source                              | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|---------------------------|------------------|---|-------------------------------------|----------------------------|----------------------------|-----------------------------------|
| Volatile Organic Compound | ds               |   |                                     |                            |                            |                                   |
| Meta/Para Xylene          | rat              | LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival                   | NTP, 1986 as cited in<br>IRIS, 2003 | 500                        | 1                          | 6.05E+02                          |
| Semivolatile Organic Comp | ounds            |   |                                     |                            |                            |                                   |
| Phenanthrene              | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996                 | 10                         | 1                          | 1.04E+01                          |
| Pyrene                    | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996                 | 10                         | 1                          | 1.04E+01                          |
| PCBs                      |                  |   |                                     |                            |                            |                                   |
| Aroclor-1254              | mink             | LOAEL/diet, 4.5 months/reproduction   | Sample et al., 1996                 | 0.685                      | 1                          | 8.82E-01                          |
| Inorganics                |                  |   |                                     |                            |                            |                                   |
| Aluminum                  | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction  | Sample et al., 1996                 | 19.3                       | 1                          | 2.01E+01                          |
| Antimony                  | mouse            | LOAEL/lifetime/lifespan, longevity  | Sample et al., 1996                 | 1.25                       | 1                          | 1.30E+00                          |
| Arsenic                   | mouse            | LOAEL/3 generations >1 yr/reproduction  | Sample et al., 1996                 | 1.26                       | 1                          | 1.31E+00                          |
| Barium                    |                  | The geometric mean of the NOAEL values for reproduction and growth                          | USEPA, 2005                         | 51.8                       | 0.1                        | 5.18E+02                          |
| Cadmium                   | rat              | LOAEL/6 weeks critical lifestage  | Sample et al., 1996                 | 10                         | 1                          | 1.21E+01                          |
| Cobalt                    | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate  | RTECS, 2004                         | 140                        | 10                         | 1.95E+01                          |
| Copper                    | mink             | LOAEL/357 d/reproduction  | Sample et al., 1996                 | 15.14                      | 1                          | 1.95E+01                          |
| Iron                      | Child            | Based on the dietary reference intake for a child   | Marilyn 2001                        | 0.67                       | 0.1                        | 1.01E+01                          |
| Lead                      | rat              | Reproductive / 3 generations oral / LOAEL   | Sample et al. 1996                  | 80                         | 1                          | 9.67E+01                          |
| Manganese                 | rat              | LOAEL/through gestation for 224 day/reproduction  | Sample et al. 1996                  | 284                        | 1                          | 3.43E+02                          |
| Selenium                  | rat              | LOAEL/1yr through 2 generations/reproduction  | Sample et al. 1996                  | 0.33                       | 1                          | 3.99E-01                          |
| Silver                    | mouse            | LOAEL/125 days/hypoactivity   | USEPA, 1999                         | 3.75                       | 1                          | 3.91E+00                          |
| Thallium                  | rat              | LOAEL/60 days/testicular function   | USEPA, 1999                         | 1.31                       | 1                          | 1.58E+00                          |
| Vanadium                  | rat              | LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction | Sample et al. 1996                  | 2.1                        | 1                          | 2.54E+00                          |

#### TABLE 7-6A

#### LOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction) | Source             | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|------|------------------|---|--------------------|----------------------------|----------------------------|-----------------------------------|
| Zinc | rat              | Reproduction / day 1-16 of gestation diet / LOAEL             | Sample et al. 1996 | 320                        | 1                          | 3.87E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test | To:             | Body Weight |
|-----------|-----------------|-------------|
| Species   | Deer Mouse      | (kg)        |
|           | Lab Mouse 1.04  | 0.03        |
|           | Rat 1.21        | 0.35        |
|           | Mink 1.29       | 1           |
|           | Rabbit 1.39     | 3.8         |
|           | Child 1.51      | 15          |
|           | Hamster 1.13    | 0.11        |
|           | Deer Mouse 1.00 | 0.0148      |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. 2005. Ecological Soil Screening Levels.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

#### **TABLE 7-6B**

#### LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

| COPC                      | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source                           | Effect Dose<br>(mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|---------------------------|------------------|---|----------------------------------|----------------------------|----------------------------|--------------------------------|
| Volatile Organic Compound | ds               |   |                                  |                            |                            |                                |
| Meta/Para Xylene          | rat              | LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival                   | NTP, 1986 as cited in IRIS, 2003 | 500                        | 1                          | 6.04E+02                       |
| Semivolatile Organic Comp | ounds            |   |                                  |                            | •                          |                                |
| Benzo(a)anthracene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Benzo(a)pyrene            | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                      | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Benzo(b)fluoranthene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Benzo(ghi)perylene        | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,<br>benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Benzo(k)fluoranthene      | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Chrysene                  | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Phenanthrene              | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| Pyrene                    | mouse            | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate    | Sample et al., 1996              | 10                         | 1                          | 1.04E+01                       |
| PCBs                      |                  |   |                                  |                            |                            |                                |
| Aroclor-1254              | mink             | LOAEL/diet, 4.5 months/reproduction   | Sample et al., 1996              | 0.685                      | 1                          | 8.81E-01                       |
| Inorganics                |                  |   |                                  |                            |                            |                                |
| Antimony                  | mouse            | LOAEL/lifetime/lifespan, longevity  | Sample et al., 1996              | 1.25                       | 1                          | 1.30E+00                       |

#### **TABLE 7-6B**

#### LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС      | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|-----------|------------------|---|---------------------|-------------------------|----------------------------|--------------------------------|
| Arsenic   | mouse            | LOAEL/3 generations >1 yr/reproduction  | Sample et al., 1996 | 1.26                    | 1                          | 1.31E+00                       |
| Barium    |                  | The geometric mean of the NOAEL values for reproduction and growth                          | USEPA, 2005         | 51.8                    | 0.1                        | 5.18E+02                       |
| Cadmium   | rat              | LOAEL/6 weeks critical lifestage  | Sample et al., 1996 | 10                      | 1                          | 1.21E+01                       |
| Cobalt    | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate  | RTECS, 2004         | 140                     | 10                         | 1.95E+01                       |
| Copper    | mink             | LOAEL/357 d/reproduction  | Sample et al., 1996 | 15.14                   | 1                          | 1.95E+01                       |
| Iron      | Child            | Based on the dietary reference intake for a child   | Marilyn 2001        | 0.67                    | 0.1                        | 1.01E+01                       |
| Lead      | rat              | Reproductive / 3 generations oral / LOAEL   | Sample et al. 1996  | 80                      | 1                          | 9.66E+01                       |
| Manganese | rat              | LOAEL/through gestation for 224 day/reproduction  | Sample et al. 1996  | 284                     | 1                          | 3.43E+02                       |
| Selenium  | rat              | LOAEL/1yr through 2 generations/reproduction  | Sample et al. 1996  | 0.33                    | 1                          | 3.99E-01                       |
| Silver    | mouse            | LOAEL/125 days/hypoactivity   | USEPA, 1999         | 3.75                    | 1                          | 3.91E+00                       |
| Thallium  | rat              | LOAEL/60 days/testicular function   | USEPA, 1999         | 1.31                    | 1                          | 1.58E+00                       |
| Vanadium  | rat              | LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction | Sample et al. 1996  | 2.1                     | 1                          | 2.54E+00                       |
| Zinc      | rat              | Reproduction / day 1-16 of gestation diet / LOAEL   | Sample et al. 1996  | 320                     | 1                          | 3.87E+02                       |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

(1) For CFs, see Table 7-4

(2) SEV = Effective Dose x Scaling Factor / Total CF

#### **TABLE 7-6B**

#### LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|      | Test     | Endpoint / Duration / Effect (survival, |        | Effect Dose | Total               | SEV                        |
|------|----------|---|--------|-------------|---------------------|----------------------------|
| COPC | Organism | growth, reproduction)                   | Source | (mg/kg/day) | $\mathbf{CF}^{(1)}$ | (mg/kg/day) <sup>(2)</sup> |
|      |          |   |        |             |                     |                            |

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test | To:                | Body Weight |
|-----------|--------------------|-------------|
| Species   | Short-Tailed Shrew | (kg)        |
|           | Lab Mouse 1.04     | 0.03        |
|           | Rat 1.21           | 0.35        |
|           | Mink 1.29          | 1           |
|           | Rabbit 1.39        | 3.8         |
|           | Child 1.51         | 15          |
|           | Hamster 1.13       | 0.11        |
| Short-T   | Cailed Shrew       | 0.015       |

#### References:

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

#### **TABLE 7-6C**

### LOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС         | Test Organism        | Endpoint / Duration / Effect (survival, growth, reproduction) | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|--------------|----------------------|---|---------------------|-------------------------|----------------------------|-----------------------------------|
| PCBs         |                      |   |                     |                         |                            |                                   |
| Aroclor-1254 | ring-necked pheasant | LOAEL/oral via gelatin capsule, 17 weeks/reproduction         | Sample et al., 1996 | 1.8                     | 1                          | 1.80E+00                          |
| Pesticides   |                      |   |                     |                         |                            |                                   |
| 4,4'-DDT     | brown pelican        | LOAEL/diet, 5 yr, reproduction                                | Sample et al., 1996 | 0.028                   | 1                          | 2.80E-02                          |
| Inorganics   |                      |   |                     |                         |                            |                                   |
| Antimony     |                      | Screening Ecological Va                                       | alue not available  |                         |                            |                                   |
| Arsenic      | cowbird              | LOAEL/7 months/mortality                                      | Sample et al., 1996 | 7.38                    | 1                          | 7.38E+00                          |
| Barium       | chick                | LOAEL/4 wk/mortality  | Sample et al., 1996 | 416.53                  | 10                         | 4.17E+01                          |
| Cadmium      | mallard ducks        | LOAEL/90 d/reproduction                                       | Sample et al., 1996 | 20.03                   | 1                          | 2.00E+01                          |
| Chromium     | black duck           | LOAEL/10 month/reproduction for Cr(III)                       | Sample et al., 1996 | 5                       | 1                          | 5.00E+00                          |
| Copper       | chick                | LOAEL/10 weeks/growth, mortality                              | Sample et al., 1996 | 61.7                    | 1                          | 6.17E+01                          |
| Cyanide      | chick                | LOAEL/diet, 20 days/growth, HCN                               | Eisler              | 135                     | 10                         | 1.35E+01                          |
| Iron         | Chicken              | Toxic dietary concentration                                   | NRC, 1994           | 4500                    | 1                          | 4.50E+03                          |
| Lead         | American Kestrels    | NOAEL/7 months/reproduction                                   | Sample et al. 1996  | 3.85                    | 0.1                        | 3.85E+01                          |
| Manganese    | Japanese quail       | NOAEL/75 d/growth, aggressive behavior                        | Sample et al. 1996  | 977                     | 1                          | 9.77E+02                          |
| Selenium     | mallard duck         | LOAEL/78 days/reproduction                                    | Sample et al. 1996  | 1                       | 1                          | 1.00E+00                          |
| Thallium     | starling             | LOAEL/diet, acute/survivalship                                | Schafer, 1972       | 5.3                     | 10                         | 5.30E-01                          |
| Vanadium     | mallard duck         | NOAEL/12 wks/mortality, body weight, blood chemistry          | Sample et al. 1996  | 11.4                    | 0.1                        | 1.14E+02                          |
| Zinc         | white Leghorn hen    | LOAEL/44 wks, reproduction                                    | Sample et al. 1996  | 130.9                   | 1                          | 1.31E+02                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

#### **TABLE 7-6C**

### LOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|      |               | Endows / Decode of Essent (married)     |        | Ecc. 4 D    | Total                    | SEV                        |
|------|---------------|---|--------|-------------|--------------------------|----------------------------|
|      |               | Endpoint / Duration / Effect (survival, | !      | Effect Dose |                          |                            |
| COPC | Test Organism | growth, reproduction)                   | Source | (mg/kg/day) | <b>CF</b> <sup>(1)</sup> | (mg/kg/day) <sup>(2)</sup> |

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Eisler, R. 1985-1995. Contaminant Hazards Review Series, Biological Report Series, US Fish and Wildlife Service, Patuxent Wildlife Research Center, Laurel, MD.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Marilyn et al., 2001. Dietary Reference Intakes.

USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

Registry of Toxic Effects of Chemical Substances (RTECS). On-line resources available at http://www.cdc.gov/niosh/rtecs.html

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

National Research Council. 1994. Nutrient Requirements of Poultry.

National Research Council. 1994. Nutrient Requirements of Poultry.

#### **TABLE 7-6D**

#### LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE

#### SEAD-121C and SEAD-121I RI Report

|                             | Test     | Endpoint / Duration / Effect (survival,  |                                  | Effect Dose | Total                    | SEV                        |
|-----------------------------|----------|--|----------------------------------|-------------|--------------------------|----------------------------|
| COPC                        | Organism | growth, reproduction)  | Source                           | (mg/kg/day) | <b>CF</b> <sup>(1)</sup> | (mg/kg/day) <sup>(2)</sup> |
| Volatile Organic Compounds  |          |  |                                  |             |                          |                            |
| Meta/Para Xylene            | rat      | LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival                | NTP, 1986 as cited in IRIS, 2003 | 500         | 1                        | 5.70E+02                   |
| Semivolatile Organic Compou | nds      |  |                                  |             |                          |                            |
| Anthracene                  | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Benzo(a)anthracene          | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Benzo(a)pyrene              | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction                                   | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Benzo(b)fluoranthene        | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Benzo(ghi)perylene          | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Benzo(k)fluoranthene        | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Chrysene                    | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Phenanthrene                | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |
| Pyrene                      | mouse    | LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate | Sample et al., 1996              | 10          | 1                        | 9.84E+00                   |

#### **TABLE 7-6D**

#### LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE

#### SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС       | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source              | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV (mg/kg/day) <sup>(2)</sup> |
|------------|------------------|---|---------------------|-------------------------|----------------------------|--------------------------------|
| Inorganics |                  |   |                     |                         |                            |                                |
| Aluminum   | mouse            | LOAEL/mouse over 3 generations, >1 yr/reproduction  | Sample et al., 1996 | 19.3                    | 1                          | 1.90E+01                       |
| Antimony   | mouse            | LOAEL/lifetime/lifespan, longevity  | Sample et al., 1996 | 1.25                    | 1                          | 1.23E+00                       |
| Arsenic    | mouse            | LOAEL/3 generations >1 yr/reproduction  | Sample et al., 1996 | 1.26                    | 1                          | 1.24E+00                       |
| Barium     |                  | The geometric mean of the NOAEL values for reproduction and growth                          | USEPA, 2005         | 51.8                    | 0.1                        | 5.18E+02                       |
| Cadmium    | rat              | LOAEL/6 weeks critical lifestage  | Sample et al., 1996 | 10                      | 1                          | 1.14E+01                       |
| Cobalt     | rabbit           | LOAEL/over 2 wks/cardiac, for cobalt sulfate  | RTECS, 2004         | 140                     | 10                         | 1.84E+01                       |
| Copper     | mink             | LOAEL/357 d/reproduction  | Sample et al., 1996 | 15.14                   | 1                          | 1.84E+01                       |
| Iron       | Child            | Based on the dietary reference intake for a child   | Marilyn 2001        | 0.67                    | 0.1                        | 9.58E+00                       |
| Lead       | rat              | Reproductive / 3 generations oral / LOAEL   | Sample et al. 1996  | 80                      | 1                          | 9.13E+01                       |
| Manganese  | rat              | LOAEL/through gestation for 224 day/reproduction  | Sample et al. 1996  | 284                     | 1                          | 3.24E+02                       |
| Selenium   | rat              | LOAEL/1yr through 2 generations/reproduction  | Sample et al. 1996  | 0.33                    | 1                          | 3.76E-01                       |
| Silver     | mouse            | LOAEL/125 days/hypoactivity   | USEPA, 1999         | 3.75                    | 1                          | 3.69E+00                       |
| Thallium   | rat              | LOAEL/60 days/testicular function   | USEPA, 1999         | 1.31                    | 1                          | 1.49E+00                       |
| Vanadium   | rat              | LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction | Sample et al. 1996  | 2.1                     | 1                          | 2.40E+00                       |
| Zinc       | rat              | Reproduction / day 1-16 of gestation diet / LOAEL   | Sample et al. 1996  | 320                     | 1                          | 3.65E+02                       |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

#### **TABLE 7-6D**

#### LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE

#### SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

| ſ |      |          |   |        |             |                     |                            |
|---|------|----------|---|--------|-------------|---------------------|----------------------------|
| ı |      | Test     | Endpoint / Duration / Effect (survival, |        | Effect Dose | Total               | SEV                        |
|   | COPC | Organism | growth, reproduction)                   | Source | (mg/kg/day) | $\mathbf{CF}^{(1)}$ | (mg/kg/day) <sup>(2)</sup> |

<sup>(1)</sup> For CFs, see Table 7-4

(2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test | To:              | Weight   |
|-----------|------------------|----------|
| Species   | Red Fox          | (kg)     |
|           | Lab Mouse 0.98   | 0.03     |
|           | Rat 1.14         | 0.35     |
|           | Mink 1.21        | 1        |
|           | Rabbit 1.32      | 3.8      |
|           | Child 1.43       | 15       |
|           | Hamster 1.06     | 0.11     |
|           | rat 1.14         | 0.35     |
|           | Meadow Vole 1.00 | 3.90E-02 |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

USEPA. Integrated Risk Information System (IRIS). On-line database available at http://www.epa.gov/iris/.

| СОРС                     | Test<br>Organism | Endpoint / Duration / Effect (survival, growth, reproduction)                               | Source                           | Effect Dose (mg/kg/day) | Total<br>CF <sup>(1)</sup> | SEV<br>(mg/kg/day) <sup>(2)</sup> |
|--------------------------|------------------|---|----------------------------------|-------------------------|----------------------------|-----------------------------------|
| Volatile Organic Compoun | ds               |   |                                  |                         |                            |                                   |
| Meta/Para Xylene         | rat              | LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival                   | NTP, 1986 as cited in IRIS, 2003 | 500                     | 1                          | 4.32E+02                          |
| Inorganics               |                  |   |                                  |                         |                            | '                                 |
| Antimony                 | mouse            | LOAEL/lifetime/lifespan, longevity  | Sample et al., 1996              | 1.25                    | 1                          | 9.33E-01                          |
| Arsenic                  | mouse            | LOAEL/3 generations >1 yr/reproduction  | Sample et al., 1996              | 1.26                    | 1                          | 9.40E-01                          |
| Copper                   | mink             | LOAEL/357 d/reproduction  | Sample et al., 1996              | 15.14                   | 1                          | 1.39E+01                          |
| Iron                     | Child            | Based on the dietary reference intake for a child   | Marilyn 2001                     | 0.67                    | 0.1                        | 7.26E+00                          |
| Lead                     | rat              | Reproductive / 3 generations oral / LOAEL   | Sample et al. 1996               | 80                      | 1                          | 6.92E+01                          |
| Manganese                | rat              | LOAEL/through gestation for 224 day/reproduction  | Sample et al. 1996               | 284                     | 1                          | 2.46E+02                          |
| Selenium                 | rat              | LOAEL/1yr through 2 generations/reproduction  | Sample et al. 1996               | 0.33                    | 1                          | 2.85E-01                          |
| Thallium                 | rat              | LOAEL/60 days/testicular function   | USEPA, 1999                      | 1.31                    | 1                          | 1.13E+00                          |
| Vanadium                 | rat              | LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction | Sample et al. 1996               | 2.1                     | 1                          | 1.82E+00                          |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

- (1) For CFs, see Table 7-4
- (2) SEV = Effective Dose x Scaling Factor / Total CF

#### **Scaling Factors for Toxicity Values:**

 $SEV_w = SEV_t * (bw_t / bw_w) ^(1-b)$ 

#### **TABLE 7-6E**

#### LOAEL SCREENING ECOTOXICITY VALUES - RED FOX

#### SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

| I |      |          |   |        |             |                          |                            |
|---|------|----------|---|--------|-------------|--------------------------|----------------------------|
|   |      | Test     | Endpoint / Duration / Effect (survival, |        | Effect Dose | Total                    | SEV                        |
|   | COPC | Organism | growth, reproduction)                   | Source | (mg/kg/day) | <b>CF</b> <sup>(1)</sup> | (mg/kg/day) <sup>(2)</sup> |

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

| From Test | To:            | Weight |
|-----------|----------------|--------|
| Species   | Red Fox        | (kg)   |
|           | Lab Mouse 0.75 | 0.03   |
|           | Mink 0.92      | 1      |
|           | Rabbit 1.00    | 3.8    |
|           | Child 1.08     | 15     |
|           | Hamster 0.81   | 0.11   |
|           | Rat 0.86       | 0.35   |
|           | Red Fox        | 3.94   |

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html.

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

### Table 7-7A Exposure Point Concentration for SEAD-121C Soil SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| СОРС                           | Surface Soil (0-2 ft<br>bgs.) Maximum<br>Detected | Surface Soil (0-4<br>ft bgs.) Maximum<br>Detected |  |
|--------------------------------|---|---|--|
|                                | Concentration                                     | Concentration                                     |  |
|                                | (mg/kg)   | (mg/kg)   |  |
| Volatile Organic Compounds     |   |   |  |
| Benzene                        | 0.041   | 1.8   |  |
| Ethyl benzene                  | 3.3   | 24  |  |
| Meta/Para Xylene               | 4.4   | 130   |  |
| Semivolatile Organic Compounds |   |   |  |
| Acenaphthene                   | 2.6   | 2.6   |  |
| Acenaphthylene                 | 2.5   | 2.5   |  |
| Anthracene                     | 7.1   | 7.1   |  |
| Benzo(a)anthracene             | 10  | 10  |  |
| Benzo(a)pyrene                 | 8.7   | 8.7   |  |
| Benzo(b)fluoranthene           | 12  | 12  |  |
| Benzo(ghi)perylene             | 3.2   | 3.2   |  |
| Benzo(k)fluoranthene           | 7.5   | 7.5   |  |
| Carbazole                      | 4.2   | 4.2   |  |
| Chrysene                       | 9.1   | 9.1   |  |
| Dibenz(a,h)anthracene          | 0.47  | 0.47  |  |
| Dibenzofuran                   | 1.7   | 1.7   |  |
| Di-n-octylphthalate            | 0.023   | 0.023   |  |
| Fluoranthene<br>Fluorene       | 27<br>3.5   | 3.5   |  |
| Hexachlorobenzene              |   |   |  |
| Indeno(1,2,3-cd)pyrene         | 0.0085<br>0.97                                    | 0.0085  |  |
| Naphthalene                    | 0.97  | 1.9   |  |
| Phenanthrene                   | 29  | 29  |  |
| Pyrene                         | 34  | 34  |  |
| PCBs                           | 34  | 34  |  |
| Aroclor-1242                   | 0.058   | 0.058   |  |
| Aroclor-1254                   | 0.93  | 0.93  |  |
| Aroclor-1260                   | 0.085   | 0.20  |  |
| Pesticides                     | 0.002   | 0.20  |  |
| 4,4'-DDD                       | 0.044   | 0.044   |  |
| 4,4'-DDE                       | 0.069   | 0.069   |  |
| 4,4'-DDT                       | 0.1   | 0.1   |  |
| Aldrin                         | 0.014   | 0.014   |  |
| Alpha-Chlordane                | 0.063   | 0.063   |  |
| Delta-BHC                      | 0.002   | 0.002   |  |
| Dieldrin                       | 0.041   | 0.041   |  |
| Endosulfan I                   | 0.19  | 0.19  |  |
| Endosulfan II                  | 0.009   | 0.009   |  |
| Endrin                         | 0.022   | 0.023   |  |
| Endrin ketone                  | 0.0075  | 0.0097  |  |
| Gamma-Chlordane                | 0.0012  | 0.0012  |  |
| Heptachlor                     | 0.014   | 0.014   |  |
| Heptachlor epoxide             | 0.0028  | 0.0028  |  |
| Metals                         |   |   |  |
| Antimony                       | 236   | 236   |  |
| Arsenic                        | 11.6  | 11.6  |  |
| Barium                         | 2,030   | 2,030   |  |
| Cadmium                        | 29.1  | 29.1  |  |
| Chromium                       | 74.8  | 74.8  |  |
| Cobalt                         | 17  | 19.7  |  |
| Copper                         | 9,750   | 9,750   |  |
| Lead                           | 18,900  | 18,900  |  |
| Manganese<br>Mercury           | 858<br>0.47                                       | 858<br>0.47                                       |  |
| Mercury<br>Nickel              | 224   | 224   |  |
| INICKEI                        | 224   | 224   |  |

### Table 7-7A Exposure Point Concentration for SEAD-121C Soil SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| COPC     | Surface Soil (0-2 ft<br>bgs.) Maximum<br>Detected<br>Concentration<br>(mg/kg) | Surface Soil (0-4<br>ft bgs.) Maximum<br>Detected<br>Concentration<br>(mg/kg) |
|----------|---|---|
| Selenium | 1.3   | 1.3   |
| Silver   | 21.8  | 21.8  |
| Thallium | 1.1   | 1.8   |
| Vanadium | 25.4  | 27  |
| Zinc     | 3,610   | 3,610   |

COPC = Chemical of Potential Concern

# Table 7-7B Exposure Point Concentration for SEAD-121C Ditch Soil SEAD-121C SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

| COPC                           | Ditch Soil Maximum Detected<br>Concentration |  |  |
|--------------------------------|--|--|--|
|                                | (mg/kg)                                      |  |  |
| Semivolatile Organic Compounds | (Hig/kg)                                     |  |  |
| 3 or 4-Methylphenol            | 0.79   |  |  |
| Anthracene                     | 0.25   |  |  |
| Benzo(a)anthracene             | 1.1  |  |  |
| Benzo(a)pyrene                 | 0.9  |  |  |
| Benzo(b)fluoranthene           | 1.1  |  |  |
| Benzo(ghi)perylene             | 0.29   |  |  |
| Benzo(k)fluoranthene           | 0.58   |  |  |
| Chrysene                       | 1.2  |  |  |
| Fluoranthene                   | 2.1  |  |  |
| Indeno(1,2,3-cd)pyrene         | 0.27   |  |  |
| Phenanthrene                   | 1.1  |  |  |
| Pyrene                         | 2.1  |  |  |
| Inorganics                     |  |  |  |
| Antimony                       | 4.9  |  |  |
| Arsenic                        | 6.1  |  |  |
| Cadmium                        | 14.3   |  |  |
| Chromium                       | 29.8   |  |  |
| Cobalt                         | 15.8   |  |  |
| Copper                         | 1,190  |  |  |
| Cyanide                        | 2.36   |  |  |
| Lead                           | 436  |  |  |
| Manganese                      | 918  |  |  |
| Mercury                        | 0.3  |  |  |
| Nickel                         | 42.7   |  |  |
| Selenium                       | 2.5  |  |  |
| Silver                         | 2.6  |  |  |
| Vanadium                       | 29.1   |  |  |
| Zinc                           | 566  |  |  |

COPC = Chemical of Potential Concern

#### Table 7-7C

# Exposure Point Concentration for SEAD-121C Surface Water ${\bf SEAD-121C}$

## SEAD-121C and SEAD-121I Remedial Investigation SENECA ARMY DEPOT ACTIVITY

| COPC                           | Surface Water Maximum Detected<br>Concentration<br>(ug/L) |
|--------------------------------|---|
| Semivolatile Organic Compounds |   |
| Bis(2-Ethylhexyl)phthalate     | 4.2   |
| Metals                         |   |
| Aluminum                       | 8,760   |
| Arsenic                        | 50.3  |
| Cadmium                        | 19.5  |
| Chromium                       | 129   |
| Cobalt                         | 47  |
| Copper                         | 1,160   |
| Iron                           | 110,000   |
| Lead                           | 839   |
| Mercury                        | 2.1   |
| Nickel                         | 154   |
| Selenium                       | 4.6   |
| Silver                         | 8   |
| Vanadium                       | 233   |
| Zinc                           | 6,910   |

# Table 7-8A Exposure Point Concentration for SEAD-121I Surface Soil

#### SEAD-121I

### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| СОРС                         | Surface Soil (0-2 ft bgs.) Maximum  Detected Concentration  (mg/kg) |  |  |  |  |
|------------------------------|---|--|--|--|--|
| Semivolatile Organic Compour | nds   |  |  |  |  |
| Acenaphthene                 | 6.1   |  |  |  |  |
| Acenaphthylene               | 0.56  |  |  |  |  |
| Anthracene                   | 12  |  |  |  |  |
| Benzo(a)anthracene           | 28  |  |  |  |  |
| Benzo(a)pyrene               | 23  |  |  |  |  |
| Benzo(b)fluoranthene         | 29  |  |  |  |  |
| Benzo(ghi)perylene           | 29  |  |  |  |  |
| Benzo(k)fluoranthene         | 21  |  |  |  |  |
| Bis(2-Ethylhexyl)phthalate   | 1.6   |  |  |  |  |
| Carbazole                    | 6.8   |  |  |  |  |
| Chrysene                     | 32  |  |  |  |  |
| Dibenz(a,h)anthracene        | 4.6   |  |  |  |  |
| Dibenzofuran                 | 2   |  |  |  |  |
| Fluoranthene                 | 62  |  |  |  |  |
| Fluorene                     | 4.2   |  |  |  |  |
| Indeno(1,2,3-cd)pyrene       | 8.1   |  |  |  |  |
| Naphthalene                  | 0.63  |  |  |  |  |
| Phenanthrene                 | 52  |  |  |  |  |
| Pyrene                       | 64  |  |  |  |  |
| PCBs                         |   |  |  |  |  |
| Aroclor-1254                 | 0.03  |  |  |  |  |
| Aroclor-1260                 | 0.046   |  |  |  |  |
| Pesticides                   |   |  |  |  |  |
| 4,4'-DDE                     | 0.034   |  |  |  |  |
| 4,4'-DDT                     | 0.039   |  |  |  |  |
| Aldrin                       | 0.012   |  |  |  |  |
| Dieldrin                     | 0.034   |  |  |  |  |
| Endosulfan I                 | 0.095   |  |  |  |  |
| Endrin                       | 0.03  |  |  |  |  |
| Heptachlor epoxide           | 0.055   |  |  |  |  |
| Inorganics                   |   |  |  |  |  |
| Antimony                     | 7.5   |  |  |  |  |
| Arsenic                      | 32.1  |  |  |  |  |
| Cadmium                      | 6.6   |  |  |  |  |
| Chromium                     | 439   |  |  |  |  |
| Cobalt                       | 205.5   |  |  |  |  |
| Copper                       | 209   |  |  |  |  |
| Cyanide, Total               | 2.00  |  |  |  |  |
| Lead                         | 122   |  |  |  |  |
| Manganese                    | 310,500   |  |  |  |  |
| Nickel                       | 342   |  |  |  |  |
| Selenium                     | 146   |  |  |  |  |
| Silver                       | 3.1   |  |  |  |  |
| Thallium                     | 163   |  |  |  |  |
| Vanadium                     | 182   |  |  |  |  |
| Zinc                         | 329   |  |  |  |  |

#### Table 7-8B

# Exposure Point Concentration for SEAD-121I Ditch Soil SEAD-121I

## SEAD-121C AND SEAD-121I RI REPORT

**Seneca Army Depot Activity** 

| COPC                           | Ditch Soil Maximum Detected<br>Concentration<br>(mg/kg) |
|--------------------------------|---|
| Semivolatile Organic Compounds |   |
| Acenaphthene                   | 0.74  |
| Acenaphthylene                 | 0.42  |
| Anthracene                     | 1.8   |
| Benzo(a)anthracene             | 14  |
| Benzo(a)pyrene                 | 16  |
| Benzo(b)fluoranthene           | 22  |
| Benzo(ghi)perylene             | 12  |
| Benzo(k)fluoranthene           | 23  |
| Butylbenzylphthalate           | 0.42  |
| Carbazole                      | 1.6   |
| Chrysene                       | 25  |
| Dibenz(a,h)anthracene          | 5   |
| Dibenzofuran                   | 0.356   |
| Fluoranthene                   | 24  |
| Fluorene                       | 0.645   |
| Indeno(1,2,3-cd)pyrene         | 12  |
| Naphthalene                    | 0.35  |
| Phenanthrene                   | 6.25  |
| Phenol                         | 0.315   |
| Pyrene                         | 17  |
| PCBs                           |   |
| Aroclor-1254                   | 0.067   |
| Aroclor-1260                   | 0.014   |
| Pesticides                     |   |
| 4,4'-DDE                       | 0.0076  |
| Metals                         |   |
| Arsenic                        | 104   |
| Cadmium                        | 0.8   |
| Chromium                       | 83.9  |
| Cobalt                         | 91.9  |
| Copper                         | 130   |
| Lead                           | 93.3  |
| Manganese                      | 14,900  |
| Mercury                        | 0.18  |
| Nickel                         | 153   |
| Selenium                       | 18  |
| Silver                         | 10.5  |
| Thallium                       | 21.5  |
| Vanadium                       | 69.4  |
| Zinc                           | 532   |

#### Table 7-8C

# Exposure Point Concentration for SEAD-121I Surface Water SEAD-121I

### SEAD-121C AND SEAD-121I RI REPORT

### Seneca Army Depot Activity

| COPC     | Surface Water Maximum Detected Concentration (ug/L) |
|----------|---|
| Metals   |   |
| Aluminum | 2,050   |
| Cadmium  | 0.54  |
| Chromium | 6   |
| Copper   | 11.2  |
| Iron     | 3,410   |
| Lead     | 26.3  |
| Nickel   | 3.6   |
| Selenium | 2.45  |
| Zinc     | 190   |

#### **Table 7-9**

#### **Receptor Intake Rates and Dietary Fractions**

#### SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

| Receptor               | Foraging Range<br>(acres) | Food Intake<br>Rate (IR)<br>(kg wet/day) | Plant<br>Diet<br>Fraction | Invertebrate<br>Diet Fraction | Small Animal<br>Diet Fraction |          | Water Intake |          | Source                     |
|------------------------|---------------------------|--|---------------------------|-------------------------------|-------------------------------|----------|--------------|----------|----------------------------|
| Deer Mouse (a)         | 1.50E-01                  | 8.87E-03                                 | 37%                       | 61%                           | 0%                            | 2.13E-05 | 2.23E-03     | 1.48E-02 | USEPA,1999;<br>USEPA, 1993 |
| Deer Wouse (a)         | 1.50L-01                  | 0.0712 03                                | 3170                      | 0170                          | 070                           | 2.132 03 | 2.232 03     | 1.102 02 | USEPA,1999;                |
| American Robin (b)     | 2.72E-01                  | 3.55E-02                                 | 7%                        | 93%                           | 0%                            | 1.14E-03 | 1.10E-02     | 8.00E-02 | USEPA, 1993                |
| Short-tailed Shrew (c) | 7.41E-02                  | 9.30E-03                                 | 5%                        | 87%                           | 8%                            | 2.04E-04 | 2.27E-03     | 1.50E-02 | USEPA,1999;<br>USEPA, 1993 |
| Meadow Vole (d)        | 9.14E-02                  | 1.71E-02                                 | 100%                      | 0%                            | 0%                            | 2.80E-03 | 8.19E-03     | 3.90E-02 | USEPA, 2005,<br>2000, 1993 |
| Red Fox (e)            | 2.37E+02                  | 6.62E-01                                 | 7%                        | 7%                            | 86%                           | 5.95E-03 | 3.40E-01     | 3.94E+00 | USEPA,1999;<br>USEPA, 1993 |
| Great Blue Heron (f)   | 1.48E+00                  | 4.01E-01                                 | 0%                        | 2%                            | 98%                           | 1.96E-02 | 1.00E-01     | 2.23E+00 | USEPA, 1993                |

#### Notes:

- (a) Deer mouse body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Foraging range based on average of adult M/F in Virginia. Dietary fractions based on summer months in Virginia.
- (b) For purposes of this assessment, the American robin dietary composition was assumed to be insectivorous. Body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Feeding rate was based on spring diet for birds of eastern U.S. Foraging range is larger than its territory, which is the range given above.
- (c) Short-tailed shrew body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Foraging range based on the lower range of New York/old field location. Dietary fractions based on summer months in Virginia.
- (d) Meadow vole body weight from USEPA, 2000. Feeding rate, diet fractions, and soil ingestion rate from USEPA, 2005.

Feeding rate was converted to wet weight based on the assumption of 80% moisture in plants. Others from USEPA, 1993. Foraging range for meadow vole in Massachusetts/grassy meadow.

(e) Red Fox body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Winter dietary fractions for red fox in Maryland were used.

 $For aging\ range\ based\ on\ adult\ \ female\ all\ year\ (mean).\ \ Dietary\ fractions\ based\ on\ average\ for\ the\ year.$ 

(f) Great blue heron parameters from USEPA, 1993. Sediment ingestion rate was assumed 2% of diet (dry weight).

Diet (dry weight) was calculated using equation provided in USEPA, 1993.

Diet (kg/day, dry) = 0.0582xBody Weight<sup>0.651</sup>

#### Sources:

- 1. USEPA. 2005. Guidance for Developing Ecological Soil Screening Levels. Revised February 2005.
- 2. USEPA 2000. Guidance for Developing Ecological Soil Screening Levels. Draft.
- 3. USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. November.
- 4. USEPA. 1993. Wildlife Exposure Factors Handbook.
- 5. Nagy. 1999. Energetics of Free-ranging Mammals, Reptiles, and Birds. Ann. Rev. Nutr. 19: 247-277.

### **TABLE 7-10A**

# RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                         | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>NOAEL HQ | Deer Mouse<br>Total Soil<br>NOAEL HQ | American<br>Robin<br>Surface Soil<br>NOAEL HQ | American Robin<br>Total Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>NOAEL HQ | Short-Tailed Shrew<br>Total Soil<br>NOAEL HQ | Meadow Vole<br>Surface Soil<br>NOAEL HQ | Meadow Vole<br>Total Soil<br>NOAEL HQ | Red Fox<br>Surface Soil<br>NOAEL HQ | Red Fox<br>Total Soil<br>NOAEL HQ |
|------------------------------|---|--|--------------------------------------|---|--|---|--|---|---------------------------------------|-------------------------------------|-----------------------------------|
| Volatile Organic Compounds   |   | _                                      |                                      |   |  |   | _  |   | _                                     |                                     |                                   |
| Benzene                      | N   | 3.E-04                                 | 1.E-02                               | N/A   | N/A                                      | 3.E-04  | 1.E-02                                       | 4.E-04                                  | 2.E-02                                | 3.E-04                              | 2.E-02                            |
| Ethyl benzene                | N   | 3.E-03                                 | 2.E-02                               | N/A   | N/A                                      | 5.E-03  | 4.E-02                                       | 4.E-03                                  | 3.E-02                                | 5.E-03                              | 3.E-02                            |
| Meta/Para Xylene             | Y   | 2.E-01                                 | 7.E+00                               | 8.E-04  | 2.E-02                                   | 4.E-01  | 1.E+01                                       | 3.E-01                                  | 8.E+00                                | 3.E-01                              | 9.E+00                            |
| Semivolatile Organic Compoun | ds  |  |                                      |   |  |   |  |   |                                       |                                     |                                   |
| Acenaphthene                 | N   | 9.E-02                                 | 9.E-02                               | 4.E-03  | 4.E-03                                   | 1.E-01  | 1.E-01                                       | 2.E-01                                  | 2.E-01                                | 1.E-02                              | 1.E-02                            |
| Acenaphthylene               | N   | 8.E-02                                 | 8.E-02                               | 4.E-03  | 4.E-03                                   | 1.E-01  | 1.E-01                                       | 2.E-01                                  | 2.E-01                                | 9.E-03                              | 9.E-03                            |
| Anthracene                   | N   | 2.E-01                                 | 2.E-01                               | 1.E-02  | 1.E-02                                   | 4.E-01  | 4.E-01                                       | 6.E-01                                  | 6.E-01                                | 2.E-02                              | 2.E-02                            |
| Benzo(a)anthracene           | N   | 1.E-01                                 | 1.E-01                               | 9.E-03  | 9.E-03                                   | 3.E-01  | 3.E-01                                       | 7.E-01                                  | 7.E-01                                | 3.E-02                              | 3.E-02                            |
| Benzo(a)pyrene               | N   | 2.E-01                                 | 2.E-01                               | 1.E-02  | 1.E-02                                   | 4.E-01  | 4.E-01                                       | 6.E-01                                  | 6.E-01                                | 3.E-02                              | 3.E-02                            |
| Benzo(b)fluoranthene         | N   | 3.E-01                                 | 3.E-01                               | 2.E-02  | 2.E-02                                   | 6.E-01  | 6.E-01                                       | 9.E-01                                  | 9.E-01                                | 4.E-02                              | 4.E-02                            |
| Benzo(ghi)perylene           | N   | 8.E-02                                 | 8.E-02                               | 5.E-03  | 5.E-03                                   | 2.E-01  | 2.E-01                                       | 2.E-01                                  | 2.E-01                                | 1.E-02                              | 1.E-02                            |
| Benzo(k)fluoranthene         | N   | 2.E-01                                 | 2.E-01                               | 1.E-02  | 1.E-02                                   | 4.E-01  | 4.E-01                                       | 6.E-01                                  | 6.E-01                                | 3.E-02                              | 3.E-02                            |
| Bis(2-Ethylhexyl)phthalate   | N   | 3.E-05                                 | 3.E-05                               | 5.E-04  | 5.E-04                                   | 3.E-05  | 3.E-05                                       | 5.E-05                                  | 5.E-05                                | 3.E-05                              | 3.E-05                            |
| Carbazole                    | N   | 2.E-02                                 | 2.E-02                               | 6.E-03  | 6.E-03                                   | 6.E-02  | 6.E-02                                       | 7.E-02                                  | 7.E-02                                | 9.E-02                              | 9.E-02                            |
| Chrysene                     | N   | 1.E-01                                 | 1.E-01                               | 1.E-02  | 1.E-02                                   | 3.E-01  | 3.E-01                                       | 7.E-01                                  | 7.E-01                                | 2.E-02                              | 2.E-02                            |
| Dibenz(a,h)anthracene        | N   | 1.E-02                                 | 1.E-02                               | 7.E-04  | 7.E-04                                   | 2.E-02  | 2.E-02                                       | 3.E-02                                  | 3.E-02                                | 2.E-03                              | 2.E-03                            |
| Dibenzofuran                 | N   | 4.E-02                                 | 4.E-02                               | 2.E-03  | 2.E-03                                   | 1.E-01  | 1.E-01                                       | 1.E-01                                  | 1.E-01                                | 2.E-01                              | 2.E-01                            |
| Di-n-octylphthalate          | N   | 2.E-08                                 | 2.E-08                               | 4.E-05  | 4.E-05                                   | 2.E-07  | 2.E-07                                       | 2.E-07                                  | 2.E-07                                | 4.E-07                              | 4.E-07                            |
| Fluoranthene                 | N   | 6.E-02                                 | 6.E-02                               | 4.E-02  | 4.E-02                                   | 1.E-01  | 1.E-01                                       | 2.E-01                                  | 2.E-01                                | 7.E-03                              | 7.E-03                            |
| Fluorene                     | N   | 9.E-03                                 | 9.E-03                               | 5.E-03  | 5.E-03                                   | 1.E-02  | 1.E-02                                       | 2.E-02                                  | 2.E-02                                | 1.E-03                              | 1.E-03                            |
| Hexachlorobenzene            | N   | 8.E-05                                 | 8.E-05                               | 1.E-04  | 1.E-04                                   | 2.E-04  | 2.E-04                                       | 3.E-04                                  | 3.E-04                                | 1.E-05                              | 1.E-05                            |
| Indeno(1,2,3-cd)pyrene       | N   | 3.E-02                                 | 3.E-02                               | 2.E-03  | 2.E-03                                   | 5.E-02  | 5.E-02                                       | 7.E-02                                  | 7.E-02                                | 4.E-03                              | 4.E-03                            |
| Naphthalene                  | N   | 2.E-03                                 | 1.E-02                               | 6.E-04  | 3.E-03                                   | 3.E-03  | 1.E-02                                       | 6.E-03                                  | 3.E-02                                | 3.E-04                              | 1.E-03                            |
| Phenanthrene                 | Y   | 9.E-01                                 | 9.E-01                               | 4.E-02  | 4.E-02                                   | 1.E+00  | 1.E+00                                       | 2.E+00                                  | 2.E+00                                | 1.E-01                              | 1.E-01                            |
| Pyrene                       | Y   | 9.E-01                                 | 9.E-01                               | 5.E-02  | 5.E-02                                   | 2.E+00  | 2.E+00                                       | 3.E+00                                  | 3.E+00                                | 1.E-01                              | 1.E-01                            |
| PCBs                         |   | 4.E+00                                 | 4.E+00                               | 2.E-01  |  |   |  |   |                                       |                                     |                                   |
| Aroclor-1242                 | N   | 3.E-01                                 | 3.E-01                               | 7.E-02  | 7.E-02                                   | 4.E-01  | 4.E-01                                       | 5.E-02                                  | 5.E-02                                | 1.E-02                              | 1.E-02                            |
| Aroclor-1254                 | Y   | 2.E+00                                 | 2.E+00                               | 2.E+00  | 2.E+00                                   | 3.E+00  | 3.E+00                                       | 4.E-01                                  | 4.E-01                                | 1.E-01                              | 1.E-01                            |
| Aroclor-1260                 | N   | 2.E-01                                 | 5.E-01                               | 2.E-01  | 5.E-01                                   | 3.E-01  | 7.E-01                                       | 4.E-02                                  | 9.E-02                                | 1.E-02                              | 2.E-02                            |
| Pesticides                   |   |  |                                      |   |  |   |  |   |                                       |                                     |                                   |
| 4,4'-DDD                     | N   | 1.E-04                                 | 1.E-04                               | 3.E-02  | 3.E-02                                   | 2.E-04  | 2.E-04                                       | 2.E-05                                  | 2.E-05                                | 7.E-06                              | 7.E-06                            |
| 4,4'-DDE                     | N   | 3.E-02                                 | 3.E-02                               | 4.E-02  | 4.E-02                                   | 4.E-02  | 4.E-02                                       | 4.E-03                                  | 4.E-03                                | 1.E-03                              | 1.E-03                            |
| 4,4'-DDT                     | Y   | 5.E-02                                 | 5.E-02                               | 2.E+01  | 2.E+01                                   | 7.E-02  | 7.E-02                                       | 8.E-03                                  | 8.E-03                                | 2.E-03                              | 2.E-03                            |
| Aldrin                       | N   | 3.E-03                                 | 3.E-03                               | 1.E-02  | 1.E-02                                   | 6.E-03  | 6.E-03                                       | 8.E-03                                  | 8.E-03                                | 1.E-02                              | 1.E-02                            |
| Alpha-Chlordane              | N   | 2.E-04                                 | 2.E-04                               | 9.E-04  | 9.E-04                                   | 7.E-04  | 7.E-04                                       | 1.E-03                                  | 1.E-03                                | 1.E-03                              | 1.E-03                            |
| Delta-BHC                    | N   | 1.E-05                                 | 1.E-05                               | 1.E-04  | 1.E-04                                   | 3.E-05  | 3.E-05                                       | 4.E-05                                  | 4.E-05                                | 5.E-05                              | 5.E-05                            |
| Dieldrin                     | N   | 4.E-02                                 | 4.E-02                               | 2.E-02  | 2.E-02                                   | 1.E-01  | 1.E-01                                       | 1.E-01                                  | 1.E-01                                | 2.E-01                              | 2.E-01                            |
| Endosulfan I                 | N   | 4.E-02                                 | 4.E-02                               | 8.E-04  | 8.E-04                                   | 8.E-02  | 8.E-02                                       | 1.E-01                                  | 1.E-01                                | 1.E-01                              | 1.E-01                            |
| Endosulfan II                | N   | 2.E-03                                 | 2.E-03                               | 4.E-05  | 4.E-05                                   | 4.E-03  | 4.E-03                                       | 5.E-03                                  | 5.E-03                                | 6.E-03                              | 6.E-03                            |
| Endrin                       | N   | 5.E-03                                 | 6.E-03                               | 3.E-03  | 3.E-03                                   | 1.E-02  | 2.E-02                                       | 2.E-02                                  | 2.E-02                                | 2.E-02                              | 2.E-02                            |
| Endrin ketone                | N   | 2.E-03                                 | 2.E-03                               | 9.E-04  | 1.E-03                                   | 5.E-03  | 7.E-03                                       | 7.E-03                                  | 9.E-03                                | 8.E-03                              | 1.E-02                            |
| Gamma-Chlordane              | N   | 4.E-06                                 | 4.E-06                               | 2.E-05  | 2.E-05                                   | 1.E-05  | 1.E-05                                       | 2.E-05                                  | 2.E-05                                | 2.E-05                              | 2.E-05                            |
| Heptachlor                   | N   | 6.E-02                                 | 6.E-02                               | 1.E-01  | 1.E-01                                   | 8.E-02  | 8.E-02                                       | 9.E-03                                  | 9.E-03                                | 3.E-03                              | 3.E-03                            |
| Heptachlor epoxide           | N   | 1.E-02                                 | 1.E-02                               | 3.E-02  | 3.E-02                                   | 2.E-02  | 2.E-02                                       | 2.E-03                                  | 2.E-03                                | 5.E-04                              | 5.E-04                            |

#### TABLE 7-10A

## RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-121C SOIL

#### SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС      | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>NOAEL HQ | Deer Mouse<br>Total Soil<br>NOAEL HQ | American<br>Robin<br>Surface Soil<br>NOAEL HQ | American Robin<br>Total Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>NOAEL HQ | Short-Tailed Shrew<br>Total Soil<br>NOAEL HQ | Meadow Vole<br>Surface Soil<br>NOAEL HQ | Meadow Vole<br>Total Soil<br>NOAEL HQ | Red Fox<br>Surface Soil<br>NOAEL HQ | Red Fox<br>Total Soil<br>NOAEL HQ |
|-----------|---|--|--------------------------------------|---|--|---|--|---|---------------------------------------|-------------------------------------|-----------------------------------|
| Metals    |   |  |                                      |   |  |   |  |   |                                       |                                     |                                   |
| Aluminum  | Y   | 7.E-01                                 | 7.E-01                               | 1.E-02  | 1.E-02                                   | 7.E-01  | 7.E-01                                       | 1.E+00                                  | 1.E+00                                | 5.E-01                              | 5.E-01                            |
| Antimony  | Y   | 2.E+02                                 | 2.E+02                               | N/A   | N/A                                      | 2.E+02  | 2.E+02                                       | 2.E+02                                  | 2.E+02                                | 1.E+01                              | 1.E+01                            |
| Arsenic   | N   | 5.E-01                                 | 5.E-01                               | 3.E-01  | 3.E-01                                   | 8.E-01  | 8.E-01                                       | 8.E-01                                  | 8.E-01                                | 4.E-02                              | 4.E-02                            |
| Barium    | Y   | 2.E+00                                 | 2.E+00                               | 5.E+00  | 5.E+00                                   | 2.E+00  | 2.E+00                                       | 3.E+00                                  | 3.E+00                                | 1.E-01                              | 1.E-01                            |
| Cadmium   | Y   | 9.E+00                                 | 9.E+00                               | 8.E+00  | 8.E+00                                   | 1.E+01  | 1.E+01                                       | 3.E+00                                  | 3.E+00                                | 5.E-01                              | 5.E-01                            |
| Chromium  | N   | 1.E-04                                 | 1.E-04                               | 5.E-01  | 5.E-01                                   | 4.E-04  | 4.E-04                                       | 2.E-03                                  | 2.E-03                                | 8.E-05                              | 8.E-05                            |
| Cobalt    | N   | 4.E-01                                 | 5.E-01                               | 1.E-02  | 1.E-02                                   | 7.E-01  | 8.E-01                                       | 7.E-01                                  | 8.E-01                                | 8.E-02                              | 9.E-02                            |
| Copper    | Y   | 2.E+01                                 | 2.E+01                               | 7.E+00  | 7.E+00                                   | 2.E+01  | 2.E+01                                       | 7.E+01                                  | 7.E+01                                | 4.E+00                              | 4.E+00                            |
| Iron      | Y   | 2.E+01                                 | 2.E+01                               | 3.E-03  | 3.E-03                                   | 2.E+01  | 2.E+01                                       | 2.E+01                                  | 2.E+01                                | 1.E+01                              | 1.E+01                            |
| Lead      | Y   | 3.E+01                                 | 3.E+01                               | 1.E+02  | 1.E+02                                   | 6.E+01  | 6.E+01                                       | 2.E+02                                  | 2.E+02                                | 5.E+00                              | 5.E+00                            |
| Manganese | N   | 3.E-01                                 | 3.E-01                               | 3.E-01  | 3.E-01                                   | 4.E-01  | 4.E-01                                       | 8.E-01                                  | 8.E-01                                | 3.E-02                              | 3.E-02                            |
| Mercury   | N   | 7.E-03                                 | 7.E-03                               | 3.E-02  | 3.E-02                                   | 2.E-02  | 2.E-02                                       | 3.E-02                                  | 3.E-02                                | 2.E-02                              | 2.E-02                            |
| Nickel    | N   | 5.E-02                                 | 5.E-02                               | 7.E-02  | 7.E-02                                   | 1.E-01  | 1.E-01                                       | 4.E-01                                  | 4.E-01                                | 2.E-02                              | 2.E-02                            |
| Selenium  | N   | 4.E-01                                 | 4.E-01                               | 3.E-01  | 3.E-01                                   | 7.E-01  | 7.E-01                                       | 4.E-01                                  | 4.E-01                                | 5.E-02                              | 5.E-02                            |
| Silver    | Y   | 6.E+00                                 | 6.E+00                               | 1.E-02  | 1.E-02                                   | 7.E+00  | 7.E+00                                       | 6.E+00                                  | 6.E+00                                | 4.E-01                              | 4.E-01                            |
| Thallium  | Y   | 6.E-01                                 | 9.E-01                               | 3.E-01  | 5.E-01                                   | 9.E-01  | 2.E+00                                       | 5.E-01                                  | 9.E-01                                | 1.E-01                              | 2.E-01                            |
| Vanadium  | N   | 5.E-01                                 | 5.E-01                               | 2.E-01  | 3.E-01                                   | 8.E-01  | 9.E-01                                       | 5.E-01                                  | 5.E-01                                | 3.E-02                              | 3.E-02                            |
| Zinc      | Y   | 4.E+00                                 | 4.E+00                               | 7.E+00  | 7.E+00                                   | 6.E+00  | 6.E+00                                       | 1.E+00                                  | 1.E+00                                | 6.E-01                              | 6.E-01                            |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any recepto

(2) HQs based on the maximum detected concentrations

#### **TABLE 7-10B**

# RECEPTOR NOAEL HAZARD QUOTIENTS FOR DITCH SOIL EXPOSURE- SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

| СОРС                       | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>NOAEL HQ | American<br>Robin<br>Ditch Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>NOAEL HQ | Meadow Vole<br>Ditch Soil<br>NOAEL HQ | Red Fox<br>Ditch Soil<br>NOAEL HQ | Great Blue Heron<br>Ditch Soil<br>NOAEL HQ |
|----------------------------|---|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Semivolatile Organic Com   | pounds  |                                      |   |   |                                       |                                   |  |
| 3 or 4-Methylphenol        | N   | 5.E-04                               | 6.E-02                                      | 4.E-04  | 1.E-03                                | 7.E-04                            | 2.E-01                                     |
| Anthracene                 | N   | 8.E-03                               | 4.E-04                                      | 1.E-02  | 2.E-02                                | 9.E-04                            | 8.E-05                                     |
| Benzo(a)anthracene         | N   | 1.E-02                               | 1.E-03                                      | 3.E-02  | 8.E-02                                | 3.E-03                            | 3.E-04                                     |
| Benzo(a)pyrene             | N   | 2.E-02                               | 1.E-03                                      | 4.E-02  | 7.E-02                                | 3.E-03                            | 3.E-04                                     |
| Benzo(b)fluoranthene       | N   | 3.E-02                               | 2.E-03                                      | 5.E-02  | 8.E-02                                | 4.E-03                            | 4.E-04                                     |
| Benzo(ghi)perylene         | N   | 8.E-03                               | 4.E-04                                      | 1.E-02  | 2.E-02                                | 9.E-04                            | 9.E-05                                     |
| Benzo(k)fluoranthene       | N   | 2.E-02                               | 1.E-03                                      | 3.E-02  | 4.E-02                                | 2.E-03                            | 2.E-04                                     |
| Bis(2-Ethylhexyl)phthalate | N   | 3.E-05                               | 5.E-04                                      | 3.E-05  | 5.E-05                                | 3.E-05                            | 2.E-04                                     |
| Chrysene                   | N   | 2.E-02                               | 1.E-03                                      | 4.E-02  | 9.E-02                                | 3.E-03                            | 4.E-04                                     |
| Fluoranthene               | N   | 5.E-03                               | 3.E-03                                      | 8.E-03  | 1.E-02                                | 6.E-04                            | 7.E-04                                     |
| Indeno(1,2,3-cd)pyrene     | N   | 8.E-03                               | 4.E-04                                      | 1.E-02  | 2.E-02                                | 1.E-03                            | 9.E-05                                     |
| Phenanthrene               | N   | 3.E-02                               | 2.E-03                                      | 5.E-02  | 9.E-02                                | 4.E-03                            | 4.E-04                                     |
| Pyrene                     | N   | 6.E-02                               | 3.E-03                                      | 1.E-01  | 2.E-01                                | 7.E-03                            | 7.E-04                                     |
| Metals                     |   |                                      |   |   |                                       |                                   |  |
| Aluminum                   | Y   | 7.E-01                               | 1.E-02                                      | 7.E-01  | 1.E+00                                | 5.E-01                            | 4.E-03                                     |
| Antimony                   | Y   | 3.E+00                               | N/A   | 5.E+00  | 4.E+00                                | 2.E-01                            | N/A  |
| Arsenic                    | N   | 3.E-01                               | 2.E-01                                      | 4.E-01  | 4.E-01                                | 2.E-02                            | 2.E-02                                     |
| Cadmium                    | Y   | 4.E+00                               | 4.E+00                                      | 6.E+00  | 1.E+00                                | 2.E-01                            | 1.E-01                                     |
| Chromium                   | N   | 5.E-05                               | 2.E-01                                      | 2.E-04  | 7.E-04                                | 4.E-05                            | 1.E-01                                     |
| Cobalt                     | N   | 4.E-01                               | 1.E-02                                      | 7.E-01  | 7.E-01                                | 7.E-02                            | 2.E-03                                     |
| Copper                     | Y   | 3.E+00                               | 8.E-01                                      | 3.E+00  | 9.E+00                                | 5.E-01                            | 3.E-01                                     |
| Cyanide                    | Y   | 1.E-02                               | 3.E+00                                      | 2.E-02  | 5.E-03                                | 6.E-03                            | 1.E+00                                     |
| Iron                       | Y   | 2.E+01                               | 3.E-03                                      | 2.E+01  | 2.E+01                                | 1.E+01                            | 1.E-03                                     |
| Lead                       | Y   | 7.E-01                               | 3.E+00                                      | 1.E+00  | 4.E+00                                | 1.E-01                            | 1.E+00                                     |
| Manganese                  | N   | 3.E-01                               | 4.E-01                                      | 4.E-01  | 9.E-01                                | 3.E-02                            | 9.E-02                                     |
| Mercury                    | N   | 4.E-03                               | 2.E-02                                      | 1.E-02  | 2.E-02                                | 1.E-02                            | 4.E-02                                     |
| Nickel                     | N   | 9.E-03                               | 1.E-02                                      | 2.E-02  | 7.E-02                                | 4.E-03                            | 6.E-03                                     |
| Selenium                   | Y   | 9.E-01                               | 5.E-01                                      | 1.E+00  | 8.E-01                                | 9.E-02                            | 6.E-02                                     |
| Silver                     | N   | 7.E-01                               | 2.E-03                                      | 9.E-01  | 8.E-01                                | 5.E-02                            | 1.E-04                                     |
| Vanadium                   | N   | 6.E-01                               | 3.E-01                                      | 9.E-01  | 5.E-01                                | 4.E-02                            | 3.E-02                                     |
| Zinc                       | Y   | 6.E-01                               | 1.E+00                                      | 9.E-01  | 2.E-01                                | 1.E-01                            | 1.E-01                                     |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

 $SEV = Screening \ Ecotoxicity \ Value$ 

HQ = Hazard Quotient (Exposure/SEV) COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the maximum detected concentrations.

#### **TABLE 7-11A**

### RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                           | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>NOAEL HQ | American<br>Robin<br>Surface Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>NOAEL HQ | Meadow Vole<br>Surface Soil<br>NOAEL HQ | Red Fox<br>Surface Soil<br>NOAEL HQ |
|--------------------------------|---|--|---|---|---|-------------------------------------|
| Semivolatile Organic Compounds |   |  |   |   |   |                                     |
| Acenaphthene                   | N   | 2.E-01                                 | 1.E-02  | 3.E-01  | 6.E-01                                  | 2.E-02                              |
| Acenaphthylene                 | N   | 2.E-02                                 | 9.E-04  | 3.E-02  | 5.E-02                                  | 2.E-03                              |
| Anthracene                     | Y   | 4.E-01                                 | 2.E-02  | 6.E-01  | 1.E+00                                  | 4.E-02                              |
| Benzo(a)anthracene             | Y   | 4.E-01                                 | 3.E-02  | 8.E-01  | 2.E+00                                  | 7.E-02                              |
| Benzo(a)pyrene                 | Y   | 6.E-01                                 | 3.E-02  | 1.E+00  | 2.E+00                                  | 7.E-02                              |
| Benzo(b)fluoranthene           | Y   | 8.E-01                                 | 4.E-02  | 1.E+00  | 2.E+00                                  | 9.E-02                              |
| Benzo(ghi)perylene             | Y   | 8.E-01                                 | 4.E-02  | 1.E+00  | 2.E+00                                  | 9.E-02                              |
| Benzo(k)fluoranthene           | Y   | 6.E-01                                 | 3.E-02  | 1.E+00  | 2.E+00                                  | 7.E-02                              |
| Bis(2-Ethylhexyl)phthalate     | N   | 1.E-03                                 | 5.E-02  | 3.E-03  | 7.E-03                                  | 2.E-04                              |
| Carbazole                      | N   | 4.E-02                                 | 1.E-02  | 9.E-02  | 1.E-01                                  | 1.E-01                              |
| Chrysene                       | Y   | 5.E-01                                 | 3.E-02  | 1.E+00  | 2.E+00                                  | 9.E-02                              |
| Dibenz(a,h)anthracene          | N   | 1.E-01                                 | 7.E-03  | 2.E-01  | 3.E-01                                  | 2.E-02                              |
| Dibenzofuran                   | N   | 5.E-02                                 | 3.E-03  | 1.E-01  | 2.E-01                                  | 2.E-01                              |
| Fluoranthene                   | N   | 1.E-01                                 | 9.E-02  | 2.E-01  | 4.E-01                                  | 2.E-02                              |
| Fluorene                       | N   | 1.E-02                                 | 7.E-03  | 2.E-02  | 3.E-02                                  | 1.E-03                              |
| Indeno(1,2,3-cd)pyrene         | N   | 2.E-01                                 | 1.E-02  | 4.E-01  | 6.E-01                                  | 3.E-02                              |
| Naphthalene                    | N   | 4.E-03                                 | 1.E-03  | 5.E-03  | 1.E-02                                  | 4.E-04                              |
| Phenanthrene                   | Y   | 2.E+00                                 | 8.E-02  | 3.E+00  | 4.E+00                                  | 2.E-01                              |
| Pyrene                         | Y   | 2.E+00                                 | 1.E-01  | 3.E+00  | 5.E+00                                  | 2.E-01                              |
| PCBs                           | •   | 2.12100                                | 1.2 01  | 3.12100   | 2.2.100                                 | 2.2 01                              |
| Aroclor-1254                   | N   | 7.E-02                                 | 8.E-02  | 1.E-01  | 1.E-02                                  | 3.E-03                              |
| Aroclor-1260                   | N   | 1.E-01                                 | 1.E-01  | 2.E-01  | 2.E-02                                  | 5.E-03                              |
| Pesticides                     | - 1,  | 1.2 01                                 | 1.2 01  | 2.2 01  | 2.0 02                                  | 3.E 03                              |
| 4.4'-DDE                       | N   | 1.E-02                                 | 2.E-02  | 2.E-02  | 2.E-03                                  | 6.E-04                              |
| 4,4'-DDT                       | Y   | 2.E-02                                 | 7.E+00  | 3.E-02  | 3.E-03                                  | 9.E-04                              |
| Aldrin                         | N   | 3.E-03                                 | 1.E-02  | 5.E-03  | 7.E-03                                  | 8.E-03                              |
| Dieldrin                       | N   | 3.E-02                                 | 2.E-02  | 9.E-02  | 1.E-01                                  | 1.E-01                              |
| Endosulfan I                   | N   | 2.E-02                                 | 4.E-04  | 4.E-02  | 5.E-02                                  | 7.E-02                              |
| Endrin                         | N   | 7.E-03                                 | 4.E-03  | 2.E-02  | 3.E-02                                  | 3.E-02                              |
| Heptachlor epoxide             | N   | 2.E-01                                 | 5.E-01  | 3.E-01  | 3.E-02                                  | 1.E-02                              |
| Metals                         | IN  | 2.E-01                                 | 3.E-01  | 3.E-01  | 3.E-02                                  | 1.12-02                             |
| Aluminum                       | N   | 2.E-01                                 | 3.E-03  | 2.E-01  | 2.E-01                                  | 1.E-01                              |
| Antimony                       | Y   | 5.E+00                                 | N/A   | 8.E+00  | 5.E+00                                  | 4.E-01                              |
| Arsenic                        | Y   | 1.E+00                                 | 8.E-01  | 2.E+00  | 2.E+00                                  | 1.E-01                              |
| Cadmium                        | Y   | 2.E+00                                 | 2.E+00  | 3.E+00  | 6.E-01                                  | 1.E-01                              |
| Chromium                       | Y   | 7.E-04                                 | 3.E+00  | 3.E-03  | 1.E-02                                  | 5.E-04                              |
| Cobalt                         | Y   | 5.E+00                                 | 1.E-01  | 8.E+00  | 9.E+00                                  | 9.E-01                              |
| Copper                         | Y   | 5.E-01                                 | 1.E-01  | 5.E-01  | 2.E+00                                  | 9.E-01<br>8.E-02                    |
| Cyanide                        | Y   | 1.E-02                                 | 2.E+00  | 2.E-02  | 4.E-03                                  | 5.E-03                              |
| Iron                           |   |  |   |   |   |                                     |
| Lead                           | N<br>Y  | 5.E-01<br>2.E-01                       | 1.E-04<br>9.E-01                              | 5.E-01<br>4.E-01                                  | 7.E-01<br>1.E+00                        | 4.E-01<br>4.E-02                    |
| Manganese                      | Y   | 9.E+01                                 | 9.E-01<br>1.E+02                              | 1.E+02  | 3.E+02                                  | 1.E+01                              |
| Nickel                         | N N   | 7.E-02                                 | 1.E+02<br>1.E-01                              | 2.E-01  | 6.E-01                                  | 3.E-02                              |
| Selenium                       | Y   | 7.E-02<br>5.E+01                       | 3.E+01  | 8.E+01  | 5.E+01                                  | 5.E+00                              |
| Silver                         | Y   | 8.E-01                                 | 2.E-03  | 1.E+00  | 9.E-01                                  | 6.E-02                              |
|                                |   |  |   |   |   | +                                   |
| Thallium<br>Vanadium           | Y   | 8.E+01                                 | 5.E+01  | 1.E+02  | 8.E+01                                  | 1.E+01                              |
| Zinc                           | Y<br>N  | <b>4.E+00</b><br>3.E-01                | <b>2.E+00</b><br>6.E-01                       | <b>6.E+00</b><br>5.E-01                           | 3.E+00<br>1.E-01                        | 2.E-01<br>5.E-02                    |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the maximum detected concentrations.

#### **TABLE 7-11B**

# RECEPTOR NOAEL HAZARD QUOTIENTS FOR DITCH SOIL EXPOSURE- SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

| СОРС                     | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>NOAEL HQ | American<br>Robin<br>Ditch Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>NOAEL HO | Meadow Vole<br>Ditch Soil<br>NOAEL HO | Red Fox<br>Ditch Soil<br>NOAEL HO | Great Blue Heron<br>Ditch Soil<br>NOAEL HO |
|--------------------------|---|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Semivolatile Organic Con | npounds   |                                      |   |   |                                       |                                   |  |
| Acenaphthene             | N   | 3.E-02                               | 1.E-03                                      | 4.E-02  | 7.E-02                                | 3.E-03                            | 2.E-04                                     |
| Acenaphthylene           | N   | 1.E-02                               | 7.E-04                                      | 2.E-02  | 4.E-02                                | 2.E-03                            | 1.E-04                                     |
| Anthracene               | N   | 5.E-02                               | 3.E-03                                      | 9.E-02  | 1.E-01                                | 6.E-03                            | 6.E-04                                     |
| Benzo(a)anthracene       | Y   | 2.E-01                               | 1.E-02                                      | 4.E-01  | 1.E+00                                | 4.E-02                            | 4.E-03                                     |
| Benzo(a)pyrene           | Y   | 4.E-01                               | 2.E-02                                      | 8.E-01  | 1.E+00                                | 5.E-02                            | 5.E-03                                     |
| Benzo(b)fluoranthene     | Y   | 6.E-01                               | 3.E-02                                      | 1.E+00  | 2.E+00                                | 7.E-02                            | 7.E-03                                     |
| Benzo(ghi)perylene       | N   | 3.E-01                               | 2.E-02                                      | 6.E-01  | 9.E-01                                | 4.E-02                            | 4.E-03                                     |
| Benzo(k)fluoranthene     | Y   | 7.E-01                               | 4.E-02                                      | 1.E+00  | 2.E+00                                | 8.E-02                            | 7.E-03                                     |
| Butylbenzylphthalate     | N   | 5.E-05                               | 1.E-02                                      | 1.E-04  | 2.E-04                                | 2.E-04                            | 3.E-02                                     |
| Carbazole                | N   | 9.E-03                               | 2.E-03                                      | 2.E-02  | 3.E-02                                | 3.E-02                            | 7.E-03                                     |
| Chrysene                 | Y   | 4.E-01                               | 3.E-02                                      | 8.E-01  | 2.E+00                                | 7.E-02                            | 8.E-03                                     |
| Dibenz(a,h)anthracene    | N   | 1.E-01                               | 8.E-03                                      | 2.E-01  | 4.E-01                                | 2.E-02                            | 2.E-03                                     |
| Dibenzofuran             | N   | 9.E-03                               | 4.E-04                                      | 2.E-02  | 3.E-02                                | 4.E-02                            | 1.E-03                                     |
| Fluoranthene             | N   | 5.E-02                               | 4.E-02                                      | 9.E-02  | 1.E-01                                | 6.E-03                            | 8.E-03                                     |
| Fluorene                 | N   | 2.E-03                               | 1.E-03                                      | 3.E-03  | 4.E-03                                | 2.E-04                            | 2.E-04                                     |
| Indeno(1,2,3-cd)pyrene   | N   | 4.E-01                               | 2.E-02                                      | 7.E-01  | 9.E-01                                | 5.E-02                            | 4.E-03                                     |
| Naphthalene              | N   | 2.E-03                               | 6.E-04                                      | 3.E-03  | 5.E-03                                | 2.E-04                            | 1.E-04                                     |
| Phenanthrene             | N   | 2.E-01                               | 1.E-02                                      | 3.E-01  | 5.E-01                                | 2.E-02                            | 2.E-03                                     |
| Phenol                   | N   | 1.E-03                               | 3.E-02                                      | 8.E-04  | 3.E-03                                | 1.E-03                            | 7.E-02                                     |
| Pyrene                   | Y   | 5.E-01                               | 3.E-02                                      | 8.E-01  | 1.E+00                                | 6.E-02                            | 5.E-03                                     |
| PCBs                     |   |                                      |   |   |                                       |                                   |  |
| Aroclor-1254             | N   | 2.E-01                               | 2.E-01                                      | 2.E-01  | 3.E-02                                | 8.E-03                            | 5.E-03                                     |
| Aroclor-1260             | N   | 3.E-02                               | 4.E-02                                      | 5.E-02  | 6.E-03                                | 2.E-03                            | 1.E-03                                     |
| Pesticides               |   |                                      |   |   |                                       |                                   |  |
| 4,4'-DDE                 | N   | 3.E-03                               | 5.E-03                                      | 4.E-03  | 5.E-04                                | 1.E-04                            | 1.E-04                                     |
| Metals                   |   |                                      |   |   |                                       |                                   |  |
| Aluminum                 | N   | 2.E-01                               | 3.E-03                                      | 2.E-01  | 2.E-01                                | 1.E-01                            | 8.E-04                                     |
| Arsenic                  | Y   | 4.E+00                               | 3.E+00                                      | 7.E+00  | 7.E+00                                | 3.E-01                            | 4.E-01                                     |
| Cadmium                  | N   | 2.E-01                               | 2.E-01                                      | 4.E-01  | 7.E-02                                | 1.E-02                            | 7.E-03                                     |
| Chromium                 | N   | 1.E-04                               | 6.E-01                                      | 5.E-04  | 2.E-03                                | 9.E-05                            | 3.E-01                                     |
| Cobalt                   | Y   | 2.E+00                               | 6.E-02                                      | 4.E+00  | 4.E+00                                | 4.E-01                            | 1.E-02                                     |
| Copper                   | N   | 3.E-01                               | 9.E-02                                      | 3.E-01  | 1.E+00                                | 5.E-02                            | 3.E-02                                     |
| Iron                     | N   | 5.E-01                               | 1.E-04                                      | 5.E-01  | 7.E-01                                | 4.E-01                            | 3.E-05                                     |
| Lead                     | N   | 1.E-01                               | 7.E-01                                      | 3.E-01  | 8.E-01                                | 3.E-02                            | 2.E-01                                     |
| Manganese                | Y   | 5.E+00                               | 6.E+00                                      | 6.E+00  | 1.E+01                                | 5.E-01                            | 1.E+00                                     |
| Mercury                  | N   | 2.E-03                               | 1.E-02                                      | 7.E-03  | 1.E-02                                | 7.E-03                            | 2.E-02                                     |
| Nickel                   | N   | 3.E-02                               | 4.E-02                                      | 8.E-02  | 3.E-01                                | 1.E-02                            | 2.E-02                                     |
| Selenium                 | Y   | 6.E+00                               | 4.E+00                                      | 1.E+01  | 6.E+00                                | 6.E-01                            | 4.E-01                                     |
| Silver                   | Y   | 3.E+00                               | 6.E-03                                      | 4.E+00  | 3.E+00                                | 2.E-01                            | 6.E-04                                     |
| Thallium                 | Y   | 1.E+01                               | 6.E+00                                      | 2.E+01  | 1.E+01                                | 2.E+00                            | 1.E+00                                     |
| Vanadium                 | Y   | 1.E+00                               | 6.E-01                                      | 2.E+00  | 1.E+00                                | 7.E-02                            | 6.E-02                                     |
| Zinc                     | Y   | 6.E-01                               | 1.E+00                                      | 9.E-01  | 2.E-01                                | 9.E-02                            | 1.E-01                                     |

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

COPC = Chemical of Potential Concern

 $SEV = Screening \ Ecotoxicity \ Value$ 

 $HQ = Hazard\ Quotient\ (Exposure/SEV)$ 

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the maximum detected concentrations.

# Table 7-12A Average Concentration for Preliminary COCs In SEAD-121C Soil SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|                          | Av                                     | verage Concentration                                     |
|--------------------------|--|--|
| Preliminary COC          | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) | Surface Soil & Subsurface Soil<br>0-4 ft bgs.<br>(mg/kg) |
| Volatile Organic Compo   | ınds                                   |  |
| Meta/Para Xylene         | 0.11                                   | 2.4  |
| Semivolatile Organic Cor | npounds                                |  |
| Phenanthrene             | 1.3                                    | 0.95   |
| Pyrene                   | 1.9                                    | 1.4  |
| PCBs                     |  |  |
| Aroclor-1254             | 0.055                                  | 0.042  |
| Pesticides               |  |  |
| 4,4'-DDT                 | 0.0065                                 | 0.0054   |
| Metals                   |  |  |
| Antimony                 | 10                                     | 7.5  |
| Arsenic                  | 5.5                                    | 5.4  |
| Barium                   | 231                                    | 199  |
| Cadmium                  | 4.1                                    | 3.0  |
| Copper                   | 515                                    | 408  |
| Lead                     | 735                                    | 550  |
| Silver                   | 1.6                                    | 1.2  |
| Thallium                 | 0.4                                    | 0.4  |
| Zinc                     | 450                                    | 355  |

COC = Chemical of Concern

Table 7-12B

Average Concentration for Preliminary COCs In SEAD-121C Ditch Soil SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

|                 | Average Concentration |
|-----------------|-----------------------|
|                 | Ditch Soil            |
| Preliminary COC |                       |
|                 | (mg/kg)               |
| Metals          |                       |
| Antimony        | 2.3                   |
| Cadmium         | 2.8                   |
| Copper          | 177                   |
| Cyanide         | 0.83                  |
| Lead            | 144                   |
| Selenium        | 1.0                   |
| Zinc            | 291                   |

COC = Chemical of Concern

EPC\_121CAverageEPC\_ditch 7/21/2005

# Table 7-13A Average Concentration for Preliminary COCs In SEAD-121I Soil SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

|                                | Average Concentration                  |
|--------------------------------|--|
| Preliminary COC                | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) |
| Semivolatile Organic Compounds |  |
| Anthracene                     | 0.70                                   |
| Benzo(a)anthracene             | 1.9                                    |
| Benzo(a)pyrene                 | 1.7                                    |
| Benzo(b)fluoranthene           | 1.9                                    |
| Benzo(ghi)perylene             | 1.7                                    |
| Benzo(k)fluoranthene           | 1.9                                    |
| Chrysene                       | 2.4                                    |
| Phenanthrene                   | 2.9                                    |
| Pyrene                         | 5.0                                    |
| Pesticides                     |  |
| 4,4'-DDT                       | 0.0028                                 |
| Metals                         |  |
| Antimony                       | 2.5                                    |
| Arsenic                        | 8.3                                    |
| Cadmium                        | 0.65                                   |
| Chromium                       | 29                                     |
| Cobalt                         | 18                                     |
| Copper                         | 32                                     |
| Cyanide                        | 0.36                                   |
| Lead                           | 30                                     |
| Manganese                      | 15037                                  |
| Selenium                       | 6.3                                    |
| Silver                         | 0.64                                   |
| Thallium                       | 6.5                                    |
| Vanadium                       | 21                                     |

COC = Chemical of Concern

### **Table 7-13B**

# Average Concentration for Preliminary COCs In SEAD-121I Ditch Soil SEAD-121C AND SEAD-121I RI REPORT

## **Seneca Army Depot Activity**

| Preliminary COC                | Ditch Soil Average Concentration (mg/kg) |
|--------------------------------|--|
| Semivolatile Organic Compounds |  |
| Benzo(a)anthracene             | 2.5                                      |
| Benzo(a)pyrene                 | 2.7                                      |
| Benzo(b)fluoranthene           | 3.8                                      |
| Benzo(k)fluoranthene           | 3.0                                      |
| Chrysene                       | 3.6                                      |
| Pyrene                         | 5.1                                      |
| Metals                         |  |
| Arsenic                        | 18                                       |
| Cobalt                         | 19                                       |
| Manganese                      | 3195                                     |
| Selenium                       | 2.0                                      |
| Silver                         | 1.4                                      |
| Thallium                       | 2.4                                      |
| Vanadium                       | 21                                       |
| Zinc                           | 142                                      |

COC = Chemical of Concern

#### **TABLE 7-14A**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                 | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>LOAEL HQ | Deer Mouse<br>Mixed Surface and<br>Subsurface Soil<br>LOAEL HQ | American Robin<br>Surface Soil<br>LOAEL HQ | American Robin<br>Mixed Surface<br>and Subsurface<br>Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Total Soil<br>LOAEL HQ | Meadow Vole<br>Surface Soil<br>LOAEL HQ | Meadow Vole<br>Total Soil<br>LOAEL HQ | Red Fox<br>Surface Soil<br>LOAEL HQ | Red Fox<br>Total Soil<br>LOAEL HQ |
|----------------------|--|--|--|--|---|---|---|---|---------------------------------------|-------------------------------------|-----------------------------------|
| Volatile Organic Com | pounds   |  |  |  |   |   |   |   | -                                     |                                     |                                   |
| Meta/Para Xylene     | N  |  | 2.E-02   |  |   |   | 4.E-02  |   | 3.E-02                                |                                     | 3.E-02                            |
| Semivolatile Organic | Compounds                                      |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Phenanthrene         | N  |  |  |  |   | 1.E-01  | 1.E-01  | 2.E-01                                  | 2.E-01                                |                                     |                                   |
| Pyrene               | N  |  |  |  |   | 2.E-01  | 2.E-01  | 3.E-01                                  | 3.E-01                                |                                     |                                   |
| PCBs                 |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Aroclor-1254         | N  | 4.E-01                                 | 4.E-01   | 2.E-01                                     | 2.E-01  | 7.E-01  | 7.E-01  |   |                                       |                                     |                                   |
| Pesticides           |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| 4,4'-DDT             | N  |  |  | 2.E+00                                     | 2.E+00  |   |   |   |                                       |                                     |                                   |
| Metals               |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Aluminum             | N  |  |  |  |   |   |   | 1.E-01                                  | 1.E-01                                |                                     |                                   |
| Antimony             | N  | 2.E+01                                 | 2.E+01   | N/A  | N/A   | 2.E+01  | 2.E+01  | 2.E+01                                  | 2.E+01                                | 1.E+00                              | 1.E+00                            |
| Barium               | N  | 2.E-01                                 | 2.E-01   | 3.E+00                                     | 3.E+00  | 2.E-01  | 2.E-01  | 3.E-01                                  | 3.E-01                                |                                     |                                   |
| Cadmium              | N  | 9.E-01                                 | 9.E-01   | 6.E-01                                     | 6.E-01  | 1.E+00  | 1.E+00  | 3.E-01                                  | 3.E-01                                |                                     |                                   |
| Copper               | N  | 2.E+01                                 | 2.E+01   | 5.E+00                                     | 5.E+00  | 2.E+01  | 2.E+01  | 6.E+01                                  | 6.E+01                                | 3.E+00                              | 3.E+00                            |
| Iron                 | N  | 2.E+00                                 | 2.E+00   |  |   | 2.E+00  | 2.E+00  | 2.E+00                                  | 2.E+00                                | 1.E+00                              | 1.E+00                            |
| Lead                 | N  | 3.E+00                                 | 3.E+00   | 1.E+01                                     | 1.E+01  | 6.E+00  | 6.E+00  | 2.E+01                                  | 2.E+01                                | 5.E-01                              | 5.E-01                            |
| Silver               | N  | 6.E-01                                 | 6.E-01   |  |   | 7.E-01  | 7.E-01  | 6.E-01                                  | 6.E-01                                |                                     |                                   |
| Thallium             | N  |  |  |  |   | _   | 9.E-02  |   |                                       |                                     |                                   |
| Zinc                 | N  | 2.E+00                                 | 2.E+00   | 7.E+00                                     | 7.E+00  | 3.E+00  | 3.E+00  | 7.E-01                                  | 7.E-01                                |                                     |                                   |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the maximum detected concentrations

#### **TABLE 7-14B**

#### RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                 | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>NOAEL HQ | Deer Mouse<br>Mixed Surface and<br>Subsurface Soil<br>NOAEL HQ | American Robin<br>Surface Soil<br>NOAEL HQ | American Robin<br>Mixed Surface<br>and Subsurface<br>Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Total Soil<br>NOAEL HQ | Meadow Vole<br>Surface Soil<br>NOAEL HQ | Meadow Vole<br>Total Soil<br>NOAEL HQ | Red Fox<br>Surface Soil<br>NOAEL HQ | Red Fox<br>Total Soil<br>NOAEL HQ |
|----------------------|--|--|--|--|---|---|---|---|---------------------------------------|-------------------------------------|-----------------------------------|
| Volatile Organic Com | pounds   |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Meta/Para Xylene     | N  |  | 1.E-01   |  |   |   | 2.E-01  |   | 1.E-01                                |                                     | 2.E-01                            |
| Semivolatile Organic | Compounds                                      |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Phenanthrene         | N  |  |  |  |   | 6.E-02  | 5.E-02  | 1.E-01                                  | 8.E-02                                |                                     |                                   |
| Pyrene               | N  |  |  |  |   | 1.E-01  | 1.E-01  | 1.E-01                                  | 1.E-01                                |                                     |                                   |
| PCBs                 |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Aroclor-1254         | N  | 1.E-01                                 | 1.E-01   | 1.E-01                                     | 1.E-01  | 2.E-01  | 2.E-01  |   |                                       |                                     |                                   |
| Pesticides           |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| 4,4'-DDT             | N  |  |  | 1.E+00                                     | 1.E+00  |   |   |   |                                       |                                     |                                   |
| Metals               |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Antimony             | N  | 7.E+00                                 | 5.E+00   | N/A  | N/A   | 1.E+01  | 1.E+01  | 7.E+00                                  | 5.E+00                                | 5.E-01                              | 4.E-01                            |
| Barium               | N  | 2.E-01                                 | 2.E-01   | 6.E-01                                     | 5.E-01  | 3.E-01  | 3.E-01  | 4.E-01                                  | 3.E-01                                |                                     |                                   |
| Cadmium              | N  | 1.E+00                                 | 9.E-01   | 1.E+00                                     | 9.E-01  | 2.E+00  | 2.E+00  | 4.E-01                                  | 3.E-01                                |                                     |                                   |
| Copper               | N  | 1.E+00                                 | 9.E-01   | 4.E-01                                     | 3.E-01  | 1.E+00  | 1.E+00  | 4.E+00                                  | 3.E+00                                | 2.E-01                              | 2.E-01                            |
| Lead                 | N  | 1.E+00                                 | 8.E-01   | 5.E+00                                     | 4.E+00  | 2.E+00  | 2.E+00  | 6.E+00                                  | 5.E+00                                | 2.E-01                              | 2.E-01                            |
| Silver               | N  | 4.E-01                                 | 3.E-01   |  |   | 6.E-01  | 6.E-01  | 5.E-01                                  | 4.E-01                                |                                     |                                   |
| Thallium             | N  |  |  |  |   |   | 3.E-01  |   |                                       |                                     |                                   |
| Zinc                 | N  | 5.E-01                                 | 4.E-01   | 9.E-01                                     | 7.E-01  | 7.E-01  | 7.E-01  | 2.E-01                                  | 1.E-01                                |                                     |                                   |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the mean concentrations

#### **TABLE 7-14C**

#### RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                 | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>LOAEL HQ | Deer Mouse<br>Mixed Surface and<br>Subsurface Soil<br>LOAEL HQ | American Robin<br>Surface Soil<br>LOAEL HQ | American Robin<br>Mixed Surface<br>and Subsurface<br>Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Total Soil<br>LOAEL HQ | Meadow Vole<br>Surface Soil<br>LOAEL HQ | Meadow Vole<br>Total Soil<br>LOAEL HQ | Red Fox<br>Surface Soil<br>LOAEL HQ | Red Fox<br>Total Soil<br>LOAEL HQ |
|----------------------|--|--|--|--|---|---|---|---|---------------------------------------|-------------------------------------|-----------------------------------|
| Volatile Organic Com | pounds   |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Meta/Para Xylene     | N  |  | 4.E-04   |  |   |   | 7.E-04  |   | 5.E-04                                |                                     | 6.E-04                            |
| Semivolatile Organic | Compounds                                      |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Phenanthrene         | N  |  |  |  |   | 6.E-03  | 5.E-03  | 1.E-02                                  | 8.E-03                                |                                     |                                   |
| Pyrene               | N  |  |  |  |   | 1.E-02  | 1.E-02  | 1.E-02                                  | 1.E-02                                |                                     |                                   |
| PCBs                 |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Aroclor-1254         | N  | 3.E-02                                 | 2.E-02   | 1.E-02                                     | 1.E-02  | 4.E-02  | 4.E-02  |   |                                       |                                     |                                   |
| Pesticides           |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| 4,4'-DDT             | N  |  |  | 1.E-01                                     | 1.E-01  |   |   |   |                                       |                                     |                                   |
| Metals               |  |  |  |  |   |   |   |   |                                       |                                     |                                   |
| Antimony             | N  | 7.E-01                                 | 5.E-01   | N/A  | N/A   | 1.E+00  | 1.E+00  | 7.E-01                                  | 5.E-01                                | 5.E-02                              | 4.E-02                            |
| Barium               | N  | 2.E-02                                 | 2.E-02   | 3.E-01                                     | 3.E-01  | 3.E-02  | 3.E-02  | 4.E-02                                  | 3.E-02                                |                                     |                                   |
| Cadmium              | N  | 1.E-01                                 | 9.E-02   | 8.E-02                                     | 6.E-02  | 2.E-01  | 2.E-01  | 4.E-02                                  | 3.E-02                                |                                     |                                   |
| Copper               | N  | 9.E-01                                 | 7.E-01   | 3.E-01                                     | 2.E-01  | 1.E+00  | 1.E+00  | 3.E+00                                  | 2.E+00                                | 2.E-01                              | 1.E-01                            |
| Lead                 | N  | 1.E-01                                 | 8.E-02   | 5.E-01                                     | 4.E-01  | 2.E-01  | 2.E-01  | 6.E-01                                  | 5.E-01                                | 2.E-02                              | 2.E-02                            |
| Silver               | N  | 4.E-02                                 | 3.E-02   |  |   | 6.E-02  | 6.E-02  | 5.E-02                                  | 4.E-02                                |                                     |                                   |
| Thallium             | N  |  |  |  |   |   | 3.E-02  |   |                                       |                                     |                                   |
| Zinc                 | N  | 2.E-01                                 | 2.E-01   | 9.E-01                                     | 7.E-01  | 4.E-01  | 4.E-01  | 9.E-02                                  | 7.E-02                                |                                     |                                   |

LOAEL = Lowest Observed Adverse Effect Level COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the mean concentrations

#### **TABLE 7-15A**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

## **Seneca Army Depot Activity**

| СОРС     | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>LOAEL HQ | American<br>Robin<br>Ditch Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>LOAEL HQ | Meadow Vole<br>Ditch Soil<br>LOAEL HQ | Red Fox<br>Ditch Soil<br>LOAEL HQ | Great Blue Heron<br>Ditch Soil<br>LOAEL HQ |
|----------|--|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Metals   |  |                                      |   |   |                                       |                                   |  |
| Aluminum | N  |                                      |   |   | 1.E-01                                |                                   |  |
| Antimony | N  | 3.E-01                               |   | 5.E-01  | 4.E-01                                |                                   |  |
| Cadmium  | N  | 4.E-01                               | 3.E-01                                      | 6.E-01  | 1.E-01                                |                                   |  |
| Copper   | N  | 2.E+00                               |   | 2.E+00  | 7.E+00                                |                                   |  |
| Cyanide  | N  |                                      | 8.E-02                                      |   |                                       |                                   | 3.E-02                                     |
| Iron     | N  | 2.E+00                               |   | 2.E+00  | 2.E+00                                | 1.E+00                            |  |
| Lead     | N  |                                      | 3.E-01                                      | 1.E-01  | 4.E-01                                |                                   | 1.E-01                                     |
| Selenium | N  |                                      |   | 8.E-01  |                                       |                                   |  |
| Zinc     | N  |                                      | 1.E+00                                      |   |                                       |                                   |  |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the maximum detected concentrations.

#### **TABLE 7-15B**

# RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

## **Seneca Army Depot Activity**

| СОРС     | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>NOAEL HQ | American<br>Robin<br>Ditch Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>NOAEL HQ | Meadow Vole<br>Ditch Soil<br>NOAEL HQ | Red Fox<br>Ditch Soil<br>NOAEL HQ | Great Blue Heron<br>Ditch Soil<br>NOAEL HQ |
|----------|--|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Metals   |  |                                      |   |   |                                       |                                   |  |
| Antimony | N  | 2.E+00                               |   | 2.E+00  | 2.E+00                                |                                   |  |
| Cadmium  | N  | 8.E-01                               | 8.E-01                                      | 1.E+00  | 3.E-01                                |                                   |  |
| Copper   | N  | 4.E-01                               |   | 5.E-01  | 1.E+00                                |                                   |  |
| Cyanide  | N  |                                      | 1.E+00                                      |   |                                       |                                   | 4.E-01                                     |
| Lead     | N  |                                      | 1.E+00                                      | 5.E-01  | 1.E+00                                |                                   | 3.E-01                                     |
| Selenium | N  |                                      |   | 6.E-01  |                                       |                                   |  |
| Zinc     | N  |                                      | 6.E-01                                      |   |                                       |                                   |  |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the mean concentrations.

### **TABLE 7-15C**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

## **Seneca Army Depot Activity**

| СОРС     | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>LOAEL HQ | American<br>Robin<br>Ditch Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>LOAEL HQ | Meadow Vole<br>Ditch Soil<br>LOAEL HQ | Red Fox<br>Ditch Soil<br>LOAEL HQ | Great Blue Heron<br>Ditch Soil<br>LOAEL HQ |
|----------|--|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Metals   |  |                                      |   |   |                                       |                                   |  |
| Antimony | N  | 2.E-01                               |   | 2.E-01  | 2.E-01                                |                                   |  |
| Cadmium  | N  | 8.E-02                               | 6.E-02                                      | 1.E-01  | 3.E-02                                |                                   |  |
| Copper   | N  | 3.E-01                               |   | 4.E-01  | 1.E+00                                |                                   |  |
| Cyanide  | N  |                                      | 3.E-02                                      |   |                                       |                                   | 1.E-02                                     |
| Lead     | N  |                                      | 1.E-01                                      | 5.E-02  | 1.E-01                                |                                   | 3.E-02                                     |
| Selenium | N  |                                      |   | 3.E-01  |                                       |                                   |  |
| Zinc     | N  |                                      | 6.E-01                                      |   |                                       |                                   |  |

LOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the mean concentrations.

#### **TABLE 7-16A**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                           | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>LOAEL HQ | American Robin<br>Surface Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>LOAEL HQ | Meadow Vole<br>Surface Soil<br>LOAEL HQ | Red Fox<br>Surface Soil<br>LOAEL HQ |
|--------------------------------|--|--|--|---|---|-------------------------------------|
| Semivolatile Organic Compounds |  |  |  |   |   |                                     |
| Anthracene                     | N  |  |  |   | 1.E-01                                  |                                     |
| Benzo(a)anthracene             | N  |  |  |   | 2.E-01                                  |                                     |
| Benzo(a)pyrene                 | N  |  |  | 1.E-01  | 2.E-01                                  |                                     |
| Benzo(b)fluoranthene           | N  |  |  | 1.E-01  | 2.E-01                                  |                                     |
| Benzo(ghi)perylene             | N  |  |  | 1.E-01  | 2.E-01                                  |                                     |
| Benzo(k)fluoranthene           | N  |  |  | 1.E-01  | 2.E-01                                  |                                     |
| Chrysene                       | N  |  |  | 1.E-01  | 2.E-01                                  |                                     |
| Phenanthrene                   | N  | 2.E-01                                 |  | 3.E-01  | 4.E-01                                  |                                     |
| Pyrene                         | N  | 2.E-01                                 |  | 3.E-01  | 5.E-01                                  |                                     |
| Pesticides                     |  |  |  |   |   |                                     |
| 4,4'-DDT                       | N  |  | 7.E-01                                     |   |   |                                     |
| Metals                         |  |  |  |   |   |                                     |
| Antimony                       | N  | 5.E-01                                 |  | 8.E-01  | 5.E-01                                  |                                     |
| Arsenic                        | N  | 1.E+00                                 |  | 2.E+00  | 2.E+00                                  | 1.E-01                              |
| Cadmium                        | N  | 2.E-01                                 | 1.E-01                                     | 3.E-01  |   |                                     |
| Chromium                       | N  |  | 2.E+00                                     |   |   |                                     |
| Cobalt                         | N  | 5.E-01                                 |  | 8.E-01  | 9.E-01                                  |                                     |
| Copper                         | N  |  |  |   | 1.E+00                                  |                                     |
| Cyanide                        | N  |  | 7.E-02                                     |   |   |                                     |
| Lead                           | N  |  |  |   | 1.E-01                                  |                                     |
| Manganese                      | N  | 3.E+01                                 | 1.E+01                                     | 4.E+01  | 9.E+01                                  | 4.E+00                              |
| Selenium                       | N  | 3.E+01                                 | 2.E+01                                     | 5.E+01  | 3.E+01                                  | 3.E+00                              |
| Silver                         | N  |  |  | 1.E-01  |   |                                     |
| Thallium                       | N  | 8.E+00                                 | 3.E+01                                     | 1.E+01  | 8.E+00                                  | 1.E+00                              |
| Vanadium                       | N  | 6.E+00                                 | 2.E-01                                     | 9.E+00  | 5.E+00                                  | 4.E-01                              |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the maximum detected concentrations

#### **TABLE 7-16B**

# RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                           | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>NOAEL HQ | American Robin<br>Surface Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>NOAEL HQ | Meadow Vole<br>Surface Soil<br>NOAEL HQ | Red Fox<br>Surface Soil<br>NOAEL HQ |
|--------------------------------|--|--|--|---|---|-------------------------------------|
| Semivolatile Organic Compounds |  |  |  |   |   |                                     |
| Anthracene                     | N  |  |  |   | 6.E-02                                  |                                     |
| Benzo(a)anthracene             | N  |  |  |   | 1.E-01                                  |                                     |
| Benzo(a)pyrene                 | N  |  |  | 9.E-02  | 1.E-01                                  |                                     |
| Benzo(b)fluoranthene           | N  |  |  | 1.E-01  | 1.E-01                                  |                                     |
| Benzo(ghi)perylene             | N  |  |  | 9.E-02  | 1.E-01                                  |                                     |
| Benzo(k)fluoranthene           | N  |  |  | 1.E-01  | 1.E-01                                  |                                     |
| Chrysene                       | N  |  |  | 8.E-02  | 2.E-01                                  |                                     |
| Phenanthrene                   | N  | 9.E-02                                 |  | 1.E-01  | 2.E-01                                  |                                     |
| Pyrene                         | N  | 1.E-01                                 |  | 2.E-01  | 4.E-01                                  |                                     |
| Pesticides                     |  |  |  |   |   |                                     |
| 4,4'-DDT                       | N  |  | 5.E-01                                     |   |   |                                     |
| Metals                         |  |  |  |   |   |                                     |
| Antimony                       | N  | 2.E+00                                 |  | 3.E+00  | 2.E+00                                  |                                     |
| Arsenic                        | N  | 3.E-01                                 |  | 6.E-01  | 6.E-01                                  | 3.E-02                              |
| Cadmium                        | N  | 2.E-01                                 | 2.E-01                                     | 3.E-01  |   |                                     |
| Chromium                       | N  |  | 2.E-01                                     |   |   |                                     |
| Cobalt                         | N  | 4.E-01                                 |  | 7.E-01  | 8.E-01                                  |                                     |
| Copper                         | N  |  |  |   | 2.E-01                                  |                                     |
| Cyanide                        | N  |  | 4.E-01                                     |   |   |                                     |
| Lead                           | N  |  |  |   | 2.E-01                                  |                                     |
| Manganese                      | N  | 5.E+00                                 | 6.E+00                                     | 6.E+00  | 1.E+01                                  | 5.E-01                              |
| Selenium                       | N  | 2.E+00                                 | 1.E+00                                     | 3.E+00  | 2.E+00                                  | 2.E-01                              |
| Silver                         | N  |  |  | 2.E-01  |   |                                     |
| Thallium                       | N  | 3.E+00                                 | 2.E+00                                     | 5.E+00  | 3.E+00                                  | 6.E-01                              |
| Vanadium                       | Y  | 4.E-01                                 | 2.E-01                                     | 7.E-01  | 4.E-01                                  | 2.E-02                              |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the mean concentrations

#### **TABLE 7-16C**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                           | Retained as<br>Final COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Surface Soil<br>LOAEL HQ | American Robin<br>Surface Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Surface Soil<br>LOAEL HQ | Meadow Vole<br>Surface Soil<br>LOAEL HQ | Red Fox<br>Surface Soil<br>LOAEL HQ |
|--------------------------------|--|--|--|---|---|-------------------------------------|
| Semivolatile Organic Compounds |  |  |  |   |   |                                     |
| Anthracene                     | N  |  |  |   | 6.E-03                                  |                                     |
| Benzo(a)anthracene             | N  |  |  |   | 1.E-02                                  |                                     |
| Benzo(a)pyrene                 | N  |  |  | 9.E-03  | 1.E-02                                  |                                     |
| Benzo(b)fluoranthene           | N  |  |  | 1.E-02  | 1.E-02                                  |                                     |
| Benzo(ghi)perylene             | N  |  |  | 9.E-03  | 1.E-02                                  |                                     |
| Benzo(k)fluoranthene           | N  |  |  | 1.E-02  | 1.E-02                                  |                                     |
| Chrysene                       | N  |  |  | 8.E-03  | 2.E-02                                  |                                     |
| Phenanthrene                   | N  | 9.E-03                                 |  | 1.E-02  | 2.E-02                                  |                                     |
| Pyrene                         | N  | 1.E-02                                 |  | 2.E-02  | 4.E-02                                  |                                     |
| Pesticides                     |  |  |  |   |   |                                     |
| 4,4'-DDT                       | N  |  | 5.E-02                                     |   |   |                                     |
| Metals                         |  |  |  |   |   |                                     |
| Antimony                       | N  | 2.E-01                                 |  | 3.E-01  | 2.E-01                                  |                                     |
| Arsenic                        | N  | 3.E-01                                 |  | 5.E-01  | 5.E-01                                  | 3.E-02                              |
| Cadmium                        | N  | 2.E-02                                 | 1.E-02                                     | 3.E-02  |   |                                     |
| Chromium                       | N  |  | 1.E-01                                     |   |   |                                     |
| Cobalt                         | N  | 4.E-02                                 |  | 7.E-02  | 8.E-02                                  |                                     |
| Copper                         | N  |  |  |   | 2.E-01                                  |                                     |
| Cyanide                        | N  |  | 1.E-02                                     |   |   |                                     |
| Lead                           | N  |  |  |   | 2.E-02                                  |                                     |
| Manganese                      | N  | 1.E+00                                 | 6.E-01                                     | 2.E+00  | 4.E+00                                  | 2.E-01                              |
| Selenium                       | N  | 1.E+00                                 | 7.E-01                                     | 2.E+00  | 1.E+00                                  | 1.E-01                              |
| Silver                         | N  |  |  | 2.E-02  |   |                                     |
| Thallium                       | N  | 3.E-01                                 | 1.E+00                                     | 5.E-01  | 3.E-01                                  | 6.E-02                              |
| Vanadium                       | N  | 7.E-01                                 | 2.E-02                                     | 1.E+00  | 6.E-01                                  | 5.E-02                              |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) See text for the rationale.

(2) HQs based on the mean concentrations

#### **TABLE 7-17A**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                     | Retained as final COC <sup>(1)</sup> | Deer Mouse<br>Ditch Soil<br>LOAEL HQ | American<br>Robin<br>Ditch Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>LOAEL HQ | Meadow Vole<br>Ditch Soil<br>LOAEL HQ | Red Fox<br>Ditch Soil<br>LOAEL HQ | Great Blue Heron<br>Ditch Soil<br>LOAEL HQ |
|--------------------------|--------------------------------------|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Semivolatile Organic Con | apounds                              |                                      |   |   |                                       |                                   |  |
| Benzo(a)anthracene       | N                                    |                                      |   |   | 1.E-01                                |                                   |  |
| Benzo(a)pyrene           | N                                    |                                      |   |   | 1.E-01                                |                                   |  |
| Benzo(b)fluoranthene     | N                                    |                                      |   | 1.E-01  | 2.E-01                                |                                   |  |
| Benzo(k)fluoranthene     | N                                    |                                      |   | 1.E-01  | 2.E-01                                |                                   |  |
| Chrysene                 | N                                    |                                      |   |   | 2.E-01                                |                                   |  |
| Pyrene                   | N                                    |                                      |   |   | 1.E-01                                |                                   |  |
| Metals                   |                                      |                                      |   |   |                                       |                                   |  |
| Arsenic                  | N                                    | 3.E+00                               | 8.E-01                                      | 6.E+00  | 6.E+00                                | 3.E-01                            |  |
| Cobalt                   | N                                    | 2.E-01                               |   | 4.E-01  | 4.E-01                                |                                   |  |
| Manganese                | N                                    | 1.E+00                               | 6.E-01                                      | 2.E+00  | 4.E+00                                |                                   | 1.E-01                                     |
| Selenium                 | N                                    | 4.E+00                               | 2.E+00                                      | 6.E+00  | 4.E+00                                |                                   |  |
| Silver                   | N                                    | 3.E-01                               |   | 4.E-01  | 3.E-01                                |                                   |  |
| Thallium                 | N                                    | 1.E+00                               | 4.E+00                                      | 2.E+00  | 1.E+00                                | 2.E-01                            | 7.E-01                                     |
| Vanadium                 | N                                    | 2.E+00                               |   | 4.E+00  | 2.E+00                                | 2.E-01                            |  |
| Zinc                     | N                                    |                                      | 1.E+00                                      |   |                                       |                                   |  |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COPC = Chemical of Potential Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any recepto

(2) HQs based on the maximum detected concentrations

#### **TABLE 7-17B**

# RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATIONS - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                     | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>NOAEL HQ | American<br>Robin<br>Ditch Soil<br>NOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>NOAEL HQ | Meadow Vole<br>Ditch Soil<br>NOAEL HQ | Red Fox<br>Ditch Soil<br>NOAEL HQ | Great Blue Heron<br>Ditch Soil<br>NOAEL HQ |
|--------------------------|---|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Semivolatile Organic Con | ıpounds   |                                      |   |   |                                       |                                   |  |
| Benzo(a)anthracene       | N   |                                      |   |   | 2.E-01                                |                                   |  |
| Benzo(a)pyrene           | N   |                                      |   |   | 2.E-01                                |                                   |  |
| Benzo(b)fluoranthene     | N   |                                      |   | 2.E-01  | 3.E-01                                |                                   |  |
| Benzo(k)fluoranthene     | N   |                                      |   | 2.E-01  | 2.E-01                                |                                   |  |
| Chrysene                 | N   |                                      |   |   | 3.E-01                                |                                   |  |
| Pyrene                   | N   |                                      |   |   | 4.E-01                                |                                   |  |
| Metals                   |   |                                      |   |   |                                       |                                   |  |
| Arsenic                  | N   | 7.E-01                               | 4.E-01                                      | 1.E+00  | 1.E+00                                | 5.E-02                            |  |
| Cobalt                   | N   | 5.E-01                               |   | 8.E-01  | 8.E-01                                |                                   |  |
| Manganese                | N   | 1.E+00                               | 1.E+00                                      | 1.E+00  | 3.E+00                                |                                   | 3.E-01                                     |
| Selenium                 | N   | 7.E-01                               | 4.E-01                                      | 1.E+00  | 7.E-01                                |                                   |  |
| Silver                   | N   | 4.E-01                               |   | 5.E-01  | 4.E-01                                |                                   |  |
| Thallium                 | N   | 1.E+00                               | 7.E-01                                      | 2.E+00  | 1.E+00                                | 2.E-01                            | 1.E-01                                     |
| Vanadium                 | N   | 4.E-01                               |   | 7.E-01  | 4.E-01                                | 2.E-02                            |  |
| Zinc                     | N   |                                      | 3.E-01                                      |   |                                       |                                   |  |

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any recepto

(2) HQs based on the mean concentrations.

#### **TABLE 7-17C**

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATIONS - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

### **Seneca Army Depot Activity**

| СОРС                     | Retained as<br>Preliminary<br>COC <sup>(1)</sup><br>Y/N | Deer Mouse<br>Ditch Soil<br>LOAEL HQ | American<br>Robin<br>Ditch Soil<br>LOAEL HQ | Short-Tailed<br>Shrew<br>Ditch Soil<br>LOAEL HQ | Meadow Vole<br>Ditch Soil<br>LOAEL HQ | Red Fox<br>Ditch Soil<br>LOAEL HQ | Great Blue Heron<br>Ditch Soil<br>LOAEL HQ |
|--------------------------|---|--------------------------------------|---|---|---------------------------------------|-----------------------------------|--|
| Semivolatile Organic Con | pounds  |                                      |   |   |                                       |                                   |  |
| Benzo(a)anthracene       | N   |                                      |   |   | 2.E-02                                |                                   |  |
| Benzo(a)pyrene           | N   |                                      |   |   | 2.E-02                                |                                   |  |
| Benzo(b)fluoranthene     | N   |                                      |   | 2.E-02  | 3.E-02                                |                                   |  |
| Benzo(k)fluoranthene     | N   |                                      |   | 2.E-02  | 2.E-02                                |                                   |  |
| Chrysene                 | N   |                                      |   |   | 3.E-02                                |                                   |  |
| Pyrene                   | N   |                                      |   |   | 4.E-02                                |                                   |  |
| Metals                   |   |                                      |   |   |                                       |                                   |  |
| Arsenic                  | N   | 6.E-01                               | 1.E-01                                      | 1.E+00  | 1.E+00                                | 6.E-02                            |  |
| Cobalt                   | N   | 5.E-02                               |   | 8.E-02  | 8.E-02                                |                                   |  |
| Manganese                | N   | 3.E-01                               | 1.E-01                                      | 4.E-01  | 9.E-01                                |                                   | 3.E-02                                     |
| Selenium                 | N   | 4.E-01                               | 2.E-01                                      | 7.E-01  | 4.E-01                                |                                   |  |
| Silver                   | N   | 4.E-02                               |   | 5.E-02  | 4.E-02                                |                                   |  |
| Thallium                 | N   | 1.E-01                               | 5.E-01                                      | 2.E-01  | 1.E-01                                | 2.E-02                            | 7.E-02                                     |
| Vanadium                 | N   | 7.E-01                               |   | 1.E+00  | 6.E-01                                | 5.E-02                            |  |
| Zinc                     | N   |                                      | 3.E-01                                      |   |                                       |                                   |  |

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any recepto

(2) HQs based on the mean concentrations.

## TABLE 7-18A Comparison of Site Concentrations with Background - SEAD-121C Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                    | Maximum Detected<br>Concentration      |                                      | Average Concentration                  |                                      | Background (mg/kg) |         |         |
|--------------------|--|--------------------------------------|--|--------------------------------------|--------------------|---------|---------|
| Preliminary<br>COC | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) | Total Soil<br>0-4 ft bgs.<br>(mg/kg) | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) | Total Soil<br>0-4 ft bgs.<br>(mg/kg) | Maximum            | Average | 95% UCL |
| Inorganics         |  |                                      |  |                                      |                    |         |         |
| Antimony           | 236                                    | 236                                  | 10                                     | 7.5                                  | 6.55               | 2.7     | 3.3     |
| Barium             | 2030                                   | 2030                                 | 231                                    | 199                                  | 159                | 79      | 86      |
| Cadmium            | 29.1                                   | 29.1                                 | 4.1                                    | 3.0                                  | 2.9                | 0.54    | 0.74    |
| Chromium           | 74.8                                   | 74.8                                 | 25                                     | 25                                   | 32.7               | 20      | 22      |
| Copper             | 9750                                   | 9750                                 | 515                                    | 408                                  | 62.8               | 21      | 23      |
| Lead               | 18900                                  | 18900                                | 735                                    | 550                                  | 266                | 17.7    | 27.6    |
| Silver             | 21.8                                   | 21.8                                 | 1.6                                    | 1.2                                  | 0.87               | 0.38    | 0.45    |
| Thallium           | 1.1                                    | 1.8                                  | 0.4                                    | 0.4                                  | 1.2                | 0.255   | 0.32    |
| Zinc               | 3610                                   | 3610                                 | 450                                    | 355                                  | 126                | 71.7    | 77.5    |

COC = Chemical of concern

bkgcomparison-SEAD-121C 7/21/2005

### **TABLE 7-18B**

# Comparison of Site Concentrations with Background - SEAD-121C Ditch Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| Preliminary | Maximum Detected<br>Concentration | Average<br>Concentration  | Background (mg/kg) |         |         |  |
|-------------|-----------------------------------|---------------------------|--------------------|---------|---------|--|
| COC         | Stockpile Soil<br>(mg/kg)         | Stockpile Soil<br>(mg/kg) | Maximum            | Average | 95% UCL |  |
| Inorganics  |                                   |                           |                    |         |         |  |
| Antimony    | 4.9                               | 2.3                       | 6.55               | 2.7     | 3.3     |  |
| Cadmium     | 14.3                              | 2.8                       | 2.9                | 0.54    | 0.74    |  |
| Copper      | 1190                              | 177                       | 62.8               | 21      | 23      |  |
| Cyanide     | 2.36                              | 0.83                      | 0.39               | 0.29    | 0.30    |  |
| Lead        | 436                               | 144                       | 266                | 17.7    | 27.6    |  |
| Selenium    | 2.5                               | 1.0                       | 1.7                | 0.36    | 0.45    |  |
| Zinc        | 566                               | 291                       | 126                | 71.7    | 77.5    |  |

COC = Chemical of concern

# TABLE 7-19A Comparison of Site Concentrations with Background - SEAD-121I Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| Duoliminouv        | Maximum Detected<br>Concentration      | Average Concentration                  | Background (mg/kg) |         |         |  |  |
|--------------------|--|--|--------------------|---------|---------|--|--|
| Preliminary<br>COC | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) | Surface Soil<br>0-2 ft bgs.<br>(mg/kg) | Maximum            | Average | 95% UCL |  |  |
| Inorganics         | ( <del>g</del> , <del>g</del> )        | (8/8/                                  |                    |         |         |  |  |
| Antimony           | 7.5                                    | 2.5                                    | 6.55               | 2.7     | 3.3     |  |  |
| Arsenic            | 32.1                                   | 8.3                                    | 21.5               | 5.2     | 5.97    |  |  |
| Cadmium            | 6.6                                    | 0.65                                   | 2.9                | 0.54    | 0.74    |  |  |
| Chromium           | 439                                    | 29                                     | 32.7               | 20      | 22      |  |  |
| Cobalt             | 205.5                                  | 18                                     | 29.1               | 11.5    | 12.66   |  |  |
| Copper             | 209                                    | 32                                     | 62.8               | 21      | 23      |  |  |
| Cyanide            | 2                                      | 0.36                                   | 0.39               | 0.29    | 0.30    |  |  |
| Lead               | 122                                    | 30                                     | 266                | 17.7    | 27.6    |  |  |
| Manganese          | 310500                                 | 15037                                  | 2380               | 609     | 701     |  |  |
| Silver             | 3.65                                   | 0.64                                   | 0.87               | 0.38    | 0.45    |  |  |
| Thallium           | 162.5                                  | 6.5                                    | 1.2                | 0.255   | 0.32    |  |  |
| Vanadium           | 182                                    | 21                                     | 32.7               | 21.2    | 22.9    |  |  |

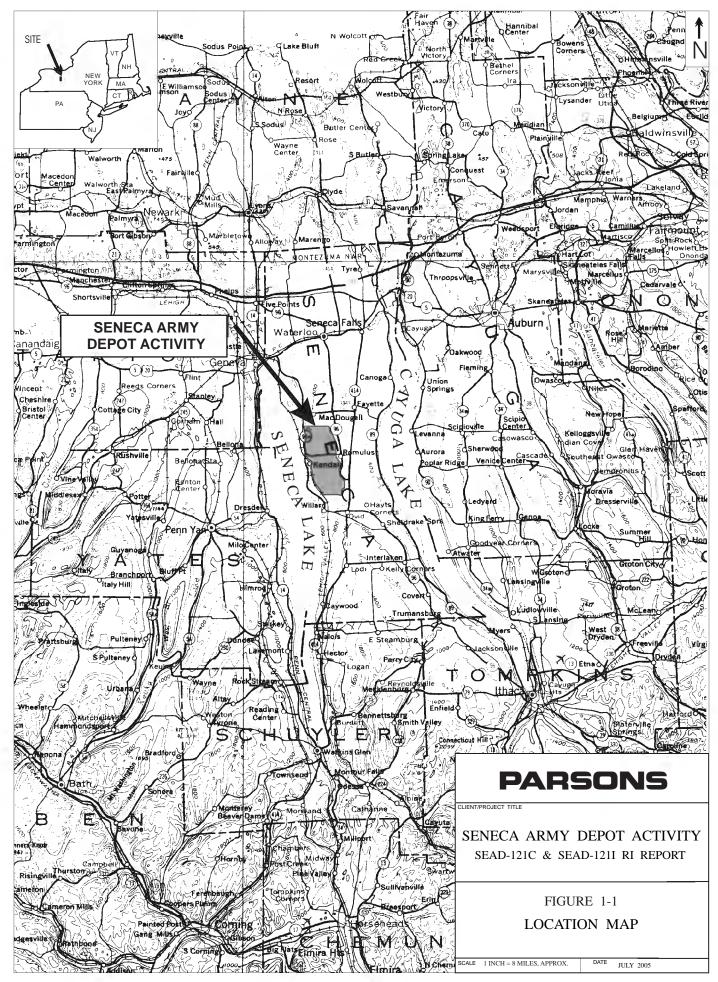
COC = Chemical of concern

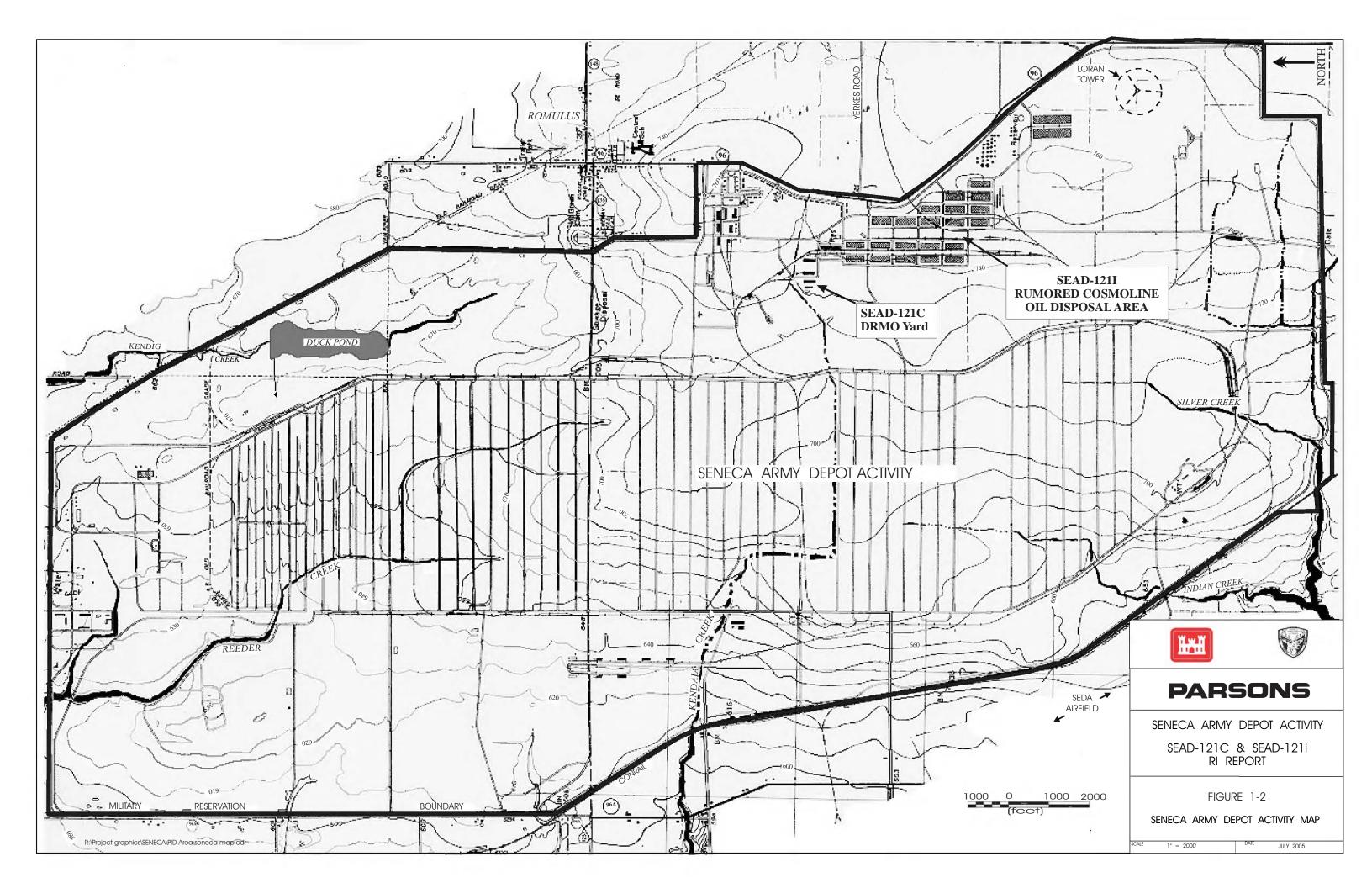
### **TABLE 7-19B**

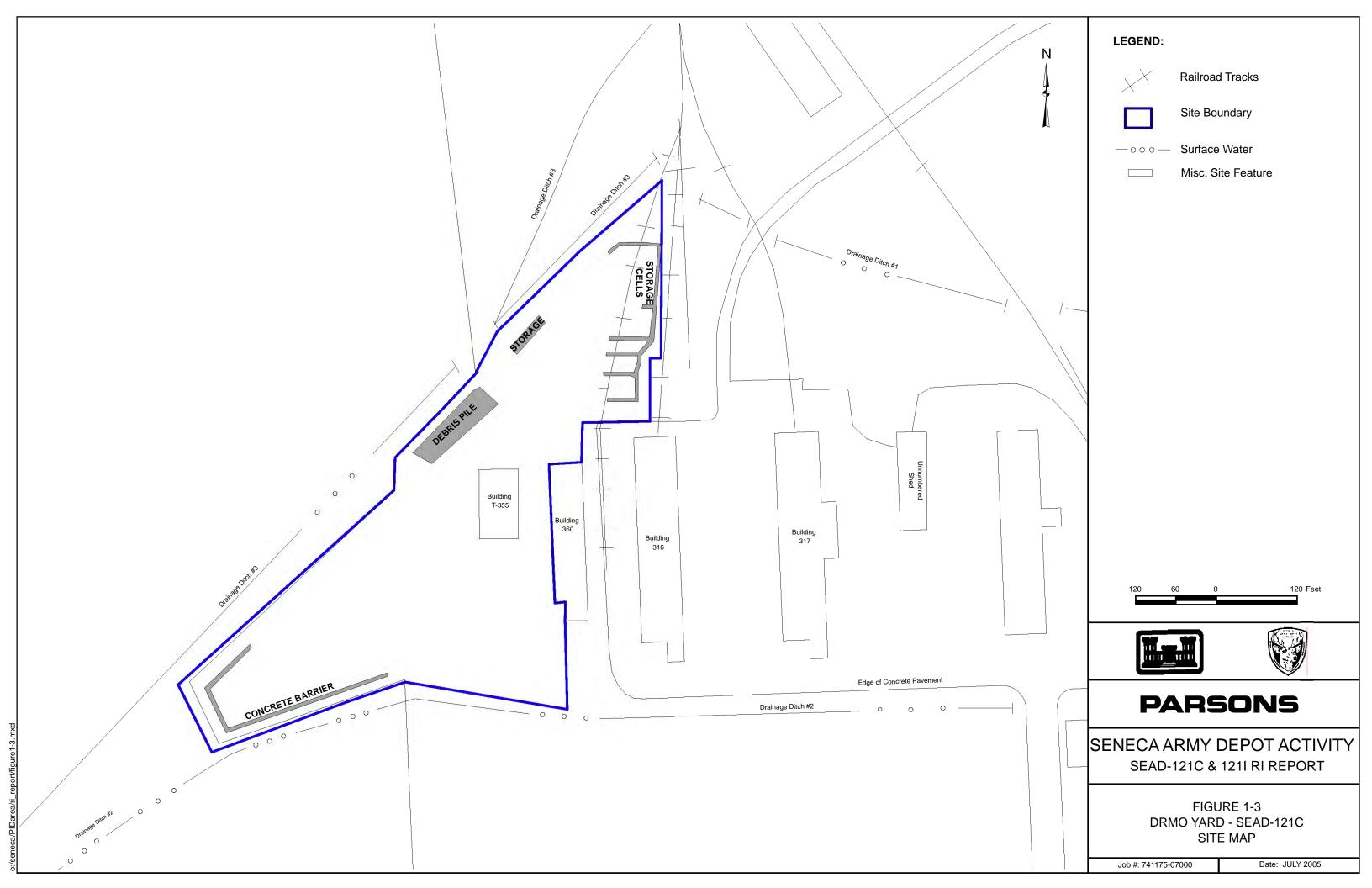
# Comparison of Site Concentrations with Background - SEAD-121I Ditch Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

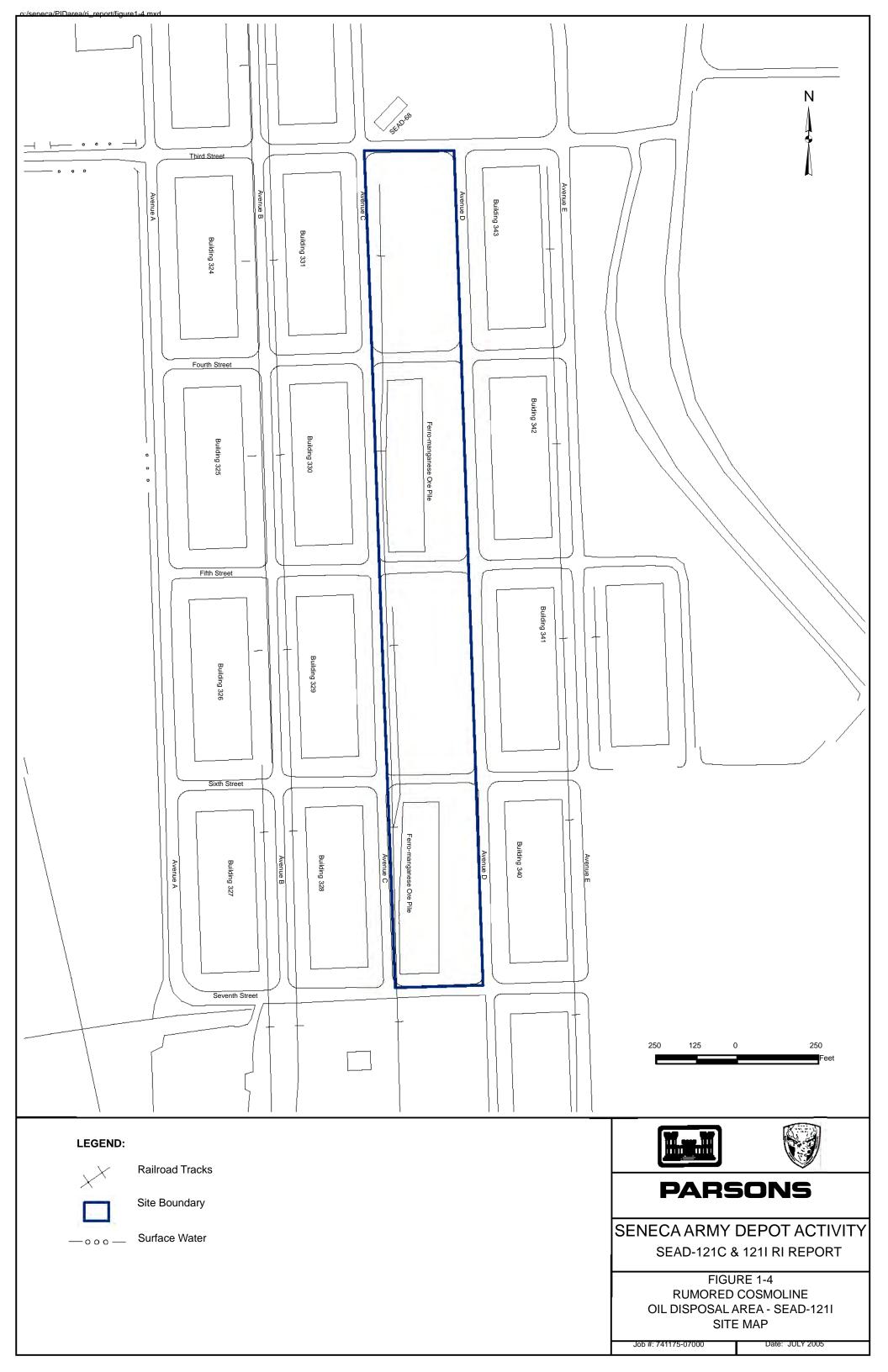
| Preliminary | Maximum Detected<br>Concentration | Average<br>Concentration  | Background (mg/kg) |         |         |  |
|-------------|-----------------------------------|---------------------------|--------------------|---------|---------|--|
| COC         | Stockpile Soil<br>(mg/kg)         | Stockpile Soil<br>(mg/kg) | Maximum            | Average | 95% UCL |  |
| Inorganics  |                                   |                           |                    |         |         |  |
| Arsenic     | 104                               | 18                        | 21.5               | 5.2     | 5.97    |  |
| Cobalt      | 91.9                              | 19                        | 29.1               | 11.5    | 12.66   |  |
| Manganese   | 14900                             | 3195                      | 2380               | 609     | 701     |  |
| Selenium    | 18                                | 2.0                       | 1.7                | 0.36    | 0.45    |  |
| Silver      | 10.5                              | 1.4                       | 0.87               | 0.38    | 0.45    |  |
| Thallium    | 21.5                              | 2.4                       | 1.2                | 0.255   | 0.32    |  |
| Vanadium    | 69.4                              | 21                        | 32.7               | 21.2    | 22.9    |  |
| Zinc        | 532                               | 142                       | 126                | 71.7    | 77.5    |  |

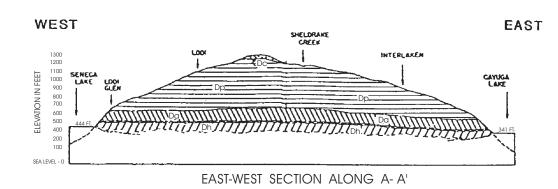
COC = Chemical of concern

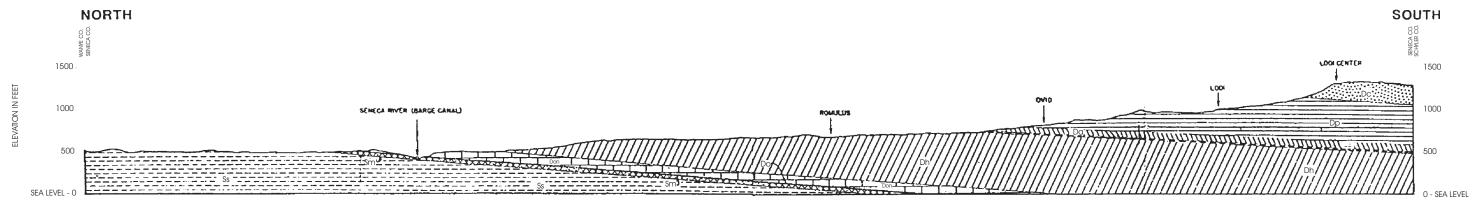




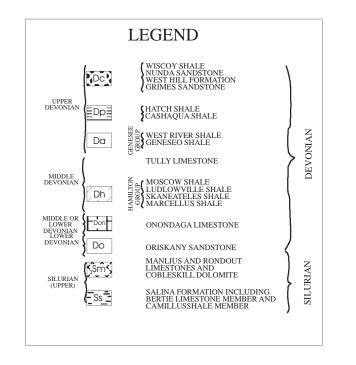








NORTH-SOUTH SECTION ALONG 76'50' (B-B')



PARSONS
CLIENT/PROJECT TITLE

SCALE

3 MILES

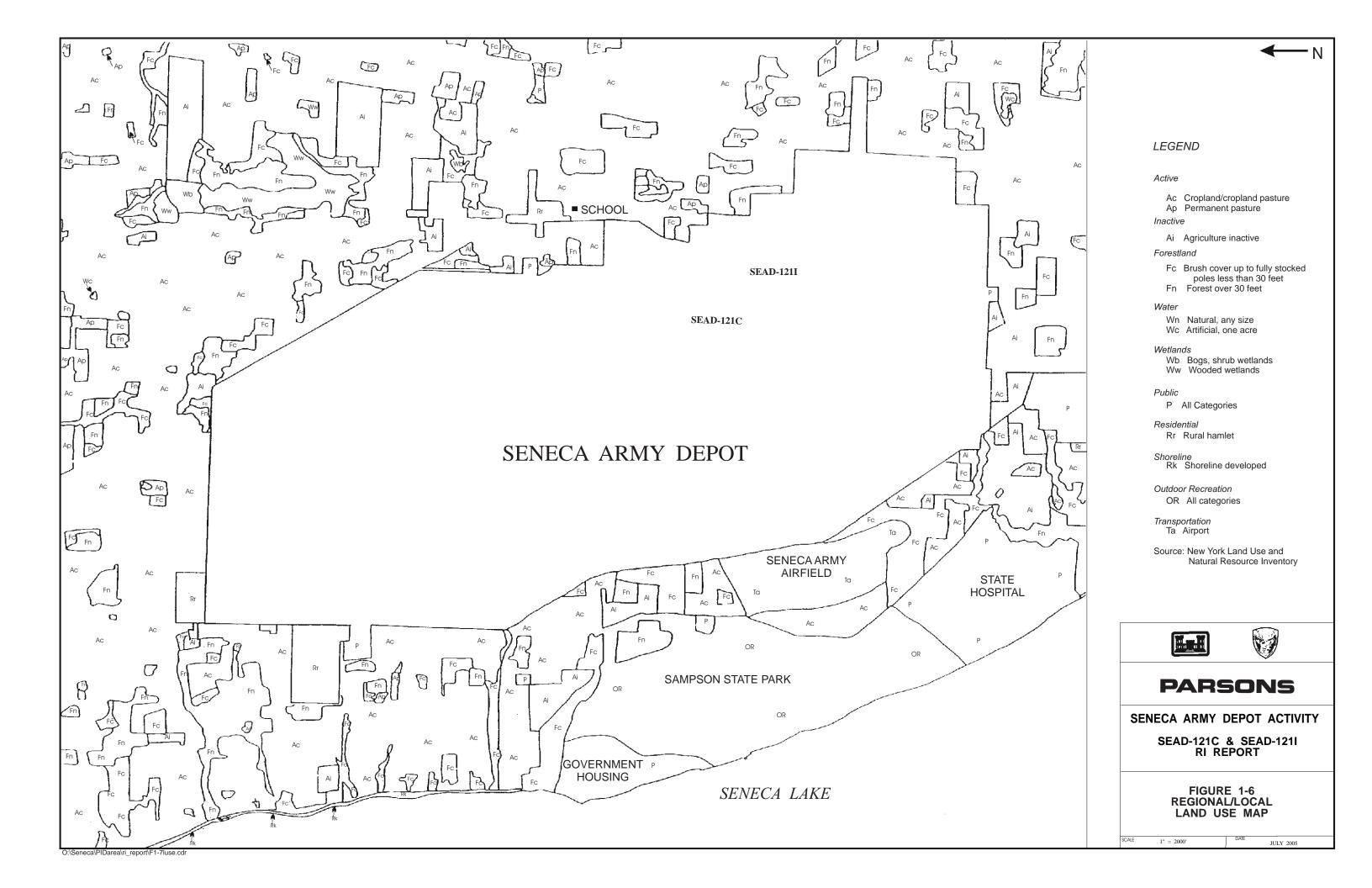
SENECA ARMY DEPOT ACTIVITY

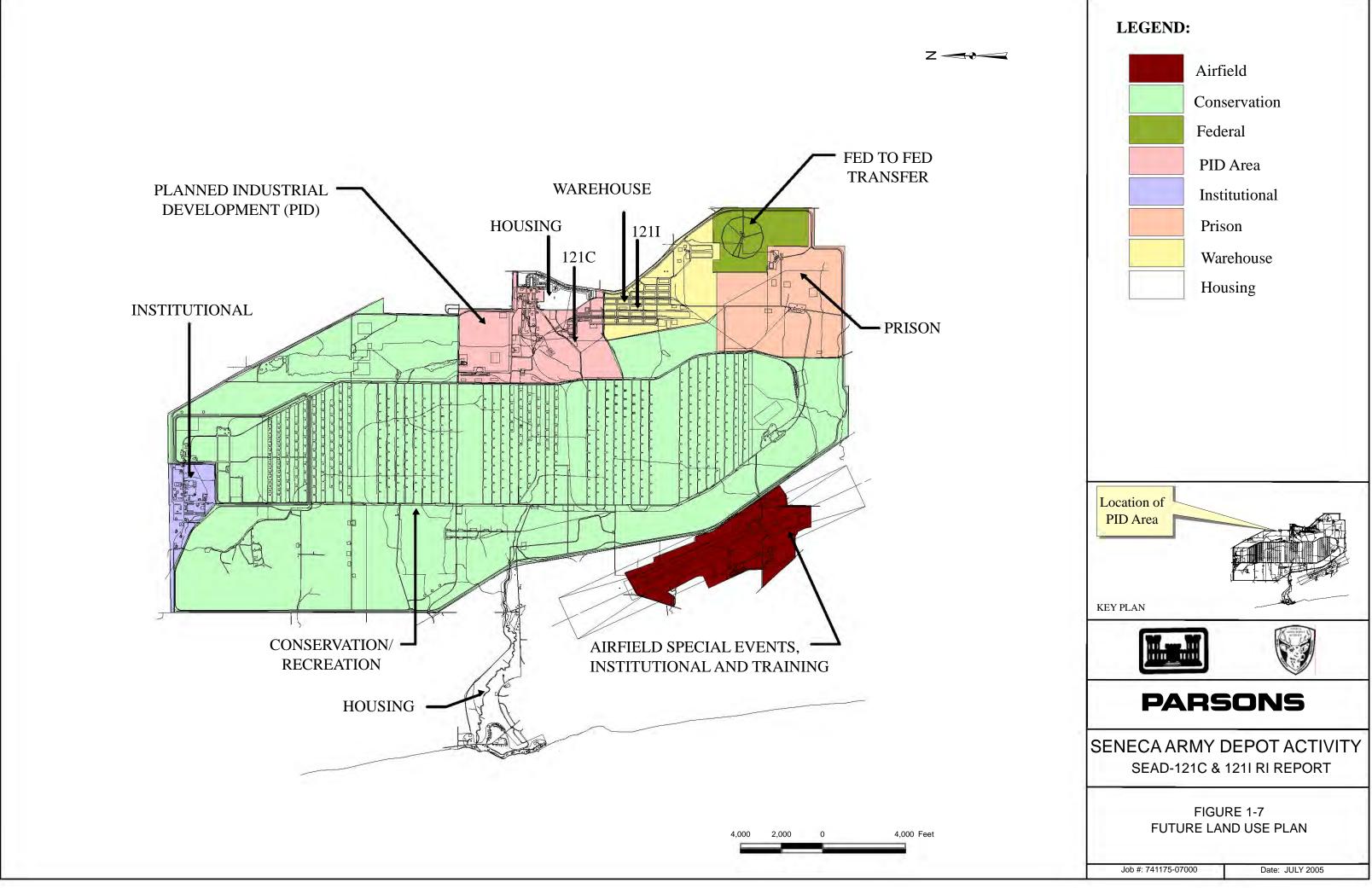
SEAD-121C & SEAD-121I RI REPORT

FIGURE 1-5
REGIONAL GEOLOGIC

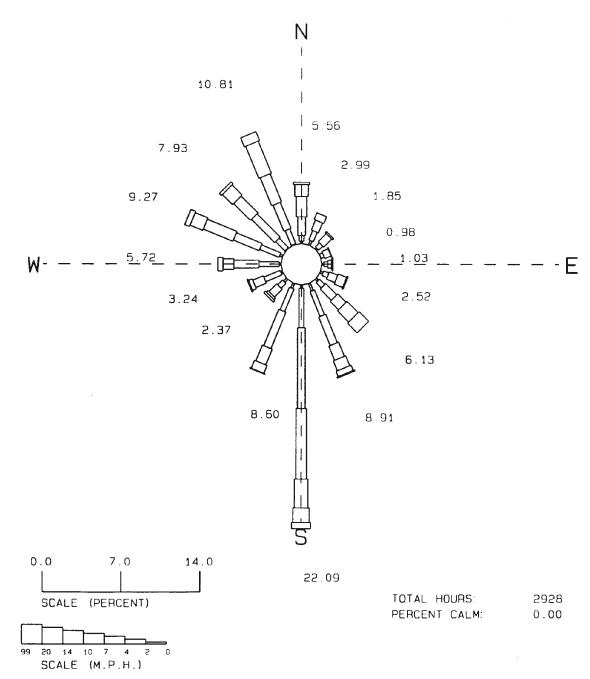
**CROSS SECTIONS** 

SOURCE:MODIFIED FROM-THE GROUND WATER RESOURCES OF SENECA COUNTY, NEW YORK: MOZOLA, A.J., BULLETIN GW-26, ALBANY, NY, 1951

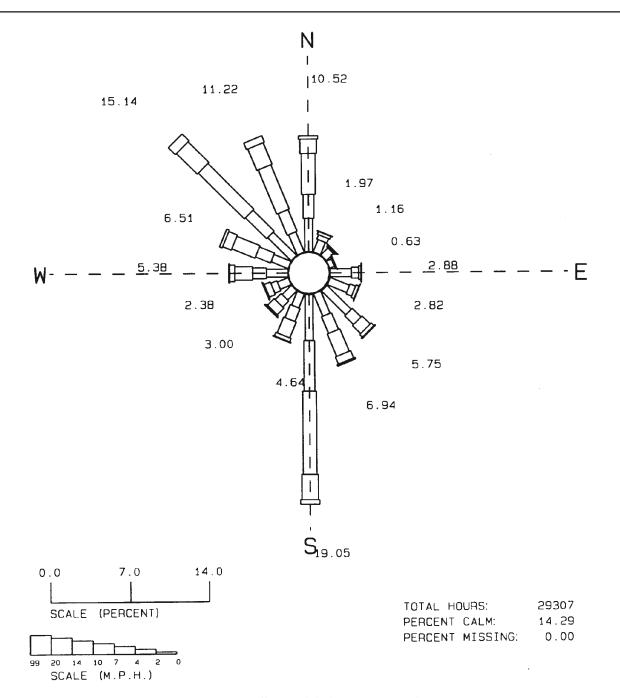




o:/seneca/PIDarea/ri\_report/figu



SENECA ARMY DEPOT SENECA 10-M MET. TOWER SEASONAL WIND ROSE 10 METER LEVEL APRIL 24 - JULY 14 1995



SENECA ARMY DEPOT ITHACA AIRPORT ANNUAL WIND ROSE 20 FOOT LEVEL FOR: 1989-1993

### **PARSONS**

IENT/PROJECT TITLE

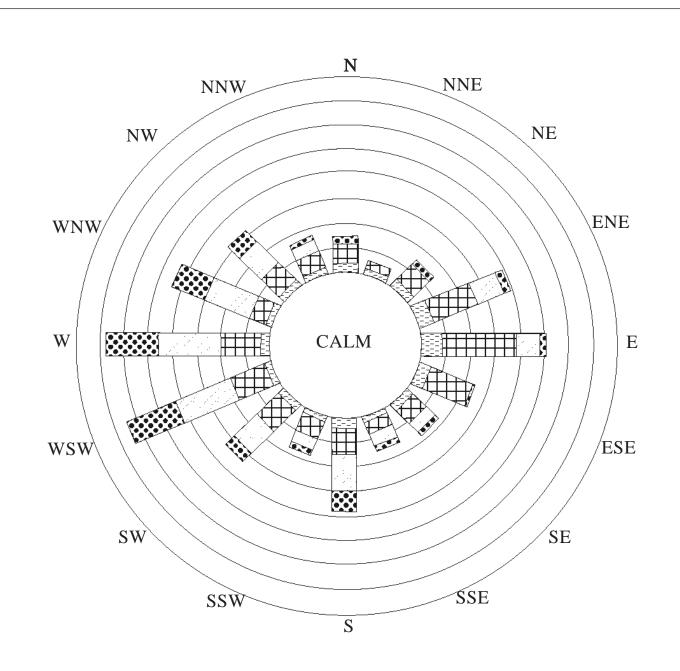
SENECA ARMY DEPOT ACTIVITY

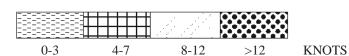
SEAD-121C & SEAD-121I RI REPORT

> FIGURE 1-8 WIND ROSES

NA DATE JULY 2005

O:\Seneca\PIDarea\ri\_report2WROSES.CDR





NOTE: EACH DIVISION IS 2% OF TOTAL TIME

INSTALLATION: SENECA ARMY DEPOT LOCATION OF DATA: SYRACUSE, NEW YORK

SOURCE: MODIFIED FROM: US ARMY ENVIRONMENTAL HYGIENE AGENCY





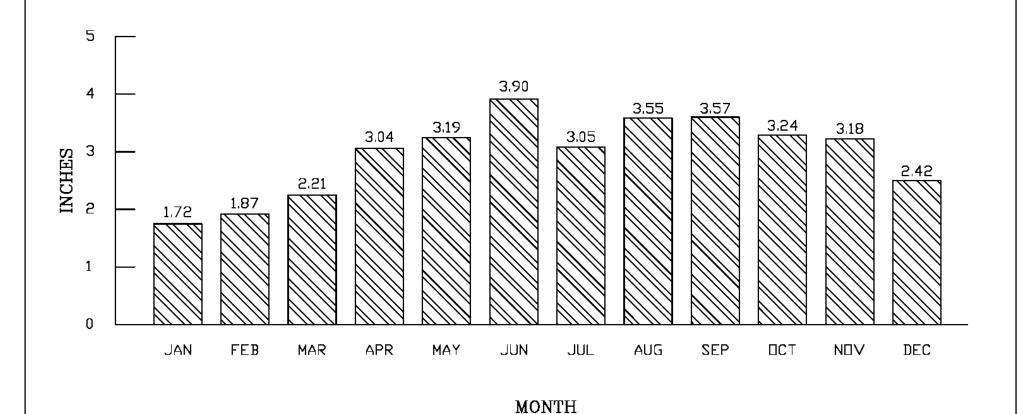
#### **PARSONS**

SENECA ARMY DEPOT ACTIVITY
SEAD-121C & SEAD-121I RI REPORT

FIGURE 1-9

WIND ROSE, SYRACUSE, NEW YORK

SCALE NA DATE JULY 2005







PARSONS

SENECA ARMY DEPOT ACTIVITY

SEAD-121C AND SEAD-121I BI HEPORT

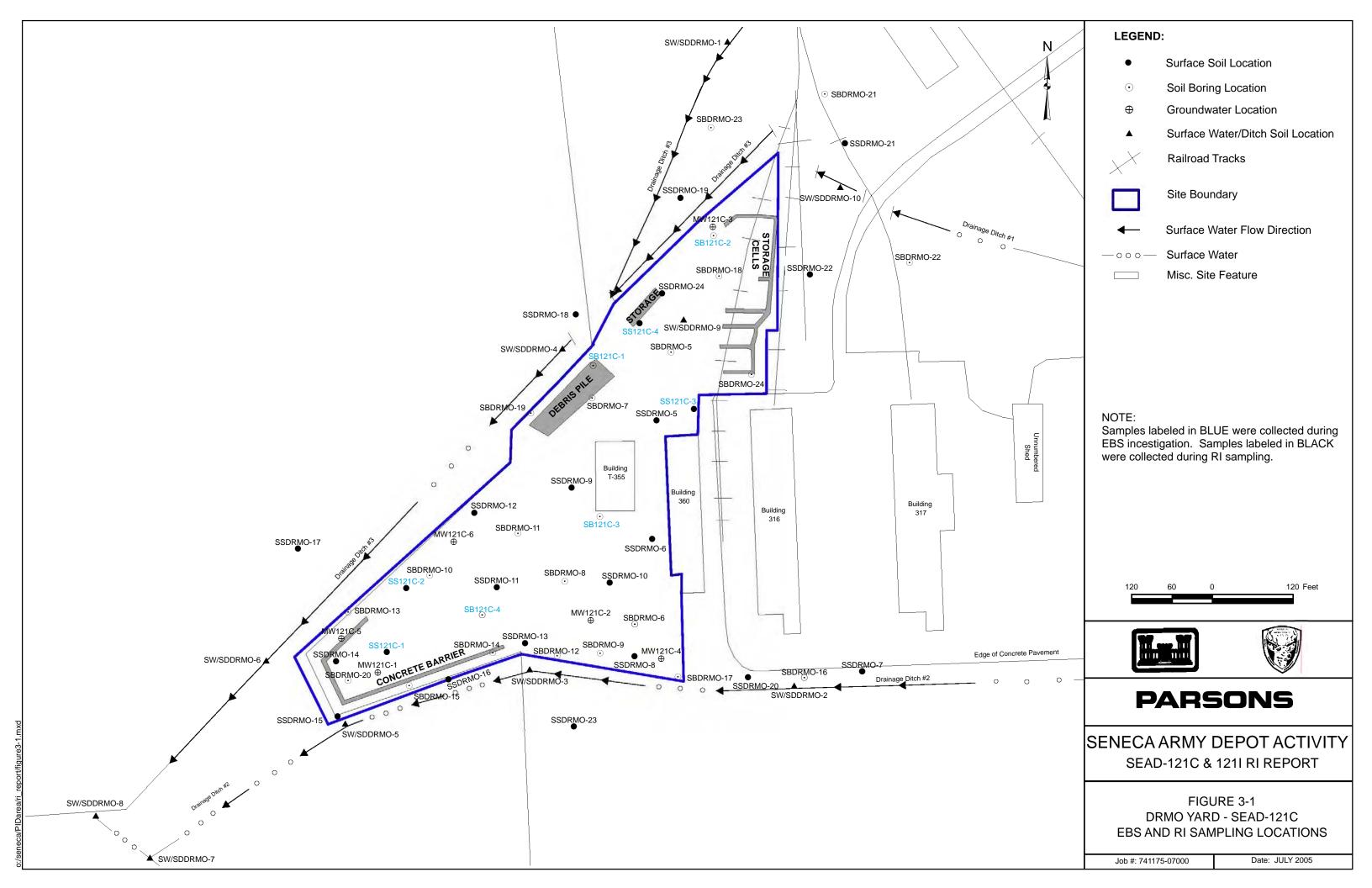
FIGURE 1-10
AVERAGE MONTHLY PRECIPITATION IN
PROXIMITY OF SENECA ARMY DEPOT ACTIVITY

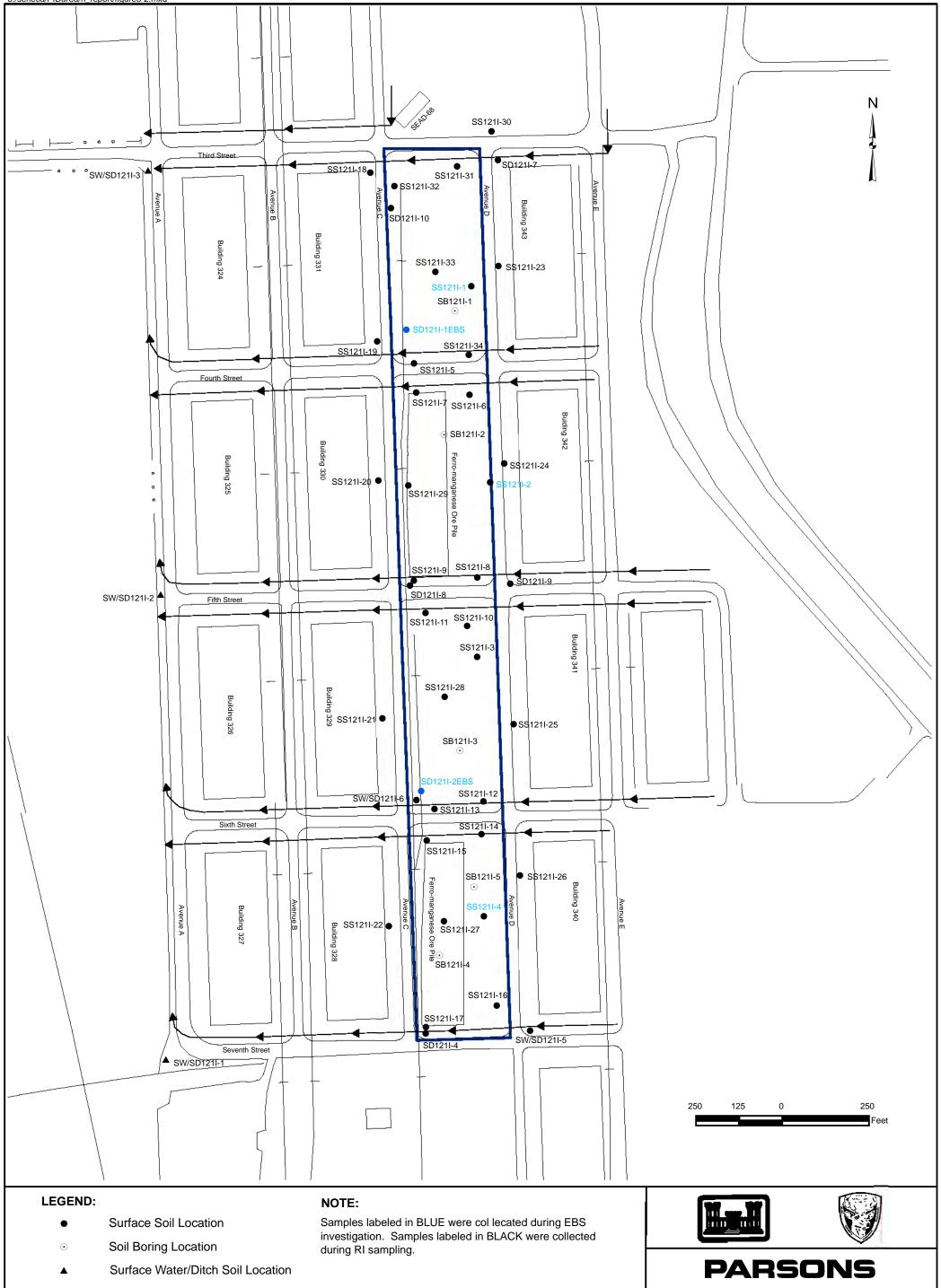
Job #: 741175-07000

Date: JULY 2005

DATA IS FROM THE NORTHEAST REGIONAL CLIMATE CENTER, CORNELL UNIVERSITY, ITHACA, NY AND IS GIVEN A MONTHLY AVERAGE PRECIPITATION AVERAGED OVER THE YEARS 1957 THROUGH 1991.







Ditch Soil Location EBS



Railroad Tracks



Site Boundary

Surface Water

Surface Water Flow Direction

SENECA ARMY DEPOT ACTIVITY
SEAD-121C & 121I RI REPORT

FIGURE 3-2 RUMORED COSMOLINE OIL DISPOSAL AREA - SEAD-121I EBS AND RI SAMPLING LOCATIONS

Job #: 741175-0700

Date: JULY 2005

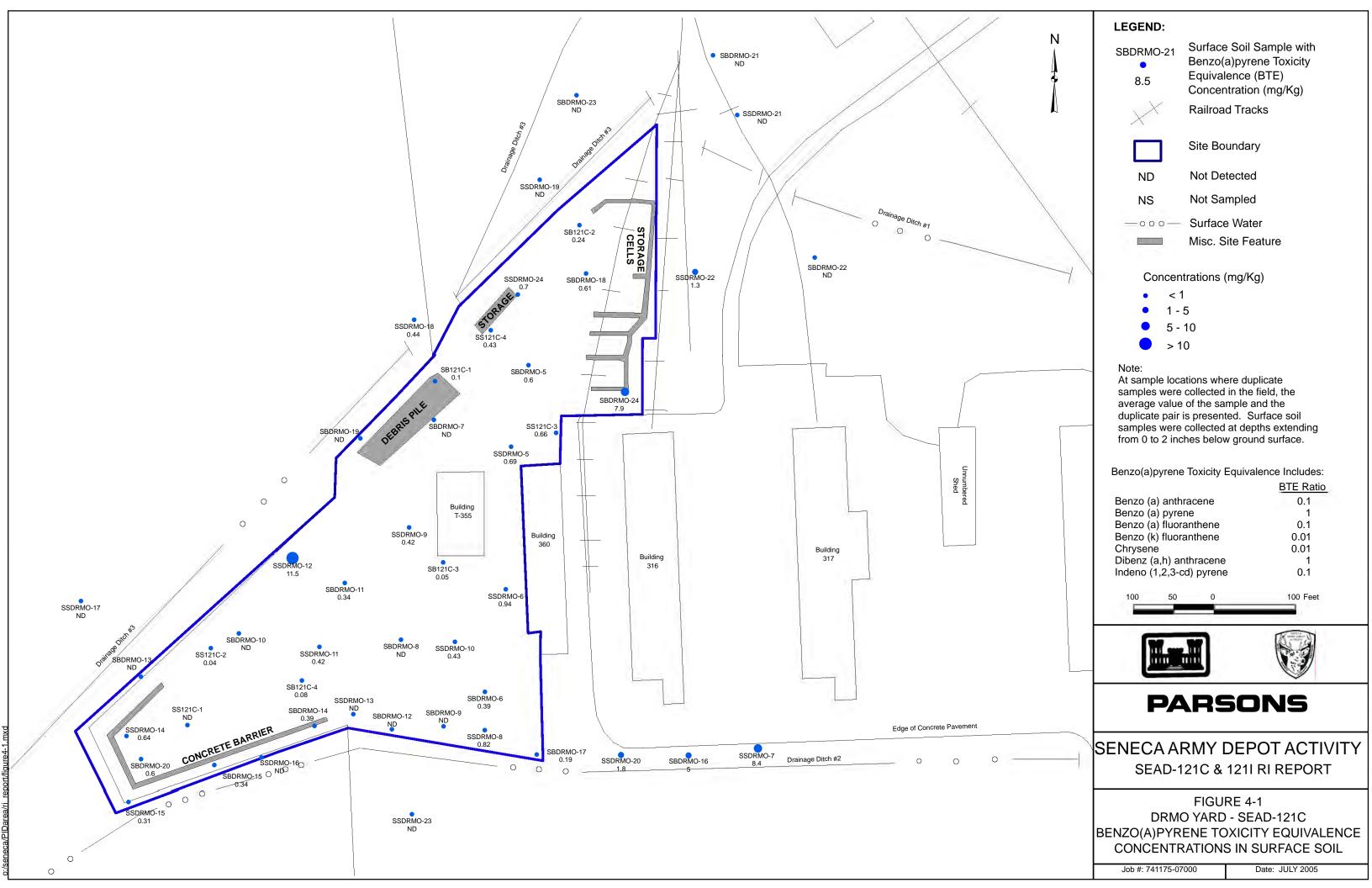
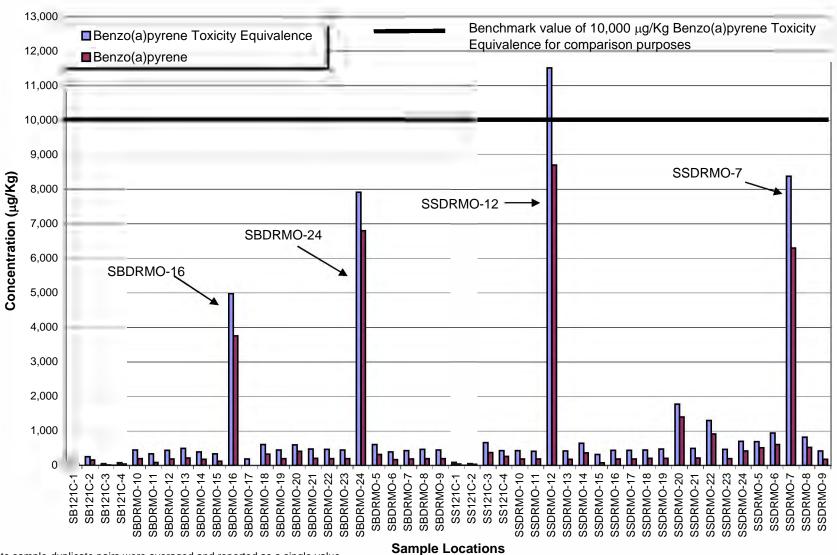


FIGURE 4-2 Benzo(a)pyrene Toxicity Equivalence in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report **Seneca Army Depot Activity** 



Note sample-duplicate pairs were averaged and reported as a single value.

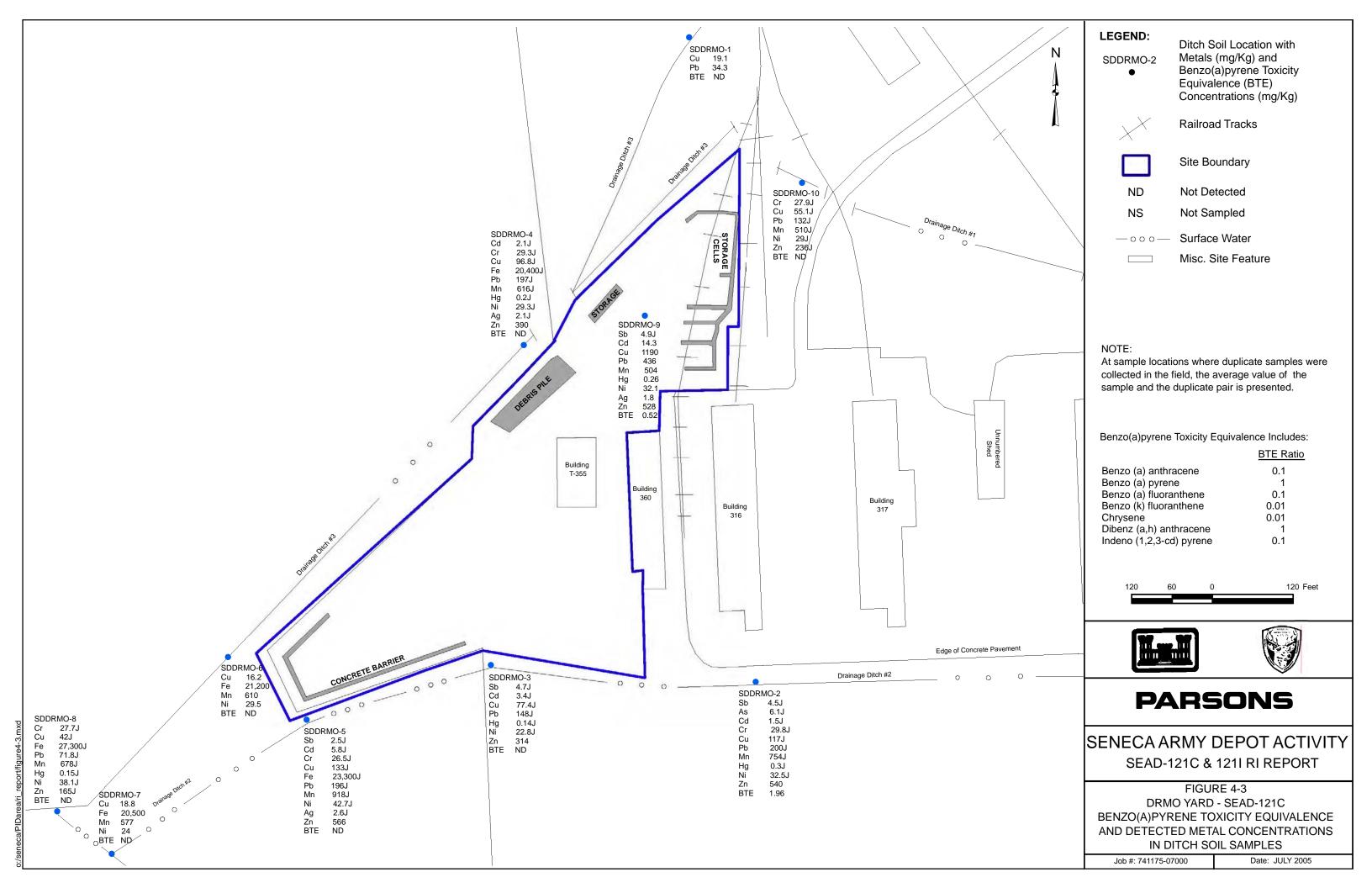
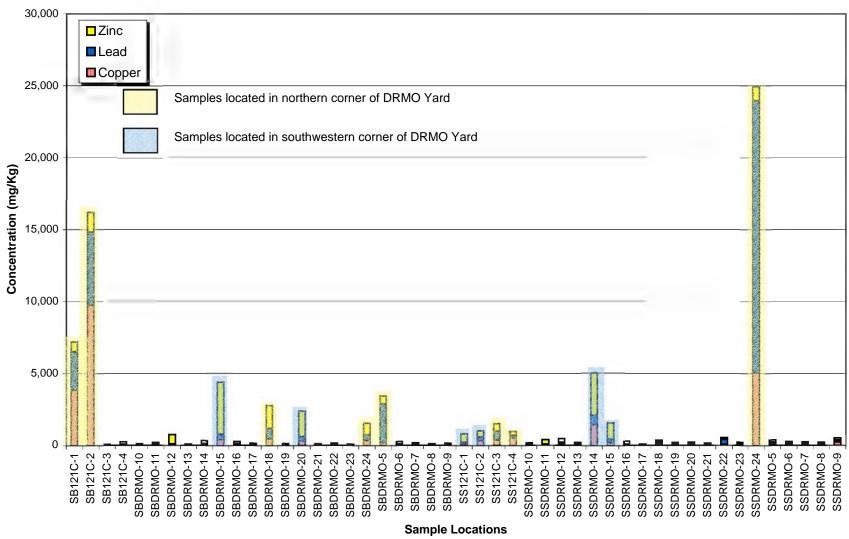
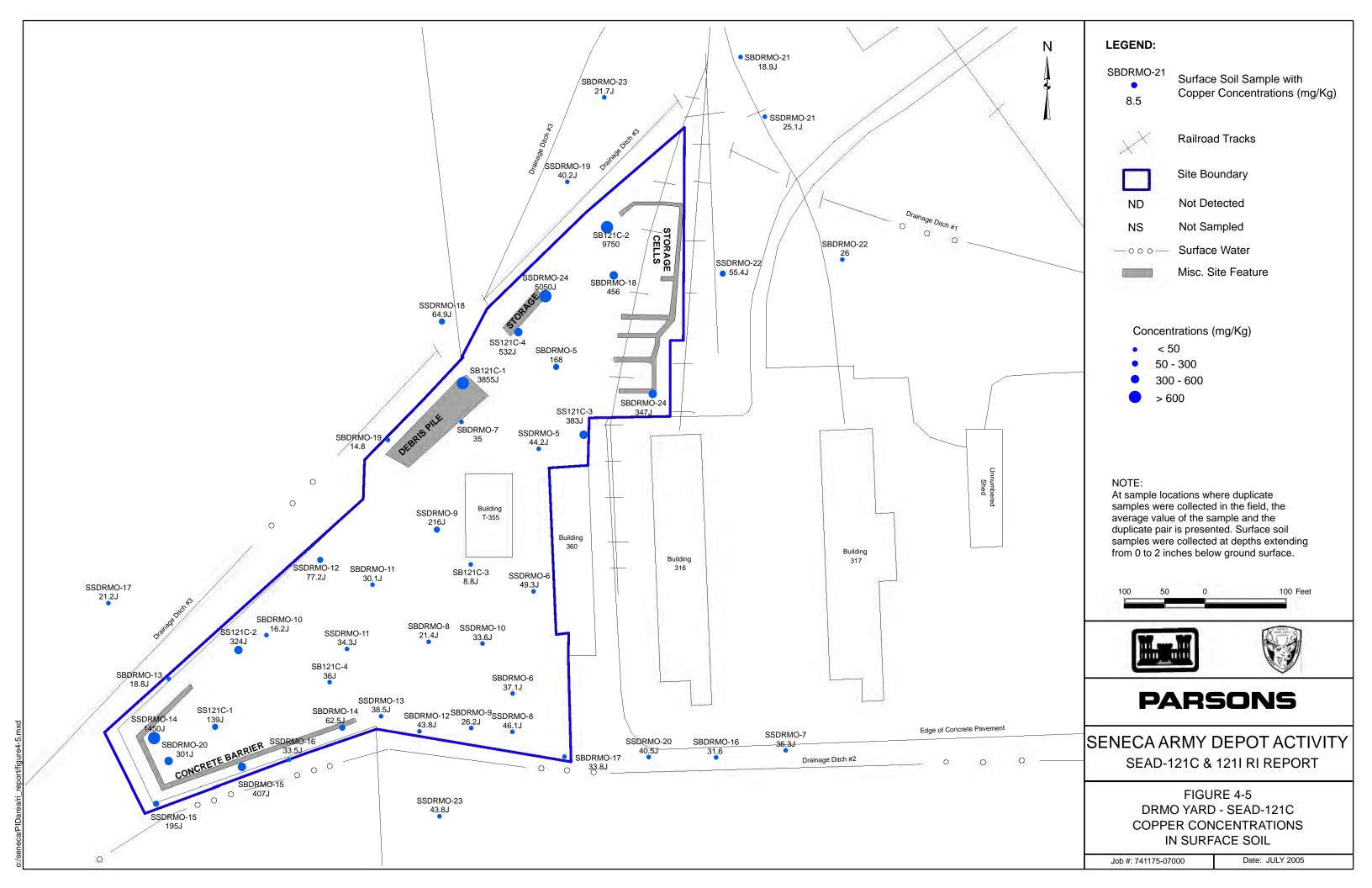


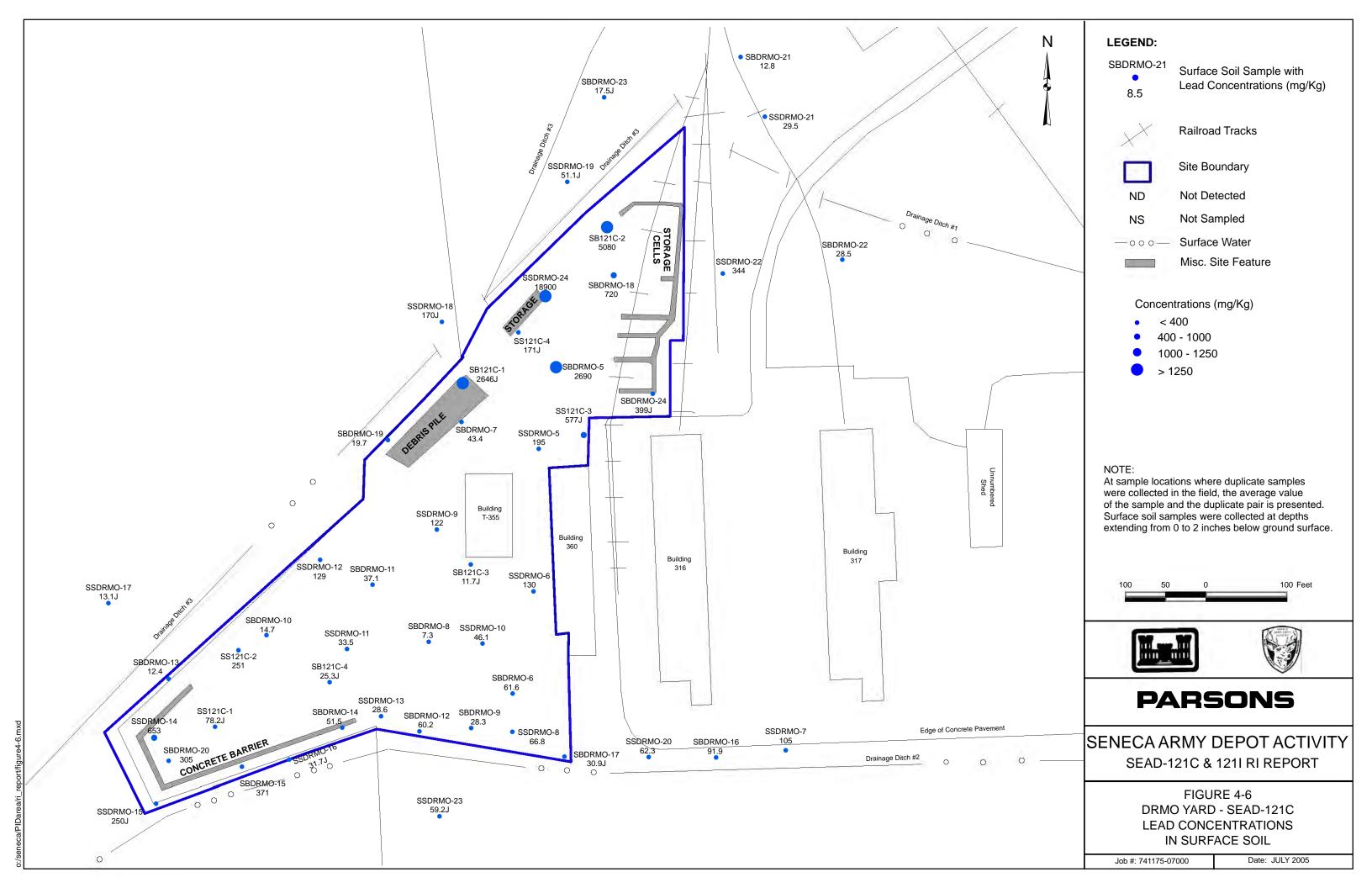
FIGURE 4-4
Distribution of Tier 1 Metals in Surface Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

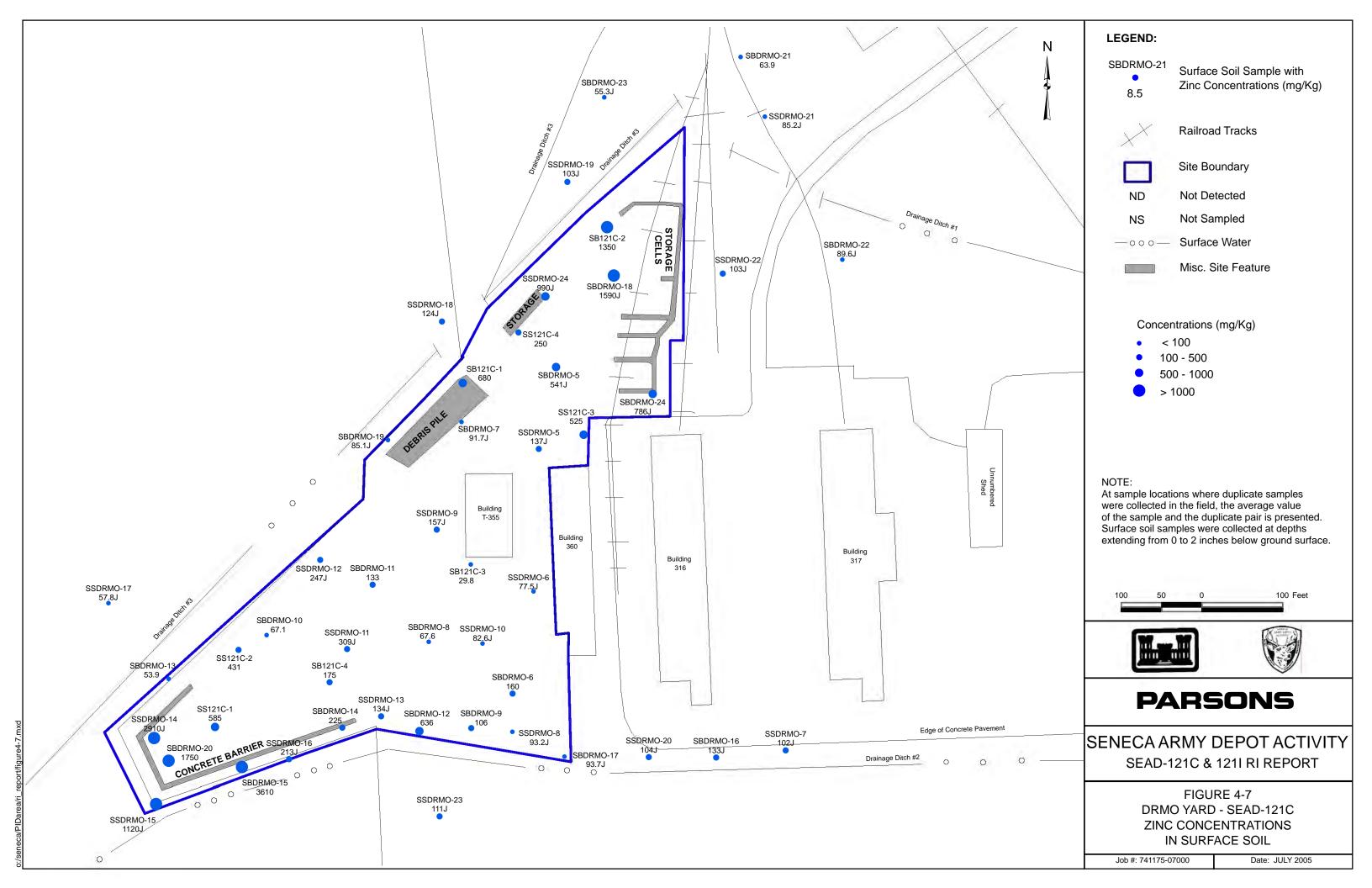


Note sample-duplicate pair were averaged and reported as a single value.

P:\PIT\Projects\SENECA\PID Area\Report\Draft Final\Figures\drmo\_ss\_metals-rev.xls.xls\ZnPbCu







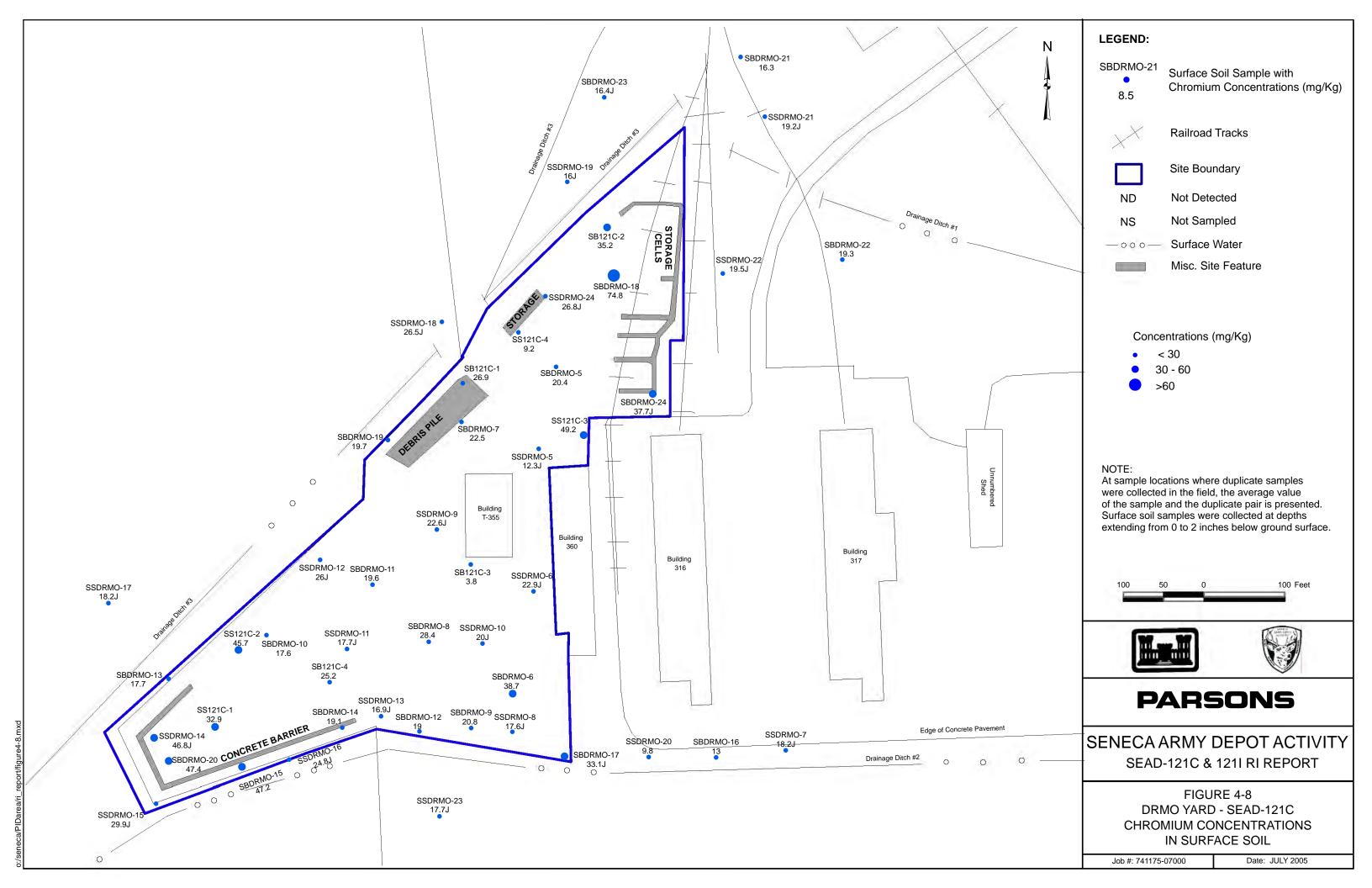
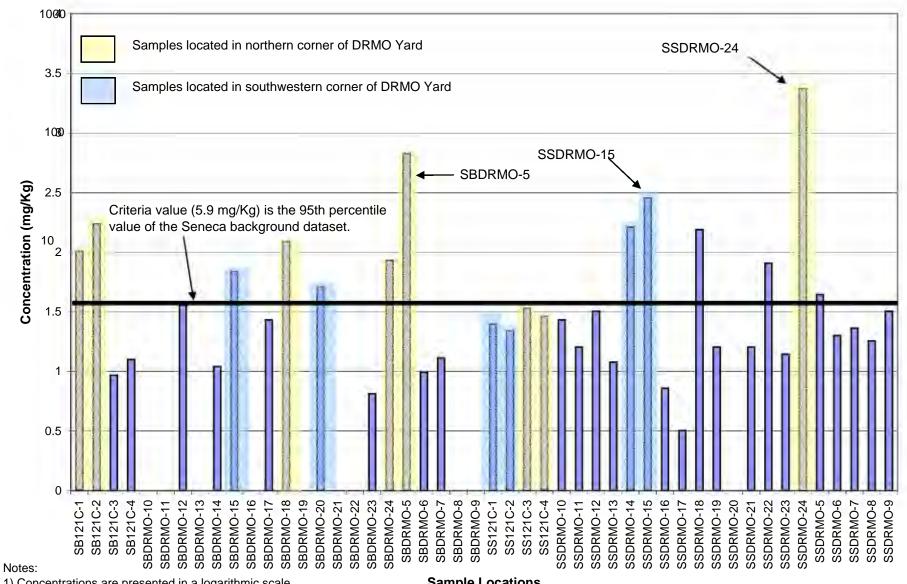


FIGURE 4-9 Distribution of Antimony in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report **Seneca Army Depot Activity** 

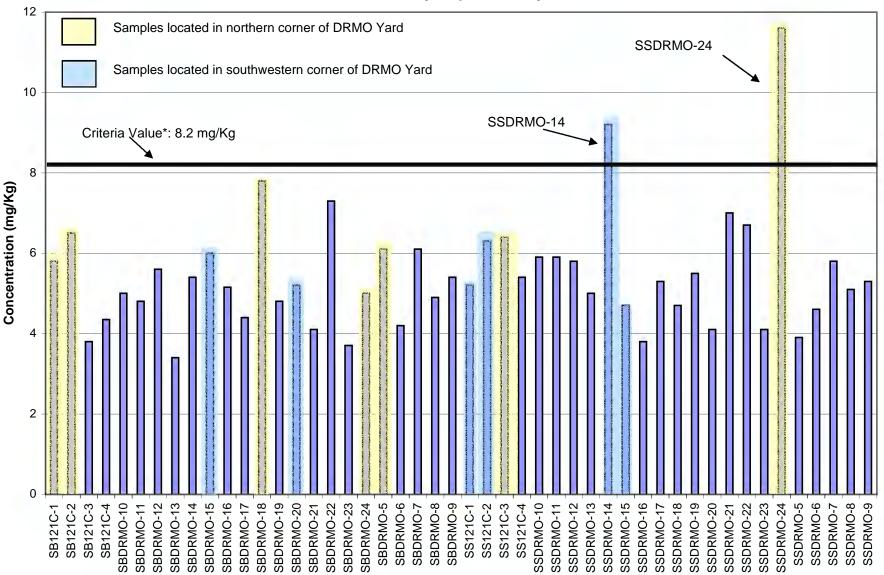


1) Concentrations are presented in a logarithmic scale.

Sample Locations

2) Sample-duplicate pairs were averaged and reported as a single value.

FIGURE 4-10
Distribution of Arsenic in Surface Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



\*Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

**Sample Locations** 

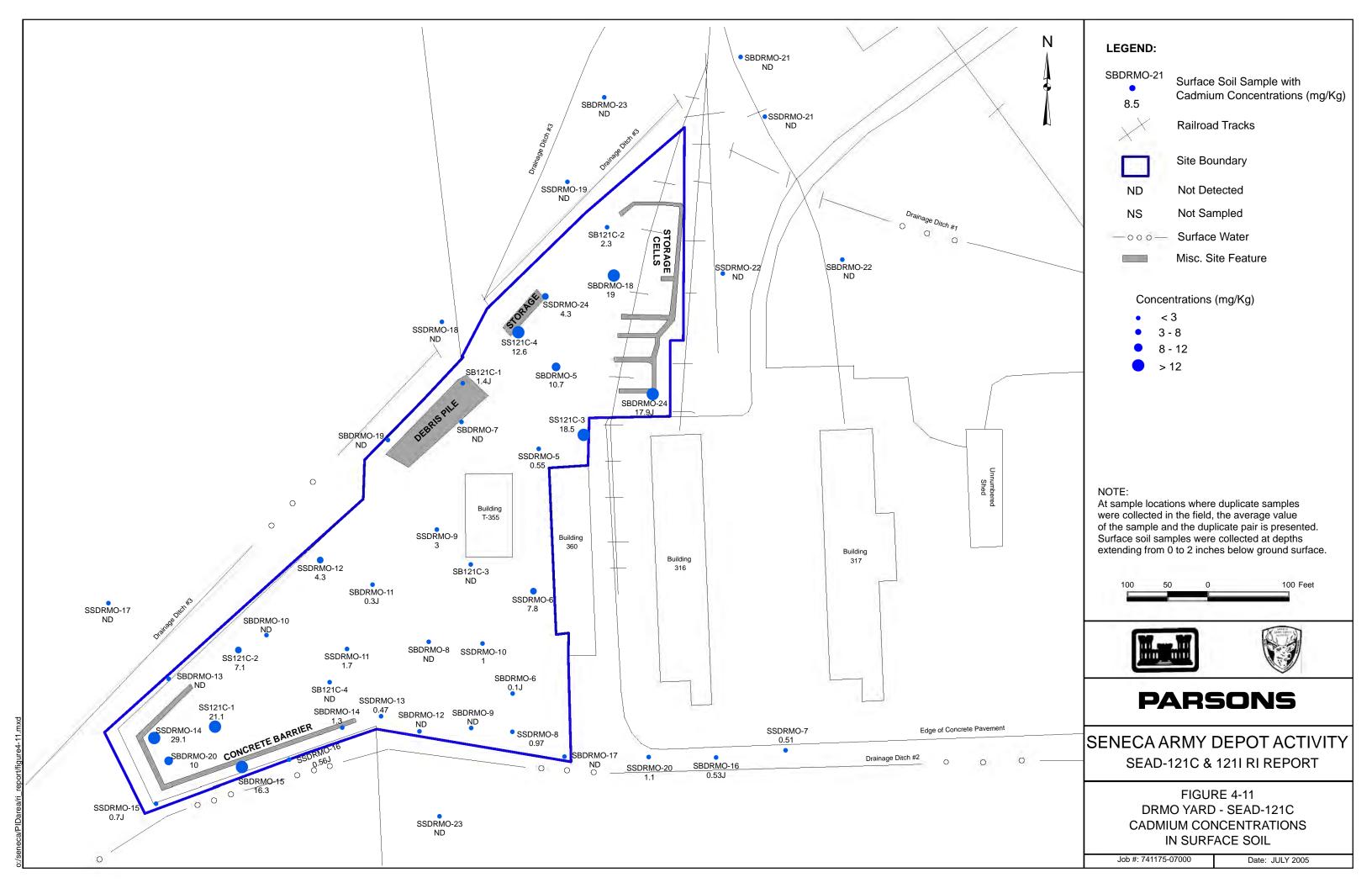
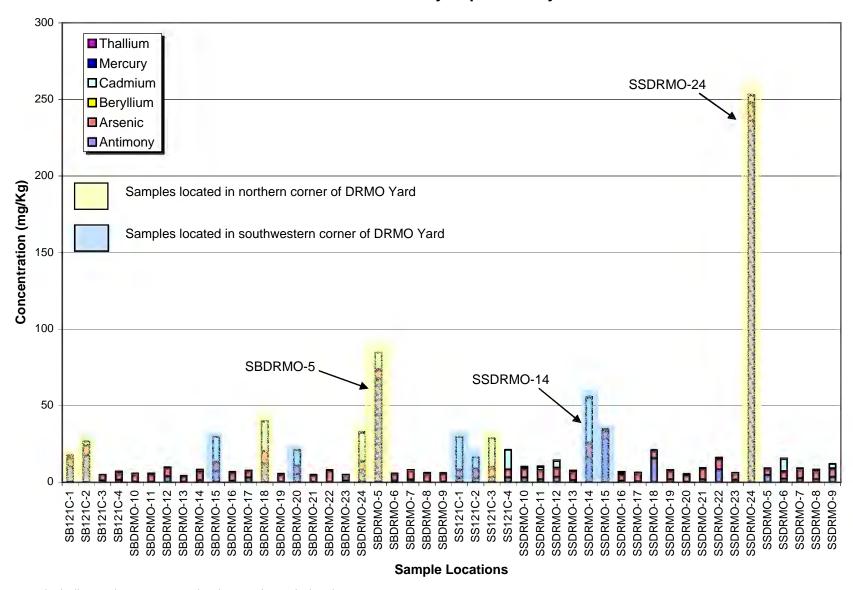


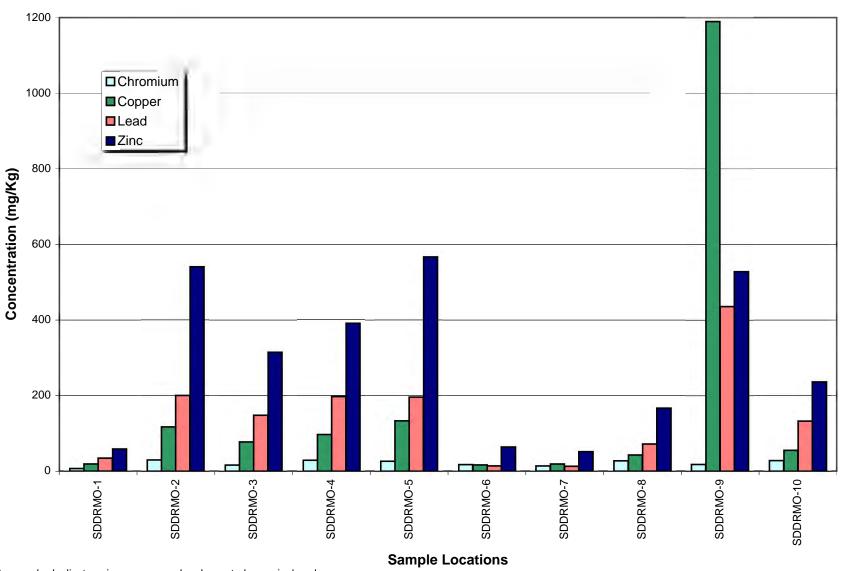
FIGURE 4-12
Distribution of Tier 2 Metals in Surface Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



Note sample-duplicate pairs were averaged and reported as a single value.

P:\PIT\Projects\SENECA\PID Area\Report\Draft Final\Figures\drmo\_ss\_metals-rev.xls.xls\tier 2

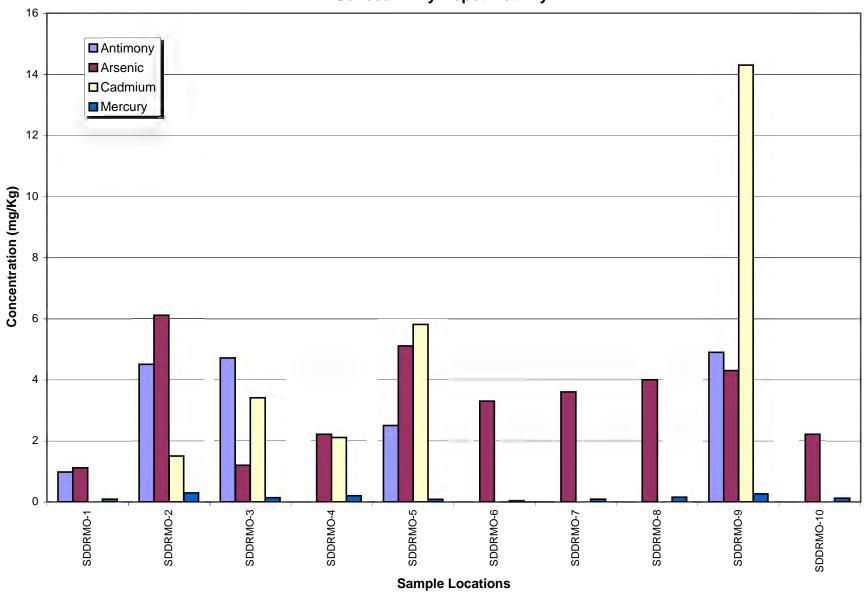
FIGURE 4-13
Distribution of Tier 1 Metals in Ditch Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



Note sample-duplicate pair was averaged and reported as a single value.

P:\PIT\Projects\SENECA\PID Area\Report\Draft Final\Figures\drmo\_ditch\_metals.xls.xls\tier 1

FIGURE 4-14
Distribution of Tier 2 Metals in Ditch Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



Note sample-duplicate pair was averaged and reported as a single value.

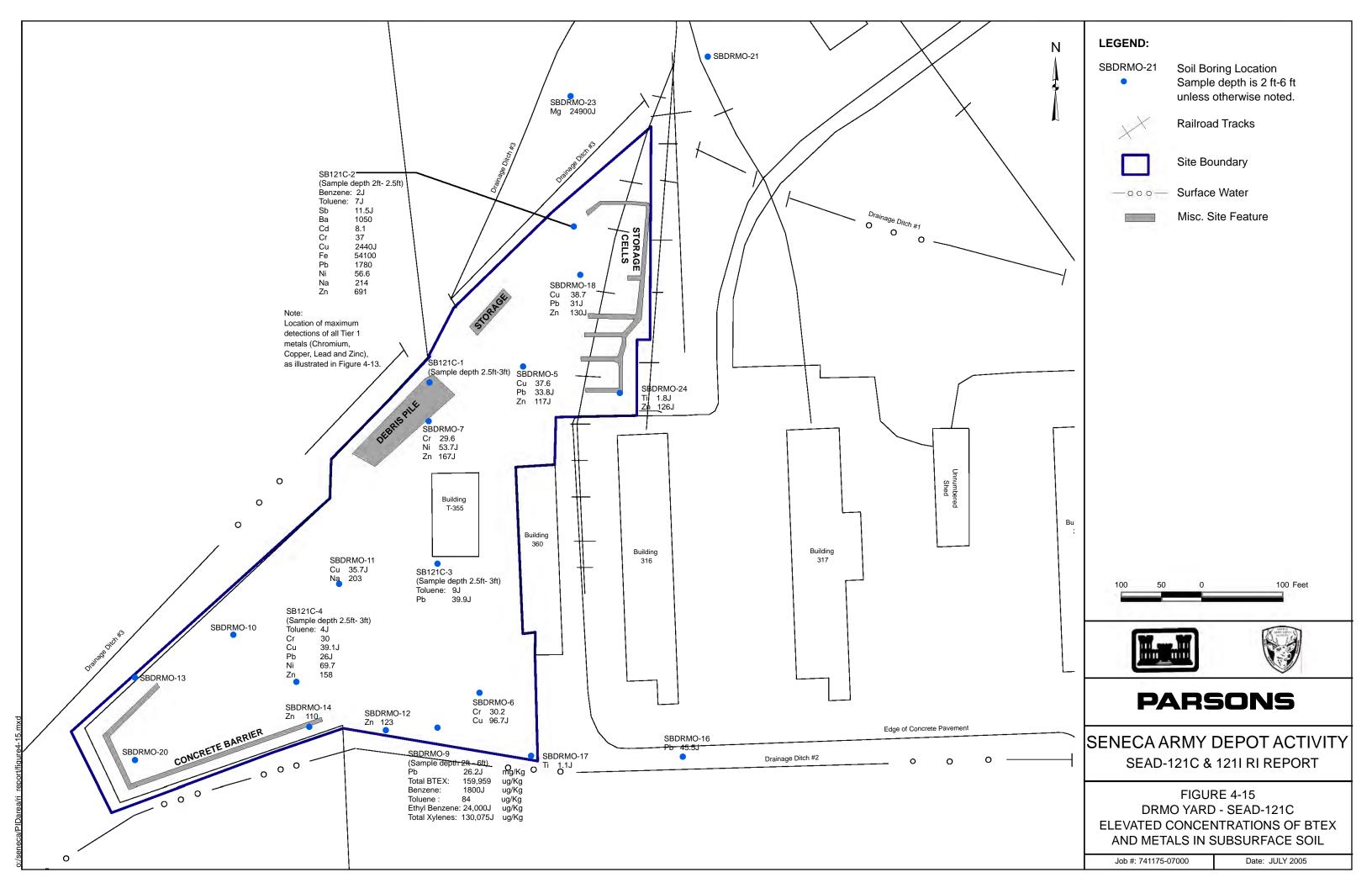
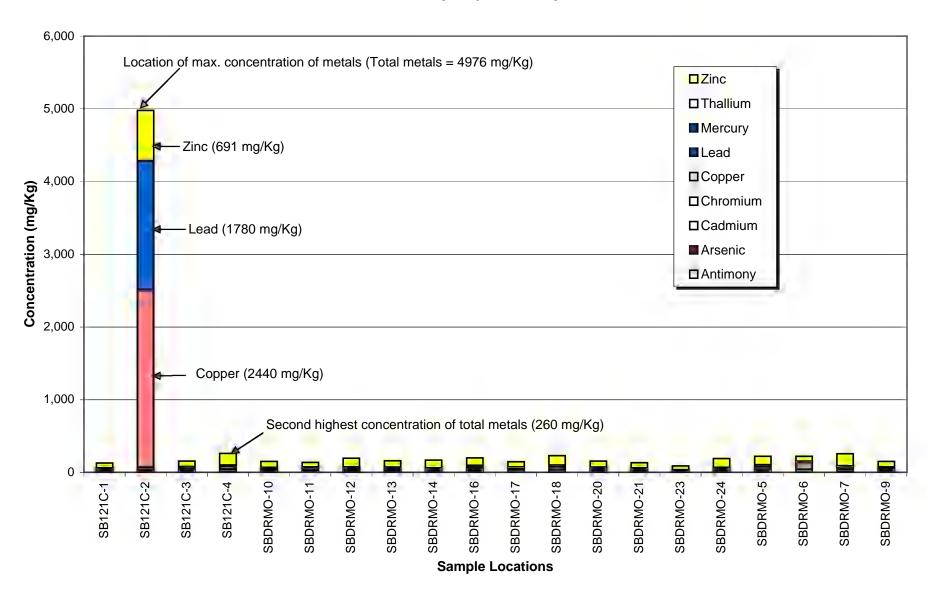
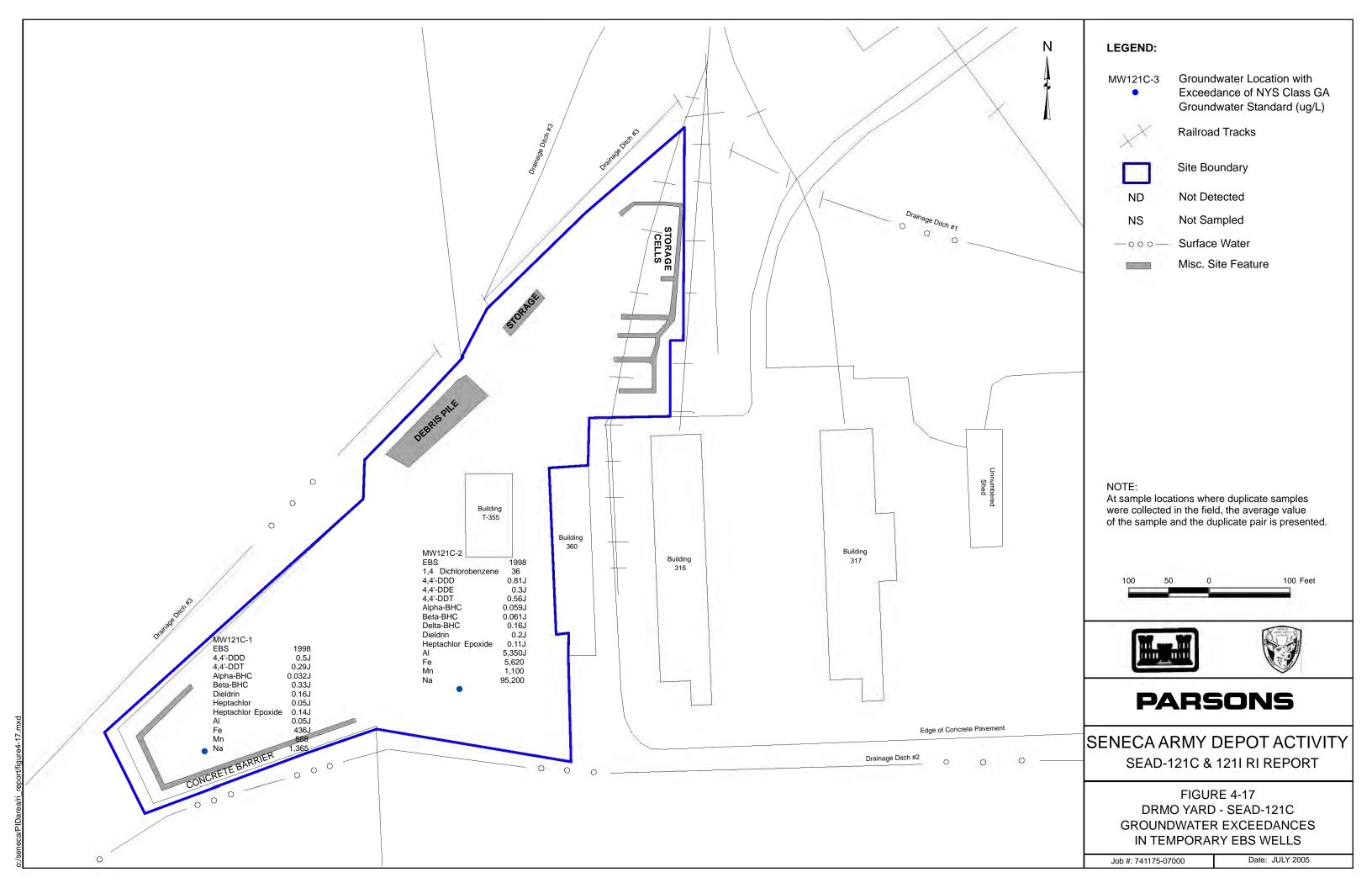
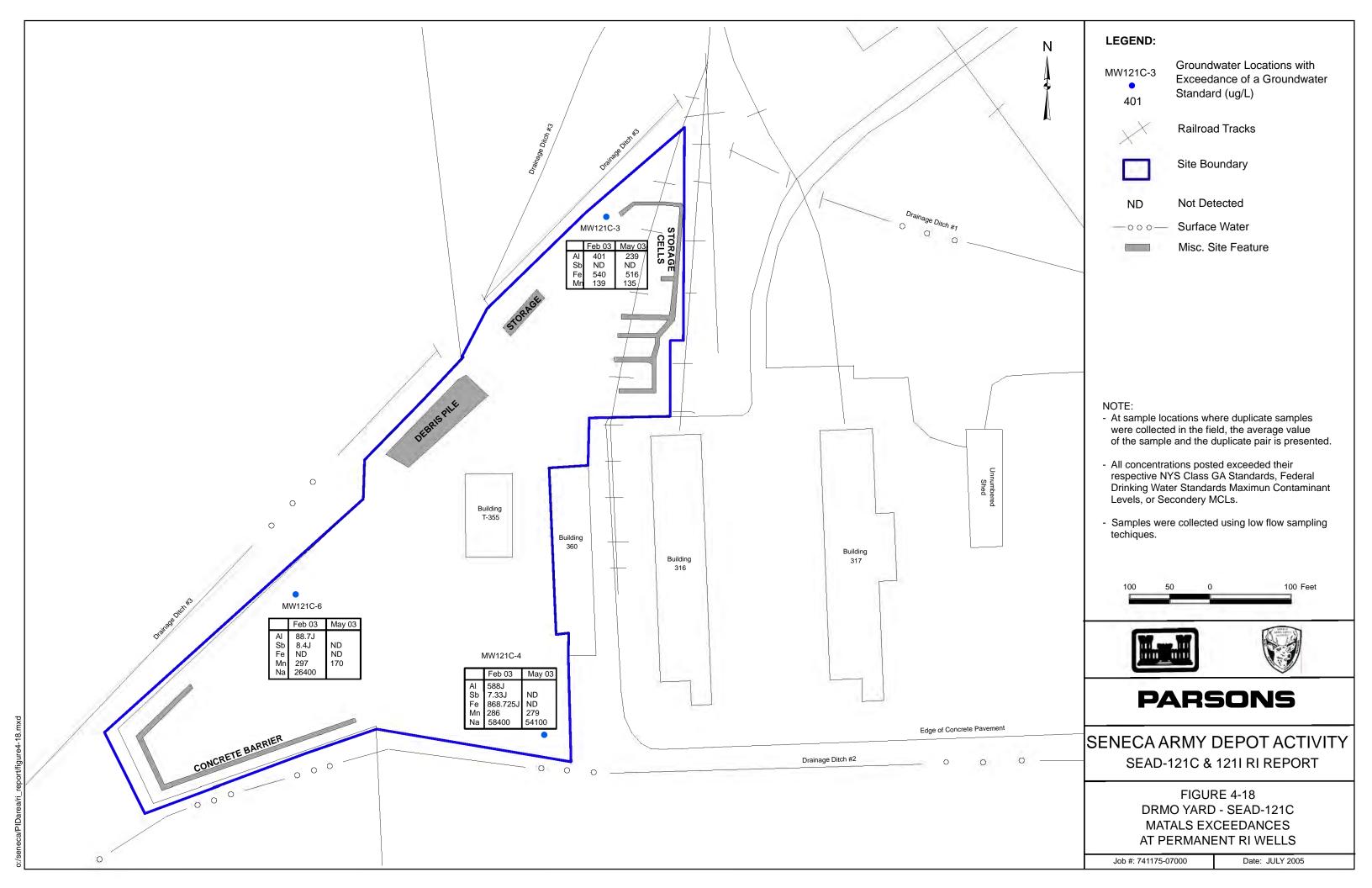
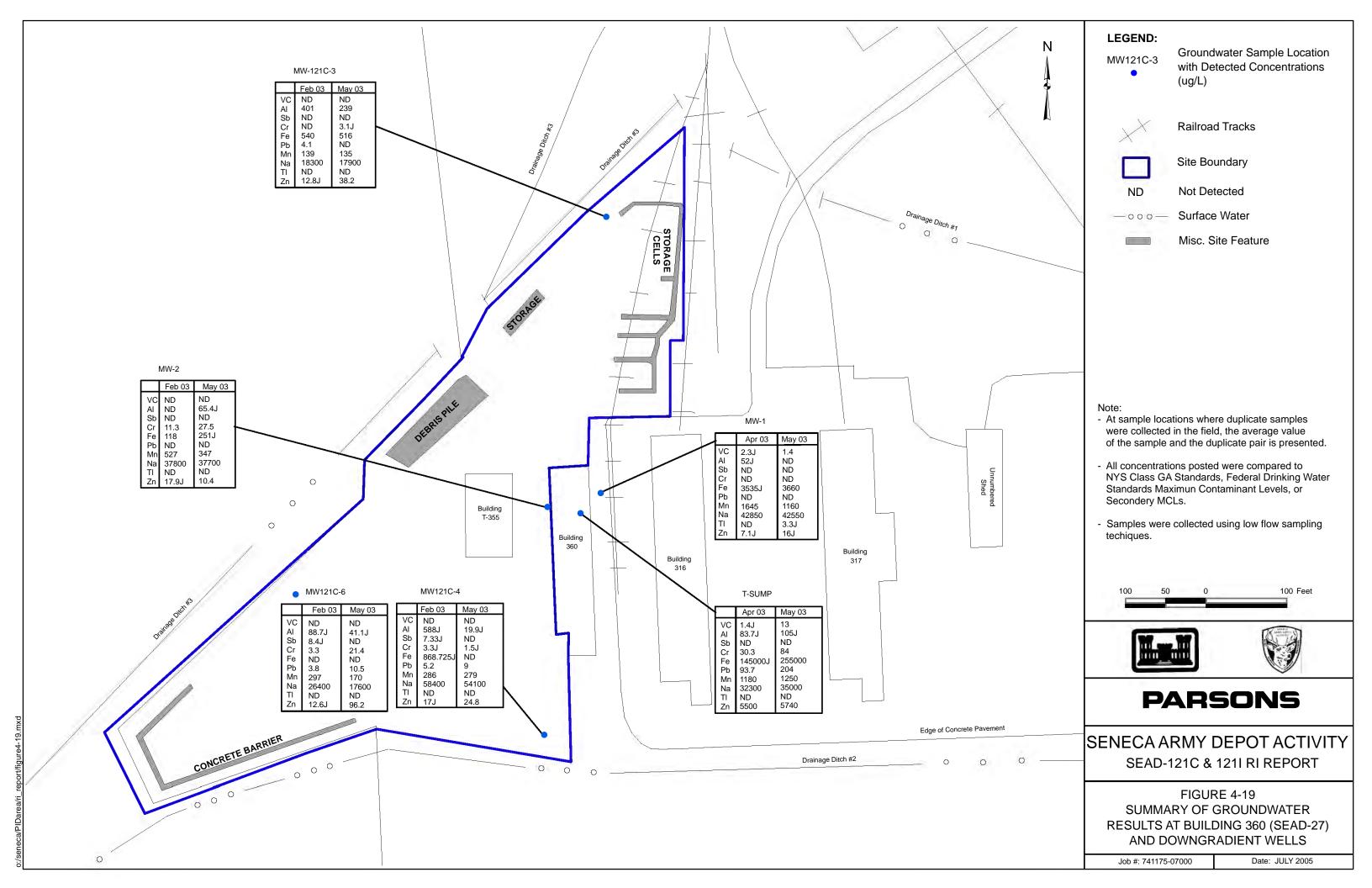


FIGURE 4-16
Distribution of Metals in Subsurface Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity









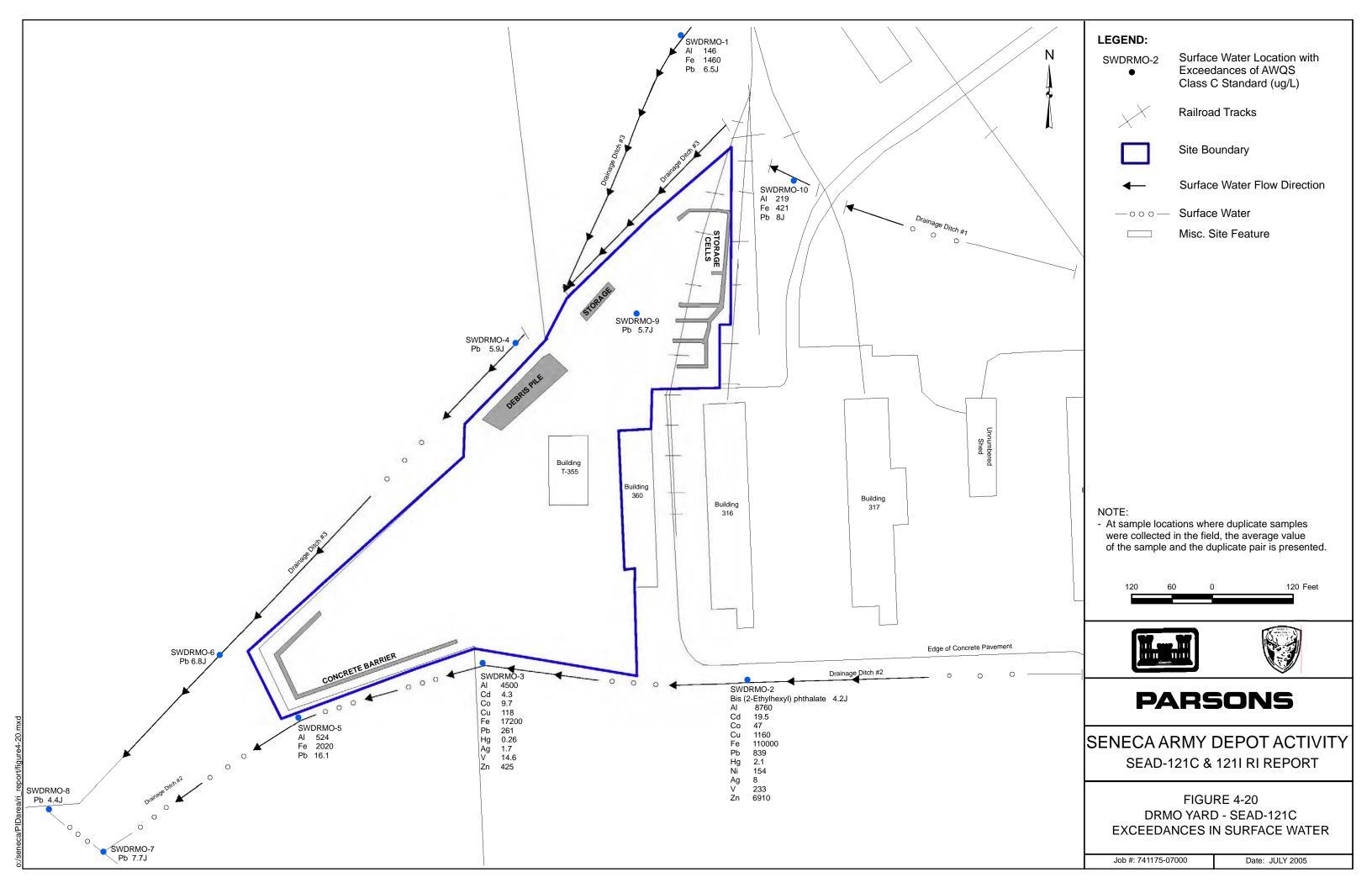
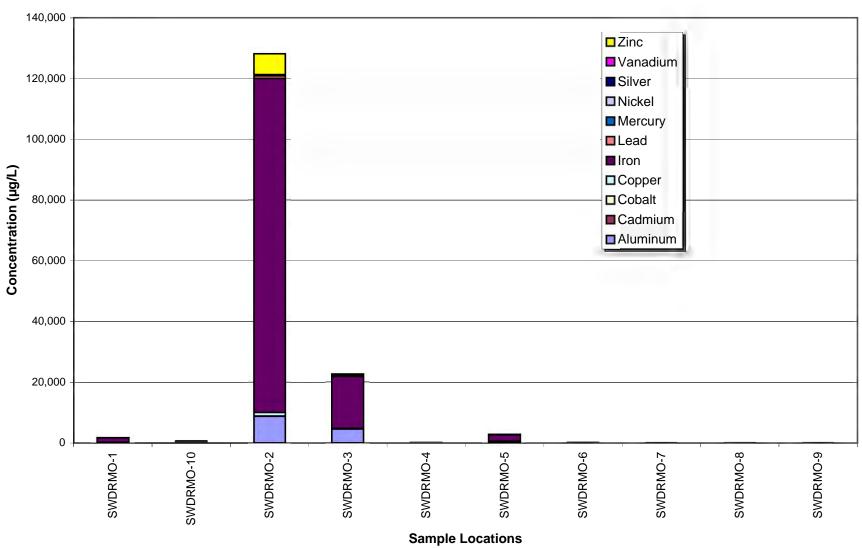


FIGURE 4-21
Distribution of Metals in Surface Water at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



Note sample-duplicate pair was averaged and reported as a single value.

P:\PIT\Projects\SENECA\PID Area\Report\Draft Final\Figures\drmo\_sw\_metals.xls.xls\graph

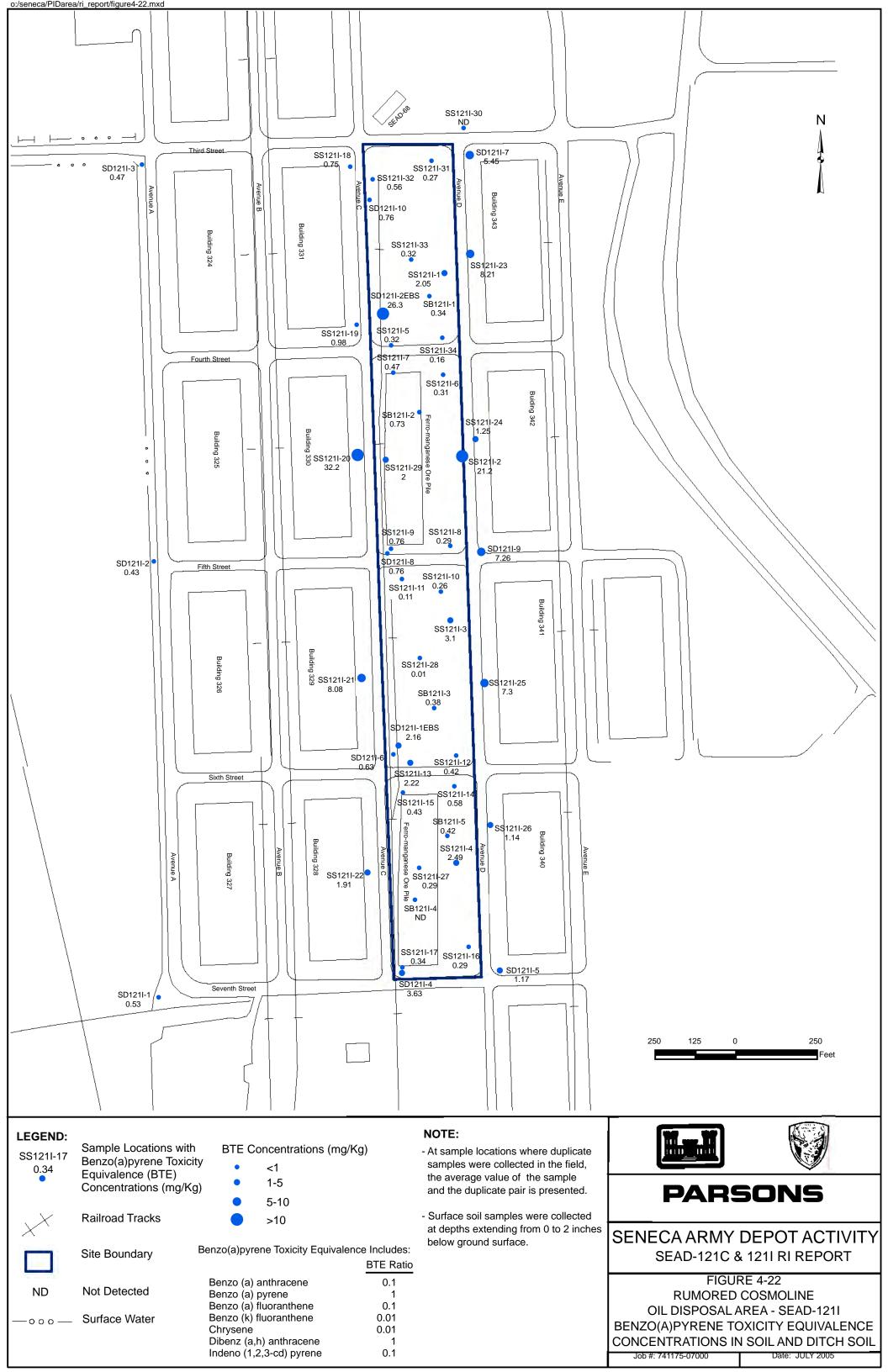
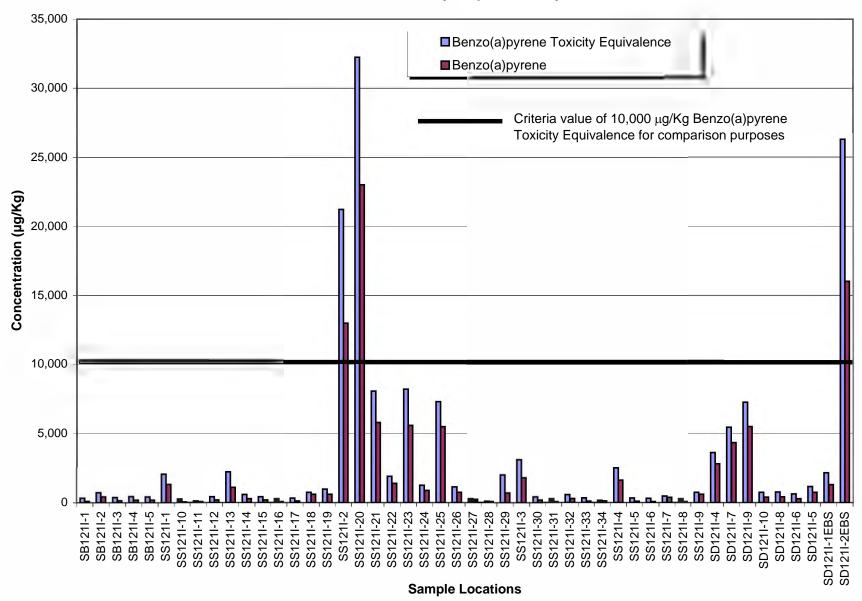
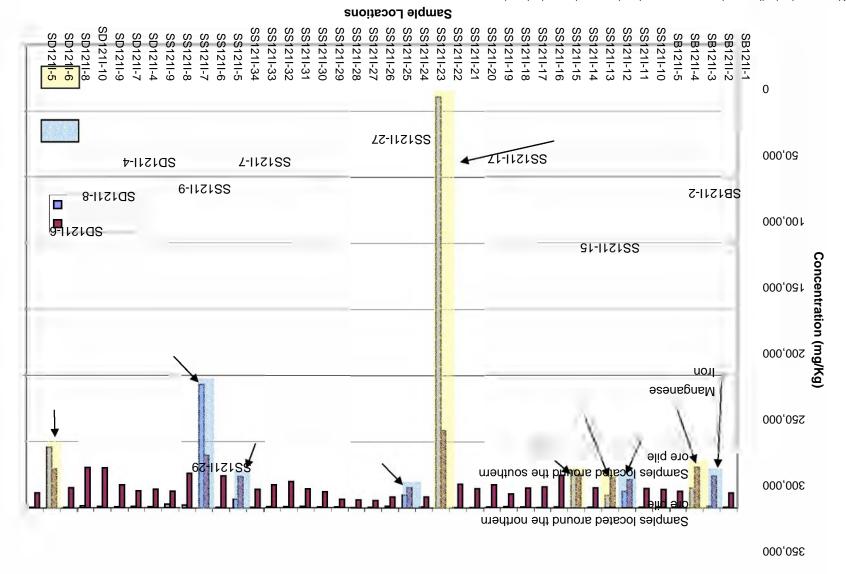


FIGURE 4-23
Benzo(a)pyrene Toxicity Equivalence in Soils at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



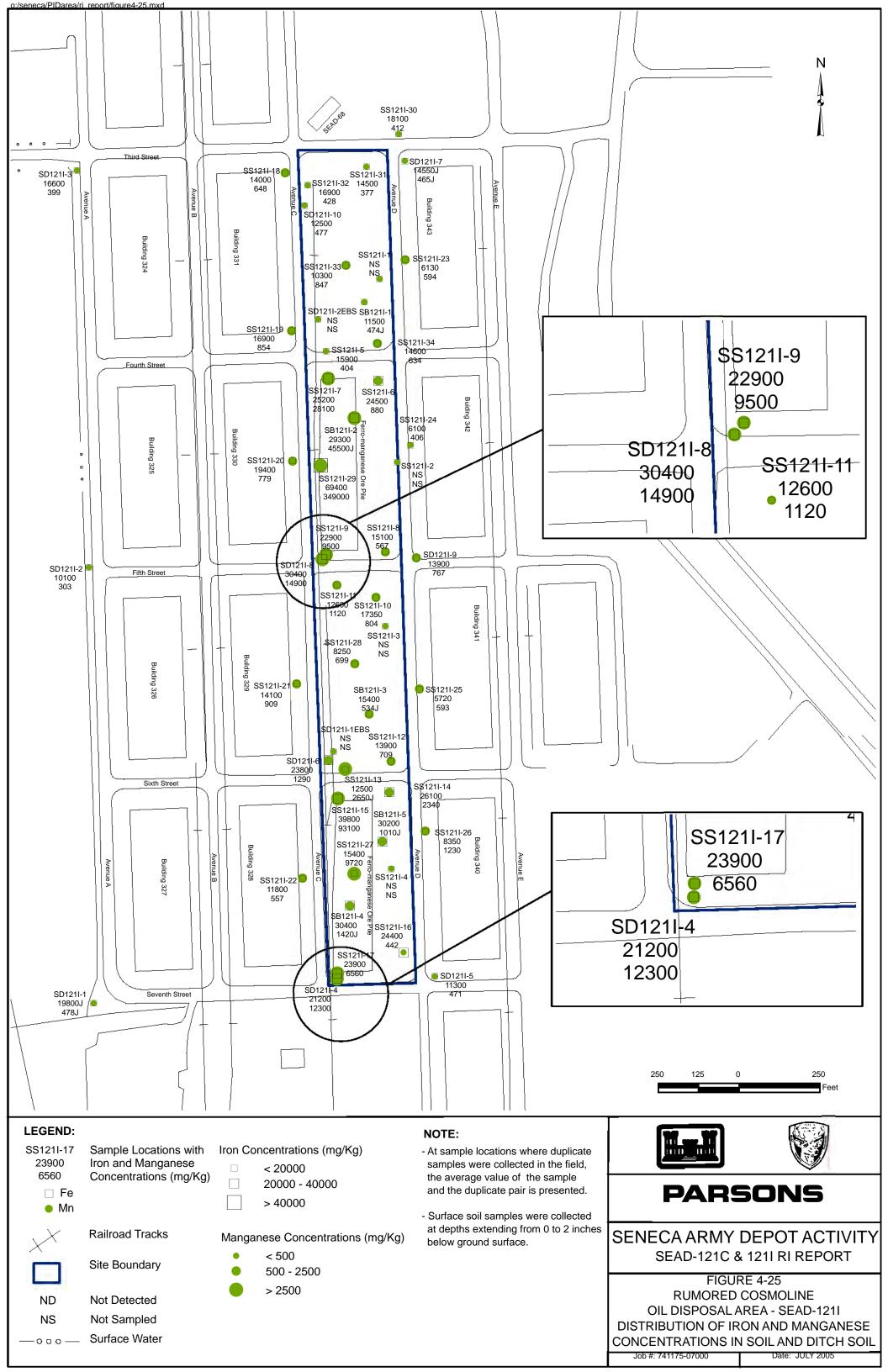
Note sample-duplicate pairs were averaged and reported as a single value.

# FIGURE 4-24 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

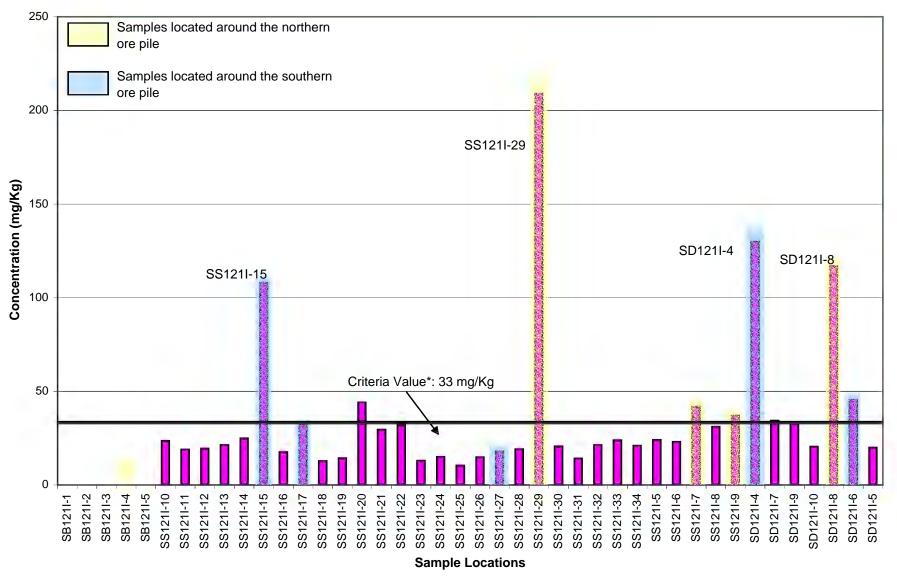


Note sample-duplicate pairs were averaged and reported as a single value.

P:/PIT/Projects/SENECA/PID Area/Report/Draft Final/Figures/1211\_ss+ditch\_metals-rev.xls.xls/MnFe



## FIGURE 4-26 Copper in Soils at SEAD-121I SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity



<sup>\*</sup> Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

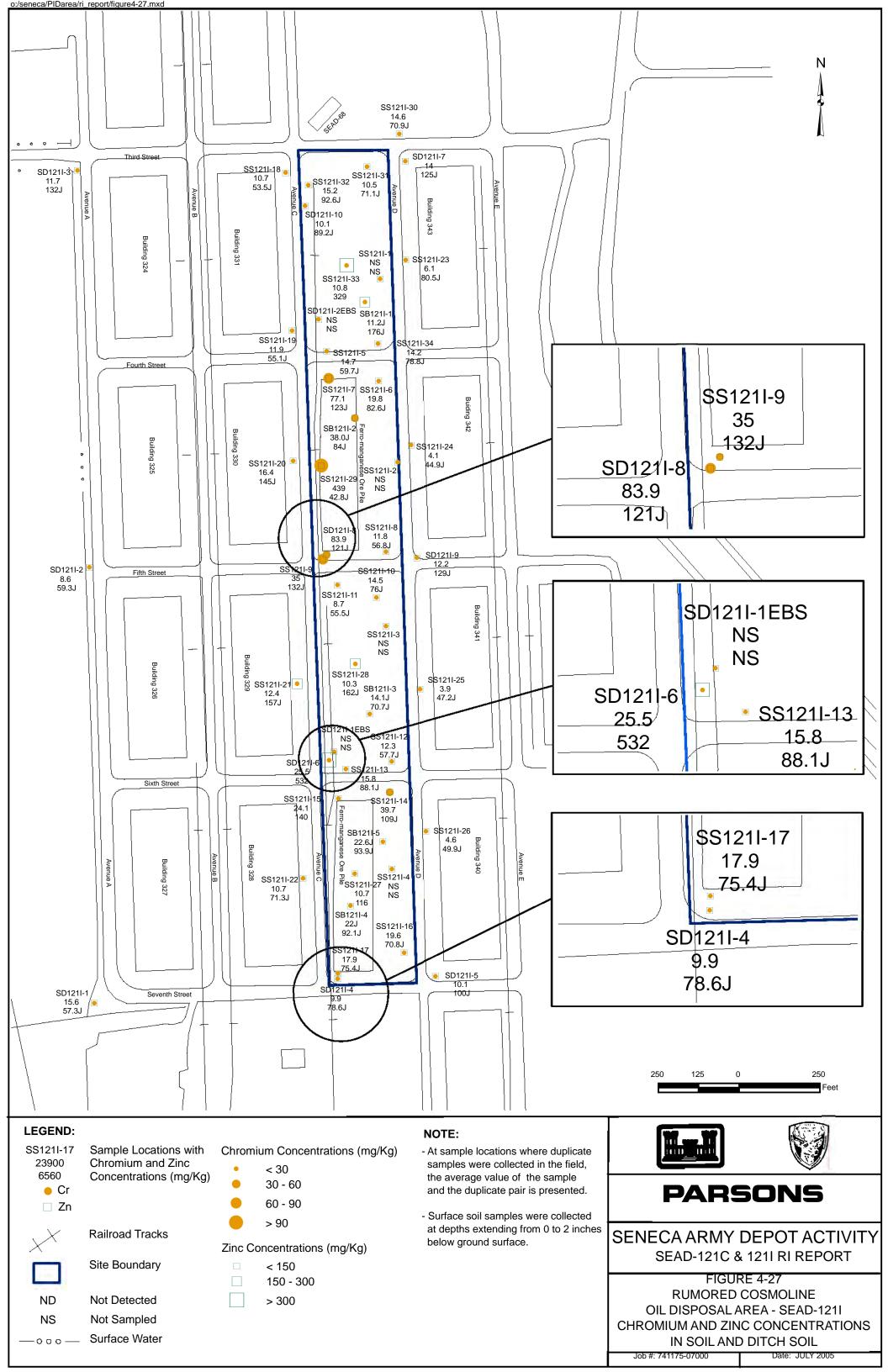
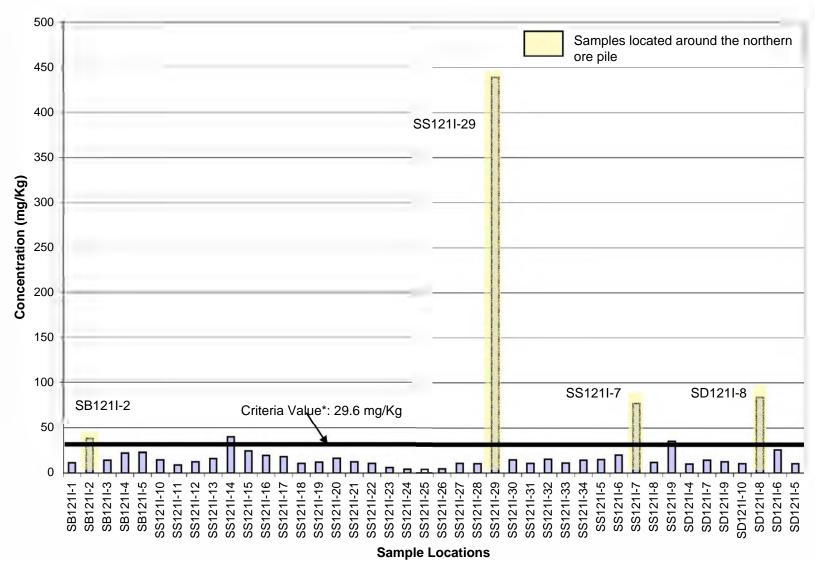
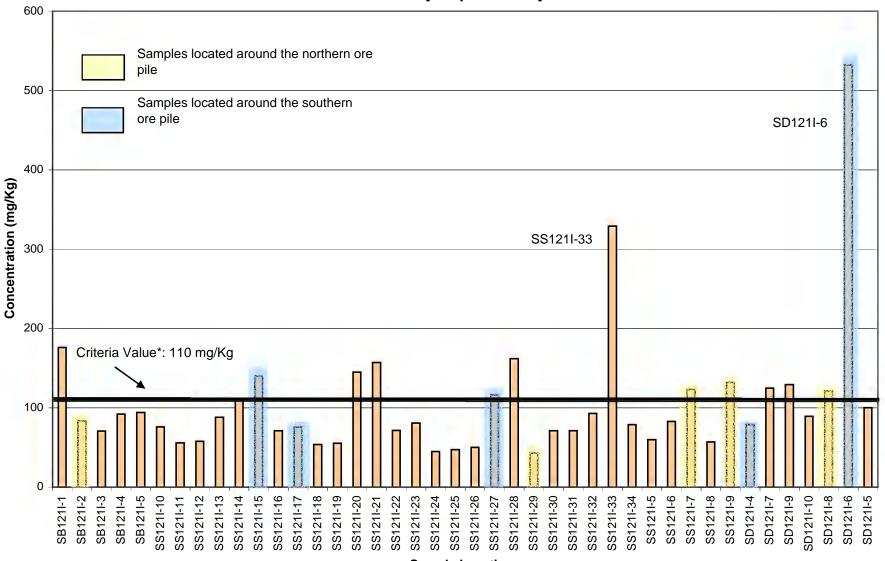


FIGURE 4-28
Chromium in Soils at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



\*Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

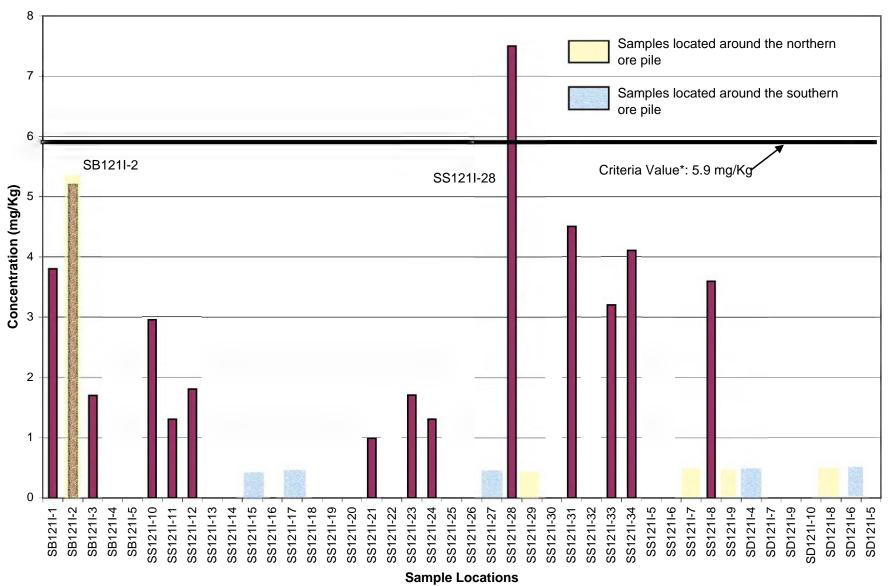
## FIGURE 4-29 Zinc in Soils at SEAD-121I SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity



\*Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

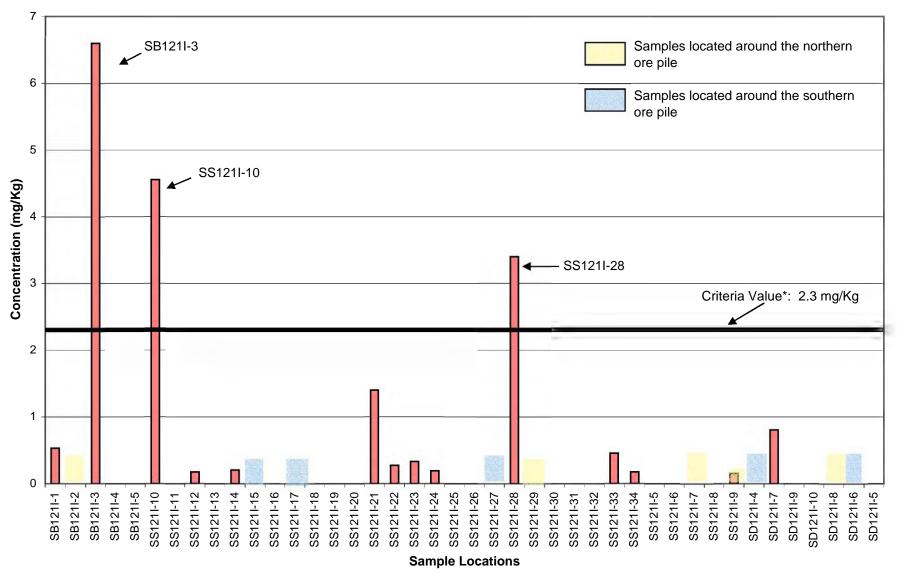
Sample Locations

FIGURE 4-30
Antimony in Soils at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



\*Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

FIGURE 4-31
Cadmium in Soils at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



<sup>\*</sup>Criteria value is the 95th percentile of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

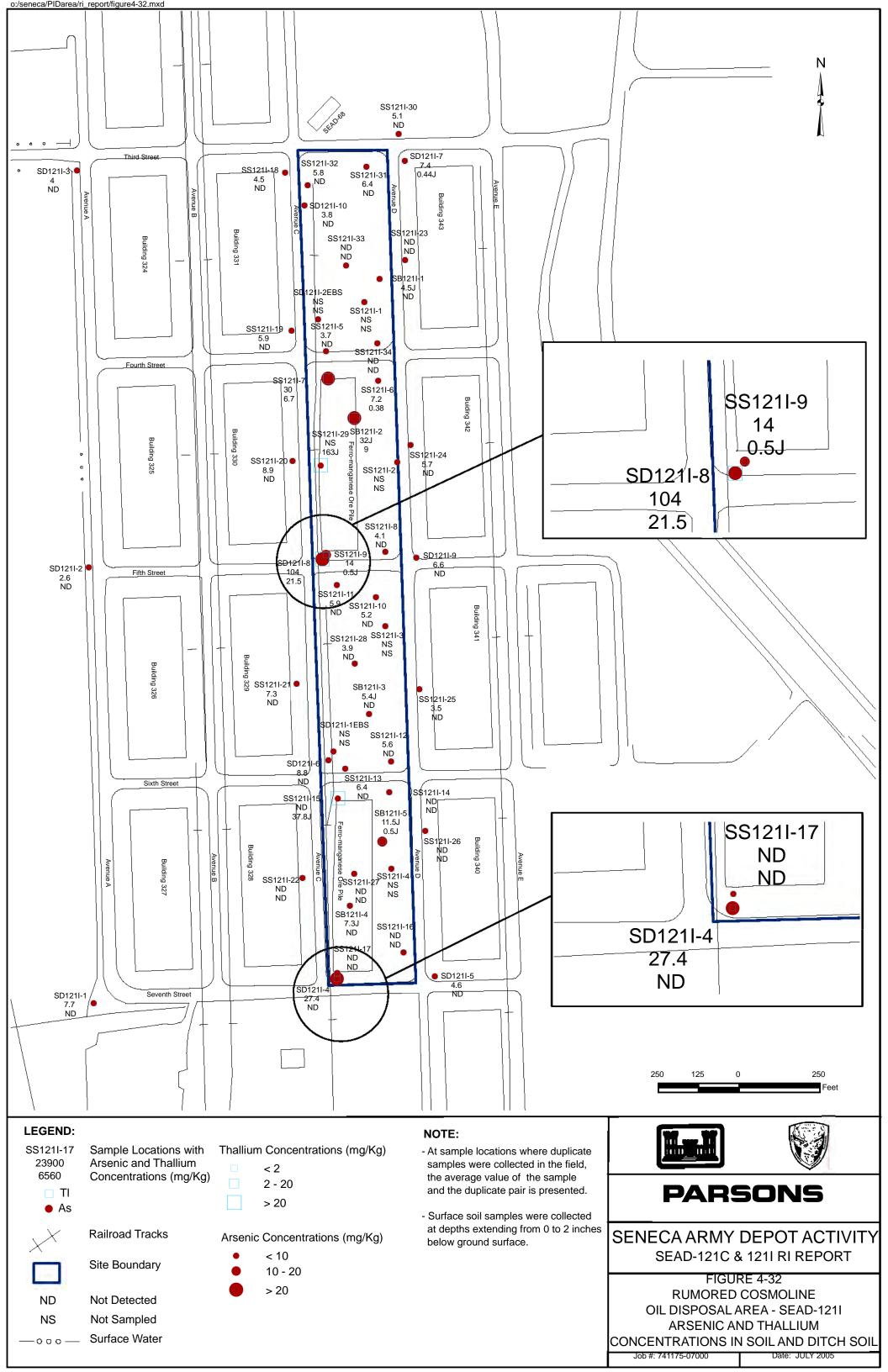
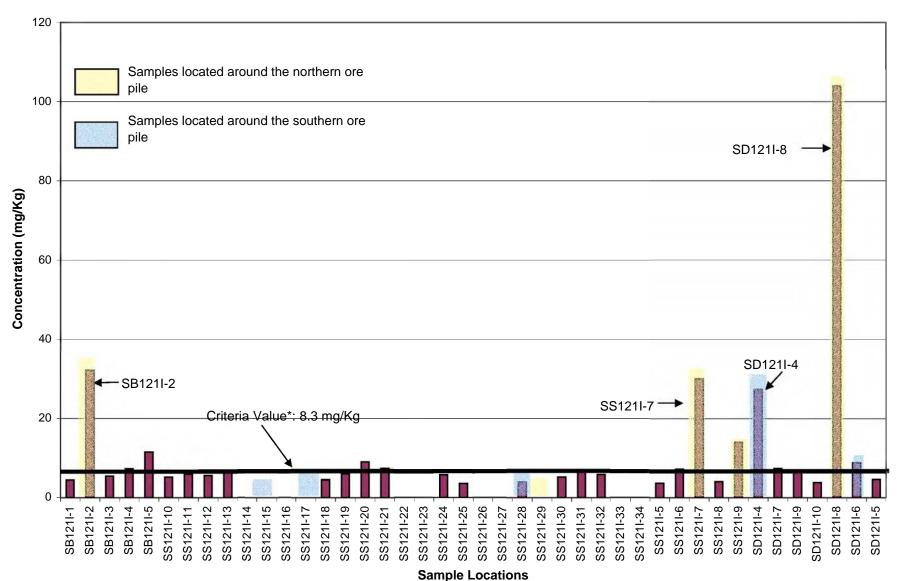
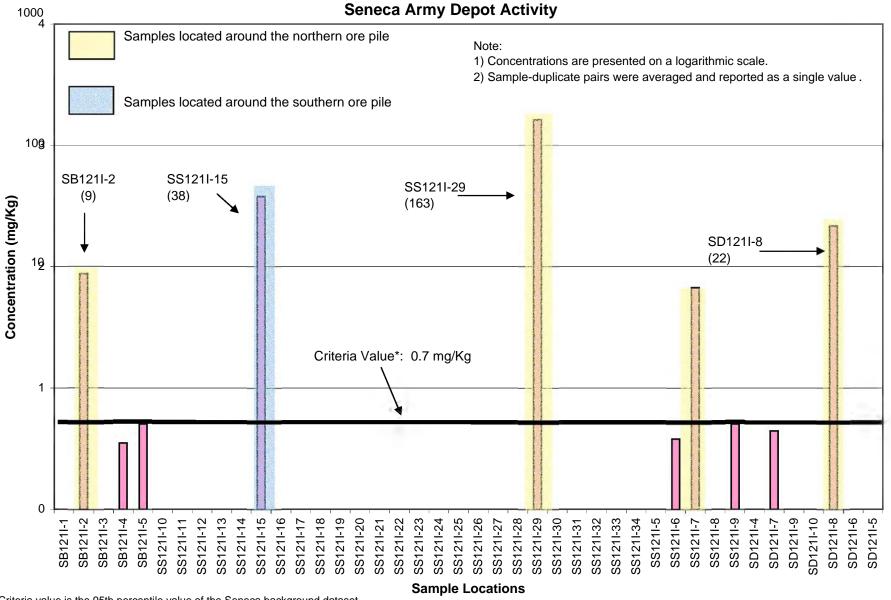


FIGURE 4-33
Arsenic in Soils at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



\*Criteria value is the 95th percentile of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

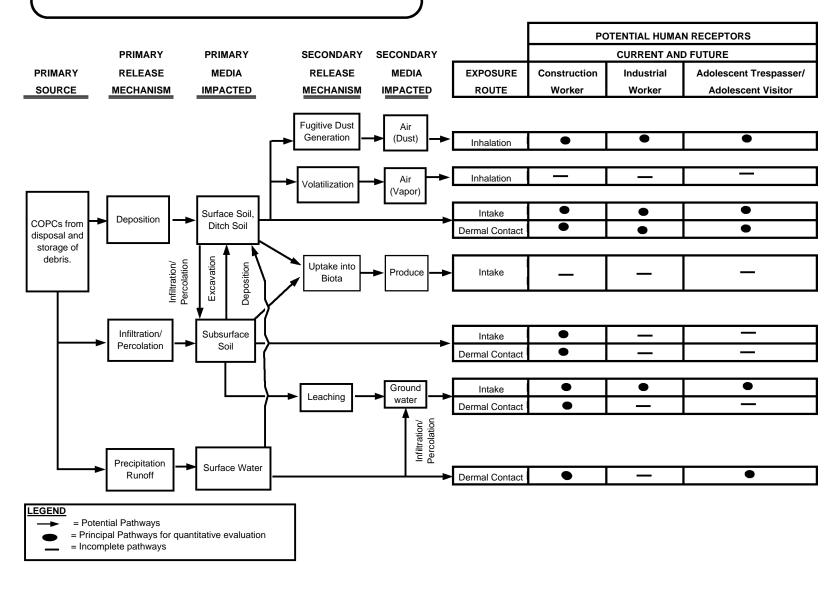
**FIGURE 4-34 Thallium in Soils at SEAD-121I** SEAD-121C and SEAD-121I RI Report



\*Criteria value is the 95th percentile value of the Seneca background dataset.



Figure 6-1A
Conceptual Site Model for SEAD-121C
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity



# Figure 6-1B Conceptual Site Model for SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

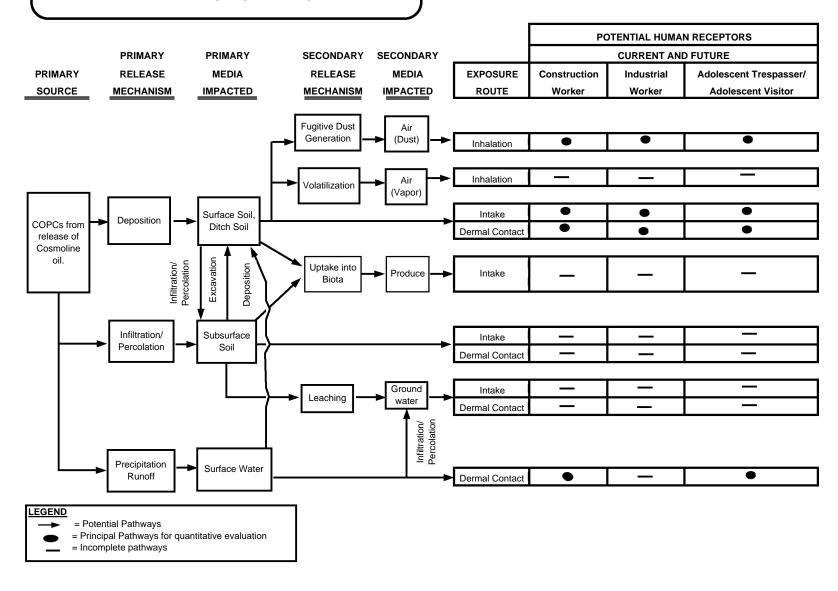


Figure 7-1 Screening Level Ecological Risk Assessment Process

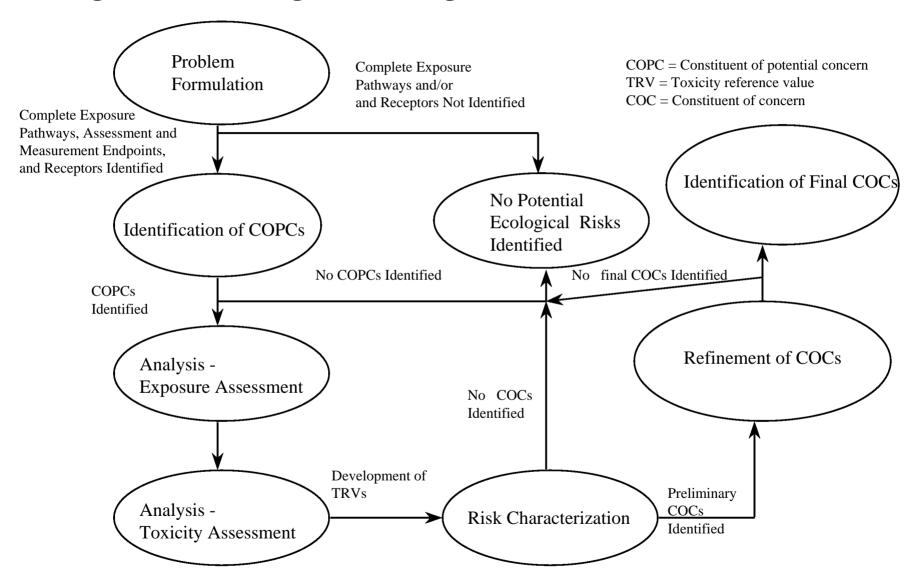
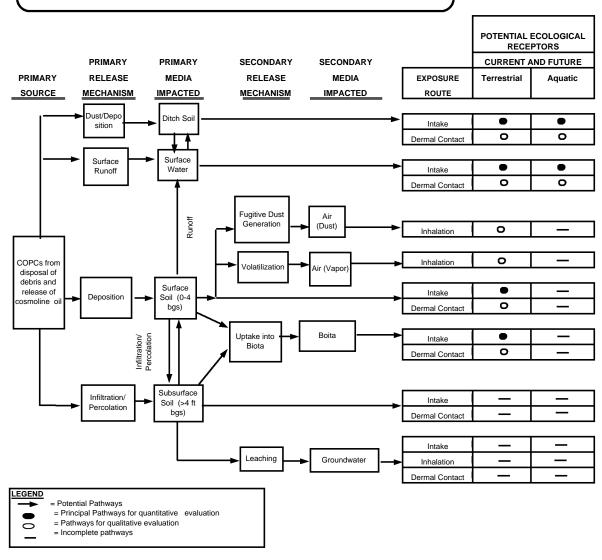


Figure 7-2
Conceptual Site Model for SEAD-121C and SEAD-121I
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity



## APPENDIX A MSDS FOR COSMOLINE OIL

### **Material Safety Data Sheet**

RPC-2

Complies with OSHA's Hazard Communication Standard 29 CFR 1910.1200.

GOODSON
Tools and Supplies for Engine Builders
Airport Industrial Park • P.O. Box 847 • Winona, MN 55987-0847
Toll-Free 1-800-533-8010 • Local 507-452-1830 • www.qoodson.com

**Date of Preparation:** June 17, 1996

#### 1. MATERIAL IDENTITY

**Part No.:** RPC-2 **Description:** Cosmoline

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

The criteria for listing components in the composition section is as follows: Carcinogens are listed when present at 0.1% or greater; components which are otherwise hazardous according to OSHA are listed when present at 1.0% or greater; Non-Hazardous components are listed at 3.0% or greater. This is not intended to be a complete compositional disclosure. Refer to section 14 for applicable states' right to know and other regulatory information.

Product and/or Component(s) Carcinogenic According to: OSHA IARC NTP OTHER NONE
X

#### COMPOSITION: (SEQUENCE NUMBER AND CHEMICAL NAME)

| Seq. | <u>Chemical Name</u>                               | CAS#       | Range in %  |
|------|--|------------|-------------|
| 01   | Complex Mixture of Petroleum Hydrocarbons          | 8009-03-8  | 35.00-49.99 |
| 02   | #Severely hydrotreated heavy naphthenic distillate | 64741-95-3 | 20.00-34.99 |
| 03   | *Stoddard solvent                                  | 8052-41-3  | 20.00-34.99 |
| 04   | *Wool grease                                       | 8020-84-6  | 3.00-9.99   |
| 05   | *Stearic acid.alkyl ester                          | 123-95-5   | 1.00-2.99   |

Product is Hazardous According to OSHA (1910.1200)

#### EXPOSURE LIMITS REFERENCED BY SEQUENCE NUMBER IN THE COMPOSITION SECTION

| Seq. | <u>Limit</u>                                       |
|------|--|
| 02   | 5 mg/m³ TWA-OSHA (Mineral Oil Mist)                |
| 02   | 5 mg/m³ TWA-ACGIH (Mineral Oil Mist)               |
| 02   | 10 mg/m <sup>3</sup> STEL-ACGIH (Mineral Oil Mist) |
| 03   | 100 ppm TWA-OSHA                                   |
| 03   | 525 mg/m³ TWA-ACGIH                                |

#### 3. HEALTH IDENTIFICATION

EMERGENCY OVERVIEW Appearance: Dark brown liquid Odor: Not determined

**WARNING STATEMENT** Caution: May cause dizziness & drowsiness. Oil mist may cause respiratory irritation.

Combustible Liquid & Vapor. Do Not use to coat interior of portable water tanks.

**HMIS:** Health 0, Reactivity 0, Flammability 2, Special - **NFPA:** Health 0, Reactivity 0, Flammability 2, Special -

POTENTIAL HEALTH EFFECTS Primary Routes of Exposure: Eye, Skin, Inhalation

EFFECTS OF OVEREXPOSURE - ACUTE

Eyes: May cause minimal irritation, experienced as temporary discomfort.

**Skin:** Brief contact is not irritating. Prolonged contact, as with clothing wetted with material, may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact: see other effects, below & section 11 for information regarding potential long term effects.

**Inhalation:** Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose & throat, headache, nausea, & drowsiness.

**Ingestion:** If more than several mouthfuls are swallowed, abdominal discomfort, nausea, & diarrhea may occur.

<sup>\*</sup>Component is Hazardous according to OSHA.

<sup>#</sup>Component, by definition, is considered hazardous according to OSHA because it carries the permissible exposure limit (PEL) for mineral oil mist.

#### 3. HEALTH IDENTIFICATION CONT...

**Sensitization Properties:** Unknown

**Chronic:** No adverse effects have been documented in humans as a result of chronic exposure. Section 11 may contain applicable animal data.

**Medical conditions aggravated by exposure:** Because of its defatting properties, prolonged & repeated skin contact may aggravate an existing dermatitis (skin condition).

**Other Remarks:** Material from high pressure equipment, pinhole leaks, or high pressure line failure can penetrate the skin & if not properly treated can cause sever injury, including disfigurement, loss of function, or even require amputation of the affected area. To prevent such serious injury, immediate medical attention should be sought even if the injection injury appears to be minor.

#### 4. FIRST AID

Eyes: Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists,

Skin: Wash skin with plenty of soap & water for several minutes. Get medical attention if skin irritation develops or persists.

**Ingestion:** If more than several mouthfuls of this material are swallowed, give two glasses of water (160z.). Get medical attention.

**Inhalation:** If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.

**Other Instructions:** High pressure injection of material can cause severe injury. Failure to debride the would of all residual material can result in disfigurement, loss of function, or may require amputation of the affected area. Remove & dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

#### 5. FIREFIGHTING MEASURES

Ignition Temperature - AIT: not determined

Flash Point( $^{\circ}$ F): 125 $^{\circ}$ F (COC)

Flammable Limits (%): Upper: not determined Lower: not determined

**Recommended Fire Extinguishing Agents & Special Procedures:** Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers.

Unusual or Explosive Hazards: None

Extinguishing Media which must NOT be used: not determined

**Special Protective Equipment for Firefighters:** No special equipment or procedures required.

#### 6. ACCIDENTAL RELEASE MEASURES

**Procedures in case of accidental release, breakage or leakage:** Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers & waterways. Avoid contact with skin, eyes or clothing.

#### 7. HANDLING AND STORAGE

Precautions to be Taken in Handling: Minimum feasible handling temperatures should be maintained.

**Precautions to be Taken in Storage:** Store away from heat & open flame. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### PERSONAL PROTECTION

Eye/Face Protection: Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.

Skin Protection: Workers should wash exposed skin several times daily with soap & water. Soiled work clothing should be

laundered or dry-cleaned.

**Respiratory Protection:** Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated & the occupational exposure limit of the product, or any component of the product, is exceeded. Use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

**Ventilation:** Adequate to meet component occupational exposure limits (see Section 2).

**Exposure Limit for Total Product:** None established for product: refer to Section 2 for component exposure limits.

#### 9. PHYSICAL PROPERTIES

Appearance:dark brown liquidOdor:not determinedBoiling Point (°F):not determinedVapor Pressure:not determined

Melting / Freezing Point: not applicable Vapor Density: not determined (air=1)

Specific Gravity:not determined (water=1)Viscosity:not determinedpH of undiluted product:not applicableSolubility in Water(%):not determined

VOC Contact: not determined Other: None

#### 10. STABILITY & REACTIVITY

**This Material Reacts Violently with:** (If OTHERS is checked below, see comments for details.)

AIR WATER HEAT STRONG OXIDIZERS OTHERS NONE OF THESE

- - X --

Comments: None

Products Evolved when Subjected to Heat or Combustion: Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes

& ketones.

**Hazardous Polymerizations:** Do not occur.

#### 11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose: Oral: LD50 believed to be >5.00g/kg (rat) practically non-toxic Inhalation: not determined

**Dermal:** LD50 believed to be >2.00g/kg (rabbit) practically non-toxic

Irritation Index, Estimation of Irritation (species): Skin: (Draize) believed to be <.50/8.0 (rabbit) no appreciable effect

Eyes: (Draize) believed to be <15.00/110 (rabbit) no appreciable effect

Sensitization: not determined

Other: none

#### 12. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** This product (as presently constituted) has the RCRA characteristics of ignitability and if discarded in it present form, would have the hazardous waste number of D001. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may change the classification to non-hazardous, or hazardous for reasons other than, or in addition to ignitability.

Remarks: None

#### 13. TRANSPORT INFORMATION

**DOT:** Proper Shipping Name: Combustible liquid, N.O.S. (petroleum distillate)

Hazard Class: Combustible liquid (LAND TRANSPORT ONLY - 49CFR 173.120 (b) (2))

Identification No.:NA 1993Packing Group:IIILabel Required:None

IMDG: Proper Shipping Name: Petroleum distillates, N.O.S.

**Hazard Class:** 3.3

**Identification No.:** UN 1268 (P.G. III) **Label Required:** Flammable liquid

ICAD: Proper Shipping Name: Petroleum distillates, N.O.S.

**Hazard Class:** 3

**Identification No.:** UN 1268 (P.G. III) **Label Required:** Flammable liquid

TDG: Proper Shipping Name: not evaluated

#### 14. REGULATORY INFORMATION

FEDERAL REGULATIONS

SARA TITLE III, Section 302/304 Extremely Hazardous Substances:

Seq. Chemical Name CAS # Range in %

None

Section 311 Hazardous Categorization:

Acute Chronic Fire Pressure Reactive N/A
-- -- X -- -- -- -- ---

**Section 313 Toxic Chemical:** 

<u>Chemical Name</u> <u>CAS #</u> <u>Concentration</u>

None

CERCLA 102 (a)/DOT Hazardous Substances: (+ indicates DOT Hazardous Substance)

Seq. Chemical Name CAS # Range in %

None

CERCLA/DOT Hazardous Substances (Sequence Numbers & RQ's):

Seq. RQ

None

**TSCA Inventory Status:** This product, or its components are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Other: None

STATE REGULATIONS

**California Proposition 65:** The following detectable components of this product are substances or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

Chemical Name CAS #

None

States Right-to-Know Regulations:

Chemical Name State Right-to-Know

Stoddard solvent Florida, Illinois, Massachusetts, New Jersey, Pennsylvania, Rhode Island

INTERNATIONAL REGULATIONS

WHMIS Classification: Class B, Div 3: Combustible liquid

**Canada Inventory Status:** This product, or its components, are listed on or are exempt from the Canadian Domestic

Substance List (DSL).

**EINECS Inventory Status:** not determined

Australia Inventory Status: This product, or its components, are listed on or are exempt from the Australian Inventory of

Chemical Substance (AICS).

Japan Inventory Status: not determined

15. ENVIRONMENTAL INFORMATION

Aquatic Toxicity: not determined Mobility: not determined

Persistence & Biodegradability: not determined Potential to Bioaccumulate: not evaluated

Remarks: not evaluated

16. OTHER INFORMATION

This product is not recommended for coating the interior of portable water tanks.

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

#### APPENDIX B

#### **SOIL BORING LOGS**

- SEAD -121C
- SEAD-121I

|         |             |              |              | <b>OVER</b> | BURD    | EN BOI      | RING RE    | PORT                                     |             |                 |                |                |
|---------|-------------|--------------|--------------|-------------|---------|-------------|------------|--|-------------|-----------------|----------------|----------------|
|         |             | PAF          | 250I         | VS          |         | CLIENT:     | WALOE      | BORING NO.: SP DRMO  START DATE: /0/27/0 |             |                 | mo-            | 5              |
| ROJECT  | Γ:          |              | F            | rd          |         | <del></del> |            | START D                                  | ATE:        | /0/2            | 7/02           |                |
| WMU#    | (AREA)      | :            | 7            | rino        |         |             |            | FINISH D                                 |             | · W             |                |                |
| OP NO.  | <b>:</b>    | _            | •            | 1175        |         |             |            | CONTRAC                                  | CTOR:       | Lym Dolling     |                |                |
|         | ·····       |              |              |             | JMMARY  |             |            | DRILLER:                                 |             | Hames           | 10.4           | J              |
| RILLING | HOLE        | DEPT         |              | -           | PLER    | н           | IAMMER     | INSPECTO                                 |             | Ren 17          | lenu.          |                |
| ETHOD   | DIA.(ft)    | INTERVA      | AL (ft)      | SIZE        | ТҮРЕ    | ТҮРЕ        | WT/FALL    | CHECKEI                                  | D BY:       | -03-43          |                | <del></del> -  |
| 45A     | *           | 2-8          | Y ,          | 2ª          | SS      |             | •          | CHECK D                                  | DATE:       |                 |                | <del></del>    |
| 3.613   |             | 0-7          |              | 3"          | 55      | •           |            | BORING                                   | CONVERTED   | ro MW?          | Y              | N              |
|         |             | 1            |              | V           | -       | LING ACE    | RONYMS     | <sub> </sub> Doland C                    | ONVERTED    | IO MW I         |                | 9              |
| HSA     |             | HOLLOW-ST    | EM AUGE      | ERS         | HMR     | HAMMER      | CONTINIS   | SS                                       | SPLIT SPOC  | )N              |                |                |
| DW      |             | DRIVE-AND-   |              |             | SHR     | SAFETY H    | AMMER      | CS                                       |             | <br>JS SAMPLING |                |                |
| MRSLC   |             | MUD-ROTAR    | XY SOIL-C    | CORING      | HHR     | HYDRAULI    | C HAMMER   | <b>5</b> I .                             | 5 FT INTERV | AL SAMPLIN      | G              |                |
| CA      |             | CASING AD    | VANCER       |             | DHR     | DOWN-HOL    | LE HAMMER  | NS                                       | NO SAMPLI   | NG              |                |                |
| SPC     |             | SPIN CASIN   | G            |             | WL      | WIRE-LINE   |            | ST                                       | SHELBY TU   | BE              |                |                |
|         |             |              |              |             |         |             |            | 3S                                       | 3 INCH SPLI | T SPOON         |                |                |
|         |             |              |              | МО          | NITORIN | G EQUPM     | ENT SUMMA  | RY                                       |             |                 |                |                |
| INSTRU  | MENT        | DETEC        | TOR          | RANGE       |         | BACKGRO     | JND        | CALIE                                    | RATION      | ] w             | VEATHE         | ₹              |
| TYI     | PE          | TYPE/EN      | ERGY         |             | READING | TIME        | DATE       | TIME                                     | DATE        | (ТЕМІ           | ., WIND,       | ETC.)          |
|         |             |              |              | ý.          |         |             |            |  | •           |                 |                |                |
|         |             |              |              | <u>'</u>    |         |             |            |  | 1.          |                 |                |                |
|         | <del></del> | <del> </del> |              |             |         |             |            |  | ļ'          |                 | •              |                |
|         |             | ļ            |              |             |         |             | ļ          |  | <u> </u>    |                 |                |                |
|         |             |              |              |             |         |             |            |  |             |                 |                |                |
|         | ·           |              |              |             |         |             |            | -  |             |                 |                |                |
|         |             |              |              |             |         |             |            |  |             |                 |                |                |
|         |             | 1            |              |             | MONIT   | TODING A    | CRONYMS    |  | .!          | <u> </u>        |                |                |
| PID     |             | PHOTO - ION  | II7 ATION    | DETECTOR    | BGD     | BACKGRO     |            | DGRT                                     | DRAEGER     | TIBES           |                |                |
| FID     |             | FLAME - ION  |              |             | CPM     |             | ER MINUTE  | PPB                                      | PARTS PER   |                 |                |                |
| GMD     |             | GEIGER MU    |              |             | PPM     |             |            | MDL                                      |             | ETECTION L      | IMIT           |                |
| SCT     |             | SCINTILLAT   | ION DET      | ECTOR       | RAD     |             |            | ٠  |             |                 |                |                |
| ···     |             | <del> </del> |              | INV         | ESTIGAT | ION DERI    | VED WASTE  |  |             |                 |                |                |
|         | DATE        | · 1          | -t <u>"-</u> |             |         | I           |            | <u>'</u>                                 |             |                 | ,<br>          |                |
|         | PALE        | <b>'</b>     |              |             |         |             |            |  |             |                 |                | ** ···         |
|         | L AMO       |              |              |             |         |             |            |  | <del></del> |                 |                |                |
| (fra    | ction of    | drum)        |              |             |         | ļ           |            | 1  |             | <del></del>     |                |                |
| DRUM    | 1 #, LOC    | CATION:      |              |             |         |             |            |  |             |                 |                |                |
|         | OMMEN       |              | i            |             |         |             | SAMPLES 1  | ΓΑΚΕΝ:                                   |             |                 |                |                |
|         |             |              |              |             |         |             |            |  | . IALIA     | م (دم)          | O              | les I d        |
|         |             |              |              |             |         |             | SAMPLES    | UKIN                                     | 0-1070      | (0-2) D         | <u> - 0000</u> | <u> 1041 C</u> |
|         |             |              |              |             |         |             | DUPLICATES |  |             |                 |                |                |
|         |             |              |              |             |         |             | MS/MSD     |  |             |                 |                |                |
|         |             |              |              |             |         |             | MRD        | NOM                                      | 0 - /040    | 1 44 = 4        |                |                |

|  | OVERBURDEN BORING REPORT. |                                     |                                  |   |              |      |             |   |                |                  |  |  |  |  |
|--|---------------------------|-------------------------------------|----------------------------------|---|--------------|------|-------------|---|----------------|------------------|--|--|--|--|
| PARSONS CLIENT: WALDE BORING NO.: 3BDKMU-5 |                           |                                     |                                  |   |              |      |             |   |                |                  |  |  |  |  |
| COMN                                       | ÆNTS:                     |                                     |                                  |   |              |      |             | DRILLER: Hangly   |                | <u> </u>         |  |  |  |  |
|  |                           |                                     |                                  |   |              |      |             | DATE: 102702  |                |                  |  |  |  |  |
| D<br>E<br>P<br>T<br>H<br>(FT)              | BLOWS PER 6 INCHES        | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET)                  | NO.          | VOC  | RAD<br>SCRN | with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS  | STRATUM<br>CLASS |  |  |  |  |
|  | 8                         |                                     |                                  |   | a            |      |             | - Moist Brood Black SHALE   |                |                  |  |  |  |  |
| -<br>1                                     | 19                        | 2'                                  | z'                               |   | DR. M. U-10% | 0732 | -           | Smull(ez") layer of m-c synd Coal ask   | ML             | -<br>-<br>-      |  |  |  |  |
| _  | 2 6                       | 21                                  | i,                               |   |              | 0935 | _           | moist Gray 1 Brown. Clay w/ some sixt   | <sub>ሥ</sub> ጉ | , _<br>_<br>_    |  |  |  |  |
| <b>4</b> —                                 | 35                        | 70"                                 | 10"                              |   | 1/201-0      | 1992 |             | Dry weathered Shale   | -              |                  |  |  |  |  |
| <u>-</u> وا                                | 32<br>50/3"               | 9*                                  | 3'1                              | 1 | Diemo-/      | ١. ا | _           | -Dry wearned Shale  | -              | -<br>-           |  |  |  |  |
| 8-<br>-                                    | 5 <b>4</b> 1"             | l <sup>u</sup>                      | _                                |   |              | 0254 | _           | no recovery Sp. H Sporn retwood   | -              |                  |  |  |  |  |
| 10   |                           |                                     |                                  |   |              | ,    | _           |   |                |                  |  |  |  |  |
| _  |                           |                                     |                                  |   |              | -    |             |   |                | <br>             |  |  |  |  |
| _  |                           |                                     |                                  |   |              |      | _           |   |                | -<br>-           |  |  |  |  |
| 15   |                           |                                     | -                                |   |              |      | _           |   |                | . –              |  |  |  |  |
| _  |                           |                                     |                                  |   |              |      |             |   |                |                  |  |  |  |  |
|  |                           |                                     |                                  |   |              |      |             |   |                | -                |  |  |  |  |
| 20   |                           |                                     |                                  |   |              |      | _           |   |                | -<br>-           |  |  |  |  |

|  | OVERBURDEN BORING REPORT    |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|--|-----------------------------|-------------------------|----------|----------|-----------|-----------|-----------------------|-------------------|---------------------------------------|---------------------|--|--|--|
|  |                             | PA                      | RSOI     | NS       |           | US ACOL   | BORI                  | NG NO.:           | SB Diamo-6                            |                     |  |  |  |
| PROJEC   | Γ:                          |                         | <        | PED      |           |           |                       | START D           | ATE;                                  | 10/25/02            |  |  |  |
| SWMU#  | (AREA)                      | :                       | D        | RMO      |           |           |                       | FINISH D          | ATE:                                  | 1                   |  |  |  |
| SOP NO.  | <b>:</b> ,                  | •                       |          | 1175     |           |           |                       | CONTRAC           | CTOR:                                 | Lum Drilly          |  |  |  |
|  |                             |                         | DRII     | LING SU  | JMMARY    |           |                       | DRILLER           | : 1                                   | trong lown Trick    |  |  |  |
| DRILLING   | HOLE                        | DEP'                    | тн       | SAM      | PLER      | HAMMER    |                       | INSPECTO          | or: JN                                | osman Bnallist      |  |  |  |
| METHOD   | DIA.(ft)                    | INTERV                  | AL (ft)  | SIZE     | TYPE      | ТҮРЕ      | WT/FALL               | СНЕСКЕ            | BY:                                   |                     |  |  |  |
| ASA  | 4"                          | 0-9                     | A        | 2"       | 55        |           |                       | СНЕСК Г           |                                       |                     |  |  |  |
| •  |                             |                         |          | 3"       | 55        |           |                       | BORING C          | ONVERTED 1                            | romw? Y (N)         |  |  |  |
|  |                             |                         |          | ſ        | DRII      | LING ACE  | RONYMS                |                   |                                       |                     |  |  |  |
| HSA HOLLOW-STEM AUGERS 55 HMR HAMMER SS SPLIT SPOON  |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
| DW DRIVE-AND-WASH SHR SAFETY HAMMER CS CONTINUOUS SAMPLING MRSLC MUD-ROTARY SOIL-CORING HHR HYDRAULIC HAMMER 5I 5 FT INTERVAL SAMPLING |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
| MRSLC  |                             |                         |          | CORING   | HHR       |           | C HAMMER<br>LE HAMMER | 5I<br>NS          |                                       |                     |  |  |  |
| CA<br>SPC  |                             | CASING AD<br>SPIN CASIN |          |          | DHR<br>WL | WIRE-LINE |                       | ST                | NO SAMPLII<br>SHELBY TU               | -                   |  |  |  |
|  |                             |                         |          |          |           |           |                       | 3S                |                                       | ,                   |  |  |  |
| 3S 3 INCH SPLIT SPOON  |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|  | MONITORING EQUPMENT SUMMARY |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
| INSTRUMENT DETECTOR RANGE BACKGROUND CALIBRATION WEATHER   |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
| TYI  | PE                          | TYPE/EN                 | NERGY    |          | READING   | TIME      | DATE                  | TIME              | DATE                                  | (TEMP., WIND, ETC.) |  |  |  |
|  |                             |                         |          |          |           |           | ·                     |                   |                                       |                     |  |  |  |
|  |                             |                         |          |          | ,         |           |                       |                   |                                       | -                   |  |  |  |
|  | _                           |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|  |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|  |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|  |                             |                         |          |          |           |           |                       |                   |                                       |                     |  |  |  |
|  |                             | l                       |          | l        | N.CONT    | FORDING A | CDONIVAG              |                   | <u> </u>                              | <u> </u>            |  |  |  |
| PID  |                             | PHOTO - IO              | NIZATION | DETECTOR | MONT      |           | CRONYMS               | DGRT              | DRAEGER 1                             | ri ibes             |  |  |  |
| FID  |                             |                         |          | DETECTOR | CPM       |           | ER MINUTE             | PPB               | PARTS PER                             |                     |  |  |  |
| GMD  |                             | GEIGER MU               |          |          | PPM       |           | R MILLION             | MDL               |                                       | ETECTION LIMIT      |  |  |  |
| SCT  |                             | SCINTILLA               | TION DET | ECTOR    | RAD       | RADIATION | N METER               |                   |                                       |                     |  |  |  |
|  |                             |                         |          | INV      | ESTIGAT   | ION DERI  | VED WASTE             |                   |                                       |                     |  |  |  |
|  | DATE                        |                         |          |          |           | <u> </u>  | <del></del>           | T                 | · · · · · · · · · · · · · · · · · · · |                     |  |  |  |
| SOI  | L AMOI                      | INT ·                   |          |          |           |           |                       | -                 |                                       |                     |  |  |  |
|  | ction of                    |                         |          |          |           |           |                       | <u> </u>          |                                       |                     |  |  |  |
| DRUM   | ı#, LOC                     | ATION:                  |          |          |           |           |                       |                   |                                       |                     |  |  |  |
| CC   | MMEN                        | TS:                     |          |          |           |           | SAMPLES 7             | AKEN:             |                                       | 1                   |  |  |  |
|  |                             |                         |          |          |           |           | SAMPLES               |                   | w -1043                               | ,                   |  |  |  |
|  |                             |                         |          |          |           |           | DUPLICATES            |                   | W -1030                               |                     |  |  |  |
|  |                             |                         |          |          |           |           | MS/MSD                | _Drem             | 0 - 1043                              | oms demo-1043 mol   |  |  |  |
|  |                             |                         |          |          |           |           | MRD                   | Diemo - 1043 MIED |                                       |                     |  |  |  |

**\*** 

20

|   |                      | ,  |                             | OVER                            | BURDI                                  | EN BOE                | RING RE   | PORT  |                           | ·   |  |
|---|----------------------|--|-----------------------------|---------------------------------|--|-----------------------|---|---|---------------------------|---|--|
|   |                      | PAI  | <b>350</b> 1                | VS                              |  | CLIENT:               | USACOR  | BORII   | NG NO.:                   | SB DKMO-7   |  |
| PROJECT SWMU # SOP NO.  DRILLING METHOD | (AREA)               | · · · · · · · · · · · · · · · · · · ·                          | DRII                        | ED<br>DRMO<br>741175<br>LING SI | JMMARY PLER TYPE  5S                   |                       | AMMER WT/FALL                                   | START D FINISH D CONTRAC DRILLER: INSPECTO CHECKEL  | ATE: ATE: CTOR: OR: O BY: | 10/27/02<br>+<br>Lyon Drilly<br>Horny / Rick<br>Ben/ Jenn |  |
|   |                      | 0-2  |                             | 31.                             | 55                                     |                       |   | BORING C  | ONVERTED T                | romw? Y (N)   |  |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC         |                      | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTAI<br>CASING AD<br>SPIN CASIN | WASH<br>RY SOIL-C<br>VANCER | :                               | DRIL<br>HMR<br>SHR<br>HHR<br>DHR<br>WL |                       | AMMER<br>C HAMMER<br>JE HAMMER                  | SS SPLIT SPOON CS CONTINUOUS SAMPLING 51 5 FT INTERVAL SAMPLING NS NO SAMPLING ST SHELBY TUBE 3S 3 INCH SPLIT SPOON |                           |   |  |
|   |                      | · · · · · · · · · · · · · · · · · · ·                          |                             | MO                              | NITORIN                                | G EQUPM               | ENT SUMMA                                       | RY  | <del></del>               |   |  |
| INSTRU                                  |                      | DETEC<br>TYPE/EN   | IERGY                       | RANGE                           | READING                                | TIME                  | DATE  | TIME  | DATE                      | WEATHER (TEMP., WIND, ETC.)                               |  |
| PID                                     |                      | PHOTO - IO   | NIZATION                    | DETECTOR                        | MONIT                                  |                       | CRONYMS   | DGRT  | DRAEGER 1                 | TUBES   |  |
| FID<br>GMD<br>SCT                       | 1                    |  | NIZATION<br>JELLER D        | DETECTOR<br>ETECTOR             | CPM<br>PPM<br>RAD                      | COUNTS P<br>PARTS PEI | er minute<br>R million                          | PPB<br>MDL  | PARTS PER                 |   |  |
|   |                      |  |                             | INV                             | ESTIGAT                                | ION DERI              | VED WASTE                                       |   |                           | ,   |  |
| (fra                                    | DATE L AMO action of | UNT :<br>'drum)  |                             |                                 |  |                       |   |   |                           |   |  |
|   | M#, LOC              | CATION:  |                             |                                 |  |                       | SAMPLES 'SAMPLES 'SAMPLES DUPLICATES MS/MSD MRD |   | 0-104le                   | (0-2) DRMO-/047(2-4                                       |  |

| OVERBURDEN BORING REPORT                   |                             |                                     |                                  |                        |             |         |             |                      |   |                |  |  |                                    |       |                     |                  |  |
|--|-----------------------------|-------------------------------------|----------------------------------|------------------------|-------------|---------|-------------|----------------------|---|----------------|--|--|------------------------------------|-------|---------------------|------------------|--|
| PARSONS CLIENT: WAWE BORING NO.: SB DLMO-7 |                             |                                     |                                  |                        |             |         |             |                      |   |                |  |  |                                    |       |                     |                  |  |
| COMIN                                      | ENTS:                       |                                     |                                  |                        | •           | -       |             |                      | DRILLER: Hamy Lyan INSPECTOR: Rossmann / DATE: 10/27/02 |                |  |  |                                    |       | Rick<br> mcH/lister |                  |  |
| D<br>E<br>P<br>T<br>H<br>(FT)              | BLOWS<br>PER<br>6<br>INCHES | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>NO.  | VOC     | RAD<br>SCRN |                      | with an   | nount modifi   | DESCR<br>, grain size, M.<br>ers and grain-siz | MPLE RIPTION  IAJOR COMPONEN  ize, density, stratifica | T, Minor Comportion, wetness, etc. | nents | USCS<br>CLASS       | STRATUM<br>CLASS |  |
|  | 9<br>14<br>14<br>20         | 2'                                  | z'                               |                        | Jeno . wyle | 07%5    |             | -<br>-<br>Dug        | . Brow<br>Gnu   | m ve<br>I shal | y stiff<br>e <b>flagm</b>                      | SELT w<br>buts.  | sume Cla                           | 7     | PAY.                |                  |  |
| 2-   | 7                           | <b>Z</b> '                          | l <sup>e</sup>                   |                        |             | 35      |             | - KA                 | Brown   | n SILT         | to W   | earhered:  | shale                              |       | MΣ                  | -<br>-<br>-      |  |
| 4 —<br>5 —                                 | 18                          | /S <sup>1</sup>                     | 1                                |                        | Man-1047    | 0800 0, | <u>-</u>    | _<br>_>⁄}            | wath  | urd Sh         | ale  |  |                                    |       | ٥                   | . =              |  |
| 6-   | 90/2"                       | 2"                                  | z"                               |                        | 7           | stac a  |             | _<br>_Dry_           | Gry   | headh          | ured sha                                       | le   |                                    |       | Į                   | -<br>-<br>-      |  |
| 8-   |                             | -                                   |                                  |                        |             | 8       |             | <del>-</del><br>     |   | ÷              |  |  |                                    |       |                     | <u>-</u>         |  |
| 10   |                             |                                     |                                  |                        |             |         |             | <del>-</del><br><br> |   |                |  |  |                                    |       |                     |                  |  |
|  |                             |                                     |                                  |                        |             |         | _           | <br>                 |   |                |  |  |                                    |       |                     | -<br>-<br>-      |  |
|  |                             |                                     |                                  |                        |             |         |             | -<br><br>            |   |                |  |  |                                    |       |                     | -<br>-<br>-      |  |
| 15   |                             |                                     |                                  |                        |             |         |             | <del>-</del>         |   |                |  |  |                                    |       |                     | -                |  |
|  |                             |                                     |                                  |                        |             |         | _           | <del>-</del>         |   |                |  |  |                                    | •     |                     | -                |  |
|  |                             |                                     |                                  |                        |             |         | <u> </u>    | <br><br>             |   |                |  |  |                                    |       |                     |                  |  |
| 20   |                             |                                     |                                  |                        |             |         | _           | _                    |   |                |  |  |                                    |       |                     | _                |  |

|             |           |                        |          | <b>OVER</b> | BURD       | EN BOI        | RING RE              | PORT         |              | •                                      |  |
|-------------|-----------|------------------------|----------|-------------|------------|---------------|----------------------|--------------|--------------|--|--|
|             |           | PA                     | RSOI     | NS          | WACDE      | BORI          | NG NO.:              | SBDRMO-8     |              |  |  |
| PROJEC      | Γ:        |                        | PI       | 0           |            |               | •                    | START D      |              | 10/25/02                               |  |
| SWMU#       | (AREA)    | :                      | DR       | mo          |            | <del>-:</del> |                      | FINISH D     | DATE:        | Ţ                                      |  |
| SOP NO.     | :         |                        |          | 1175        |            |               |                      | CONTRA       | CTOR:        | Lyon Drilly                            |  |
|             |           | -                      | DRII     | LING S      | UMMARY     |               |                      | DRILLER      | :            | turn / Rul                             |  |
| DRILLING    | HOLE      | DEP                    | TH .     | SAN         | 1PLER      | - I           | IAMMER               | INSPECT      | OR;          | Ben / Jenn                             |  |
| METHOD      | DIA.(ft)  | INTERV                 | AL (ft)  | SIZE        | TYPE ·     | TYPE          | WT/FALL              | СНЕСКЕ       | D BY:        |  |  |
| HSA         | 4" ·      | 0-6                    | 2        | 2"          | SS         |               |                      | СНЕСК І      | DATE:        |  |  |
|             |           | 1 Surfe                | ce       | 3"          | SS         |               |                      | BORING (     | CONVERTED    | TO MW? Y (N)                           |  |
|             |           |                        |          | 36W         | DRII       | LLING ACI     | RONYMS               |              |              |  |  |
| HSA         | _         | HOLLOW-S               |          | ers ·.      | HMR        |               | A a con              | SS           | SPLIT SPOC   |  |  |
| DW<br>MRSLC |           | DRIVE-AND<br>MUD-ROTA  |          | CORING      | SHR<br>HHR |               | AMMER<br>IC HAMMER   | CS<br>5I     |              | JS SAMPLING<br>/AL SAMPLING            |  |
| CA          |           | CASING AD              |          |             | . DHR      |               | LE HAMMER            | NS           | NO SAMPLII   |  |  |
| SPC         |           | SPIN CASIN             | iG       |             | WL         | WIRE-LINE     | ;                    | ST           | SHELBY TU    | BE                                     |  |
|             |           |                        |          |             |            | -             |                      | 3S           | 3 INCH SPLI  | T SPOON                                |  |
|             |           | <del></del>            |          | MC          | NITORIN    | G EQUPM       | ENT SUMMA            | RY           |              | ······································ |  |
| INSTRU      | IMENT     | DETEC                  | CTOR     | RANGE       |            | BACKGRO       | UND                  | CALI         | BRATION      | WEATHER                                |  |
| TYI         | PE        | TYPE/EI                | NERGY    |             | READING    | ТІМЕ          | DATE                 | TIME         | DATE         | (TEMP., WIND, ETC.)                    |  |
|             |           |                        |          |             |            |               | ·                    |              |              |  |  |
|             |           |                        |          |             |            |               |                      |              |              |  |  |
|             |           |                        |          |             |            |               |                      | 1            |              | ,                                      |  |
|             |           |                        | ·        |             |            |               |                      |              |              | :                                      |  |
|             |           |                        |          |             | ,          |               |                      |              |              |  |  |
|             |           |                        |          |             |            |               |                      |              |              |  |  |
|             |           | <b>.</b>               |          | •           | MONIT      | FORING A      | CRONYMS              |              | <u> </u>     | <u> </u>                               |  |
| PID         |           | PHOTO - 10             | NIZATION | DETECTOR    | BGD        | BACKGRO       | UND                  | DGRT         | DRAEGER '    | TUBES                                  |  |
| FID         |           |                        |          | DETECTOR    | CPM        |               | ER MINUTE            | PPB          | PARTS PER    |  |  |
| GMD<br>SCT  |           | GEIGER MU<br>SCINTILLA |          |             | PPM<br>RAD |               | R MILLION<br>N METER | MDL          | METHOD D     | DETECTION LIMIT                        |  |
|             |           |                        |          |             |            |               | <del></del>          |              |              |  |  |
|             |           |                        |          | INV         | ESTIGAT    | ION DERI      | VED WASTE            |              |              | ,                                      |  |
|             | DATE      |                        |          |             |            |               |                      |              |              |  |  |
|             | L AMOU    |                        |          |             |            |               |                      | <del> </del> | <del> </del> |  |  |
|             | action of | ŕ                      |          |             |            | <u> </u>      |                      |              |              |  |  |
|             |           | ATION:                 |          |             |            |               | 1                    |              |              |  |  |
| CC          | OMMEN     | ITS:                   |          |             |            |               | SAMPLES              |              | 6.40         |  |  |
|             |           |                        | •        |             |            |               | SAMPLES              | DKMO         | <u>-1049</u> |  |  |
|             |           |                        |          |             |            |               | DUPLICATES           |              |              |  |  |
|             |           |                        |          |             |            |               | MS/MSD               |              |              |  |  |
| 1           |           |                        |          |             |            |               | MRD                  |              |              |  |  |

|  |           |                                    |  | OVER       | BURD           | EN BOI           | RING RE   | <u>PORT</u>                      |                        |                     |
|--|-----------|------------------------------------|--|------------|----------------|------------------|---|----------------------------------|------------------------|---------------------|
|  |           | PA                                 | RSOI                                   | NS         | MACOE.         | BORII            | NG NO.:   | SBELL Demo-9                     |                        |                     |
| PROJEC                                   | Γ:        |                                    | PI                                     | 0          |                |                  |   | START D                          |                        | 10/25/02            |
| SWMU#                                    | (AREA)    | :                                  | Den                                    | <i>1</i> 0 |                |                  | -   | FINISH D                         | ATE:                   | ,1                  |
| SOP NO.                                  | : • •     |                                    | .741                                   |            |                |                  |   | CONTRAC                          | CTOR:                  | Luan Dialla         |
|  | • .       |                                    |  |            | JMMARY         |                  |   | DRILLER:                         | ·<br>:                 | Harry IRick .       |
| DRILLIŅG                                 | HOLE      | . DEP                              | тн                                     | SAM        | PLER           | H                | IAMMER  | . INSPECTO                       | OR:                    | Jenn Bin            |
| WETHOD                                   | DIĄ.(ft)  | INTERV                             | AL (ft)                                | SIZE       | TYPE           | TYPE:            | WT/FALL   | CHECKE                           | D BY:                  | <u>'</u>            |
| ASA                                      | 4"        | <b>2</b> -8                        |  | 2"         | <i>5</i> S     |                  |   | СНЕСК Г                          | DATE:                  |                     |
| •  | <u> </u>  | 0-2                                |  | 3"         | <i>5</i> \$    | róмw? Y (N       |   |                                  |                        |                     |
| HSA<br>DW<br>MRSLC                       | •         | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTA | -WASH                                  |            | AMMER C HAMMER | SS<br>CS<br>- 51 |   | N<br>US SAMPLING<br>VAL SAMPLING |                        |                     |
| CA                                       |           | CASING AD                          |  | :          | HHR<br>DHR     | LE HAMMER        | NS .  | NO SAMPLE                        | •                      |                     |
| . SPC                                    |           | SPIN CASIN                         |  |            | . WL           | WIRE-LINE        | =   | ST                               | SHELBY TU              |                     |
| e en | •         | 13.00                              |  | 1 1 m      | lo cardi       | g be a like      |   | 38                               | 3 INCH SPLI            | T SPOON             |
|  | <u> </u>  |                                    |  | MO         | NITORIN        | G EQUPM          | ENT SUMMA                                       | RY                               |                        | •                   |
| INSTRU                                   | MENT      | DETEC                              | CTOR                                   | RANGE      |                | BACKGRO          | JND   | CALIE                            | RATION                 | WEATHER             |
| TY                                       | PE        | TYPE/E                             | NERGY                                  |            | READING        | TIME             | DATE  | TIME                             | DATE                   | (TEMP., WIND, ETC.) |
|  |           |                                    |  |            |                |                  |   |                                  |                        |                     |
|  |           |                                    |  |            |                |                  |   |                                  |                        | ·                   |
|  |           |                                    | ······································ |            |                |                  |   |                                  |                        | ·                   |
|  |           |                                    | ··-·                                   |            |                |                  |   |                                  |                        |                     |
|  |           |                                    | 711.                                   |            |                |                  |   | 1                                |                        |                     |
|  |           |                                    |  | .'         |                |                  |   |                                  |                        |                     |
|  |           | <b>!</b>                           |  | L          | MONIT          | TORING A         | CRONYMS   | 1                                |                        |                     |
| PID                                      |           | PHOTO - IO                         | NIZATION                               | DETECTOR   | BGD            | BACKGRO          |   | DGRT                             | DRAEGER '              | TUBES               |
| FID                                      |           | FLAME - IO                         | NIZATION                               | DETECTOR   | СРМ            | COUNTS P         | ER MINUTE                                       | PPB                              | PARTS PER              | BILLION             |
| GMD                                      |           | GEIGER MU                          |  |            | PPM            |                  |   | MDL .                            | METHOD D               | ETECTION LIMIT      |
| SCT                                      |           | SCINTILLAT                         | HON DEL                                | ECTOR      | RAD            | RADIATIO         | N METER   |                                  |                        |                     |
|  |           |                                    | <del></del>                            | INV        | ESTIGAT        | ION DERI         | VED WASTE                                       |                                  |                        | ,                   |
|  | DATE      |                                    |  |            |                |                  |   |                                  |                        |                     |
|  | L AMO     |                                    |  |            |                |                  |   |                                  |                        |                     |
| (fra                                     | iction of | drum)                              |  |            |                | ·············    |   |                                  |                        |                     |
| DRUM                                     | f#, LOC   | ATION:                             |  |            |                |                  | <u>ir                                      </u> |                                  |                        |                     |
| CC                                       | )MMEN     | TS:                                |  |            |                |                  | SAMPLES T                                       |                                  | -/053 <sup>(0-2)</sup> | DRMO-1054 (Z-6)     |
|  |           |                                    |  |            |                |                  | DUPLICATES                                      |                                  | ·                      |                     |
|  |           |                                    |  |            |                |                  | MS/MSD  |                                  |                        |                     |
|  |           |                                    |  |            |                |                  |   |                                  |                        |                     |

|                               |   |                                     |                                  |                        | JΥ         | L.     | KD      | BURDEN BURING REPURI   |                 |                  |  |  |  |
|-------------------------------|---|-------------------------------------|----------------------------------|------------------------|------------|--------|---------|--|-----------------|------------------|--|--|--|
|                               | PARSONS CLIENT: USA COE BORING NO.: 33 DRYN 0-9 |                                     |                                  |                        |            |        |         |  |                 |                  |  |  |  |
|                               | ments:  | n> for                              | 589                              | Emple                  | ذ          |        |         | DRILLER: HUM MUM /   | eith<br>nciMlis | tw               |  |  |  |
|                               |   |                                     |                                  | r                      |            |        |         | DATE: /0/15/0  |                 |                  |  |  |  |
| D<br>E<br>P<br>T<br>H<br>(FT) | BLOWS PER 6 INCHES                              | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | NO.        | [      | N. O.C. | SAMPLE.  DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS   | STRATUM<br>CLASS |  |  |  |
| \$                            | 10 9 12   | 2'                                  | 1/2                              |                        | JR100-1053 | 1000   | 488     | muist wing SUT w/ Shale fagments Brand STLTW/CLAY Heavy oil/gas Smell.   | οL              | -<br>-<br>-      |  |  |  |
| 1<br> -                       | 10 4 5  | 21                                  | ],                               |                        |            | 101    | _       | mast Brom/gry Certy w/staining slyter oda-   | OL              | -<br>-<br>-      |  |  |  |
| <b>4</b> —                    | 23<br>45<br>012                                 | 7'                                  |                                  |                        | Demo-1054  | 11 730 | _       | weathred shale - Dry   |                 | -<br>-           |  |  |  |
| lo –                          | 50/3"   | Q'                                  | 6"                               |                        | 2          | 1037   | _       | bry weathed shale  |                 | -<br>-<br>-      |  |  |  |
| 8 –                           |   |                                     |                                  |                        |            | 9      | _       |  |                 | -<br>-<br>-      |  |  |  |
| 10_                           |   |                                     |                                  |                        |            |        | _       |  |                 | -<br>-<br>-      |  |  |  |
| _                             |   |                                     |                                  |                        |            |        |         |  |                 | -<br>-<br>-      |  |  |  |
| _                             |   |                                     |                                  |                        |            |        |         | -<br>-<br>-  |                 | -<br>-           |  |  |  |
| 15                            |   |                                     |                                  |                        |            |        |         |  |                 | -                |  |  |  |
| _                             |   |                                     |                                  |                        |            |        | _       | -  |                 |                  |  |  |  |
| _<br>                         |   |                                     |                                  |                        |            |        | _       | <u></u>  |                 | -                |  |  |  |
| 20                            | :   |                                     |                                  |                        |            |        | _       | _  |                 | -<br>-           |  |  |  |
| 20-                           | <del></del>                                     |                                     |                                  |                        |            |        | -       | +  |                 | -                |  |  |  |

PAGE 1 OF 7

|                                 |                  |  |                           | OVER                | BURD                             | EN BOF                           | RING REI               | PORT                             |                                  |  |  |
|---------------------------------|------------------|--|---------------------------|---------------------|----------------------------------|----------------------------------|------------------------|----------------------------------|----------------------------------|--|--|
|                                 |                  | PAR  | sor                       | <b>4</b> 5          |                                  | CLIENT:                          | USACOE                 | BORIN                            | IG NO.:                          | SBDRMO-10                                |  |
| PROJECT<br>SWMU#                | (AREA)           | :  | DR                        | ZD<br>Zmo           |                                  | *                                |                        | START DA                         | ATE:                             | 10/25/02                                 |  |
| SOP NO.                         | <u>.</u>         |  |                           | 1175                |                                  |                                  |                        | CONTRAC                          | TOR:                             | Lyun Dilling                             |  |
|                                 | 1                | 1  | DRIL                      | LING SU             | MMARY                            |                                  |                        | DRILLER:                         | 1                                | torry 2 you / Ride                       |  |
| DRILLING                        | HOLE             | DEPTH  | I                         | SAM                 | PLER                             | Н                                | AMMER                  | INSPECTO                         | R: E                             | Ben / Jenn                               |  |
| METHOD                          | DIA.(ft)         | INTERVA  | L (ft)                    | SIZE                | TYPE                             | ТҮРЕ                             | WT/FALL                | CHECKED                          | BY:                              |  |  |
| HSA                             | 4"               | 0-5  |                           | 2"                  | 55                               |                                  |                        | CHECK DATE:                      |                                  |  |  |
|                                 |                  | Surfu  | u                         | 3"                  | <i>S</i> S .                     |                                  |                        | BORING C                         | ONVERTED 1                       | TO MW? Y N                               |  |
|                                 |                  |  |                           |                     | DRII                             | LING ACE                         | RONYMS                 |                                  |                                  |  |  |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC |                  | HOLLOW-STE<br>DRIVE-AND-V<br>MUD-ROTARY<br>CASING ADV<br>SPIN CASING | vash<br>v soil-c<br>ancer |                     | HMR<br>SHR<br>HHR<br>DHR<br>WL   | HYDRAULI                         | C HAMMER<br>LE HAMMER  | SS<br>CS<br>5I<br>NS<br>ST<br>3S |                                  | US SAMPLING<br>VAL SAMPLING<br>NG<br>IBE |  |
|                                 |                  |  |                           | MO                  | NITORIN                          | G EQUPM                          | ENT SUMMA              | RY                               |                                  |  |  |
| INSTRU                          | MENT             | DETECT   | OR                        | RANGE               |                                  | BACKGROU                         |                        | 1                                | RATION                           | WEATHER                                  |  |
| TY                              | PE               | TYPE/ENE   | RGY                       |                     | READING                          | TIME                             | DATE                   | TIME                             | DATE                             | (TEMP., WIND, ETC.)                      |  |
|                                 |                  |  |                           |                     |                                  |                                  | ·                      |                                  |                                  |  |  |
|                                 |                  |  |                           |                     | -                                |                                  |                        |                                  |                                  |  |  |
|                                 |                  |  | -                         |                     |                                  |                                  |                        |                                  |                                  | ·  |  |
|                                 |                  | <u> </u>   |                           |                     |                                  |                                  |                        | ;                                |                                  |  |  |
|                                 |                  | <del>                                     </del>                     | -                         |                     |                                  | -                                |                        | <del></del>                      |                                  |  |  |
|                                 |                  | <del>                                     </del>                     |                           |                     |                                  |                                  |                        | <u> </u>                         |                                  |  |  |
| ·                               |                  |  |                           |                     |                                  |                                  | <u> </u>               |                                  | L                                | l  |  |
| PID<br>FID<br>GMD<br>SCT        | )                | PHOTO - IONI<br>FLAME - IONI<br>GEIGER MUE<br>SCINTILLATION          | IZATION<br>ELLER D        | DETECTOR<br>ETECTOR | MONI<br>BGD<br>CPM<br>PPM<br>RAD | BACKGRO<br>COUNTS P<br>PARTS PEI | ER MINUTE<br>R MILLION | DGRT<br>PPB<br>MDL               | DRAEGER<br>PARTS PER<br>METHOD I |  |  |
| <u> </u>                        |                  |  |                           | INV                 | ESTIGAT                          | ION DERI                         | VED WASTE              | · · · · ·                        |                                  |  |  |
|                                 | DATE             | : Г  |                           |                     |                                  |                                  |                        | T                                |                                  |  |  |
|                                 |                  |  |                           |                     |                                  |                                  |                        |                                  |                                  |  |  |
|                                 | IL AMO action of |  |                           |                     |                                  |                                  |                        | ·                                |                                  |  |  |
| DRUN                            | Л#, LOO          | CATION:  |                           |                     | 1                                |                                  |                        |                                  |                                  |  |  |
|                                 | OMMEN            |  |                           |                     | SAMPLES 1 SAMPLES DUPLICATES     |                                  | 109el o-2              | ) Dycyna (057 (2-6)              |                                  |  |  |
|                                 |                  |  |                           |                     |                                  |                                  | MS/MSD                 |                                  |                                  |  |  |

PAGE 1 OF 2

|            |  |                         |               | OVER     | BURD           | EN BOI       | RING RE                | PORT          |  | ·                   |
|------------|--|-------------------------|---------------|----------|----------------|--------------|------------------------|---------------|--|---------------------|
|            |  | PAI                     | 7 <b>5</b> 01 | NS       |                | CLIENT:      | WACOE                  | BORII         | NG NO.:  | SB DRYNO-11         |
| PROJECT    | Γ:   |                         | P             | ID (     |                |              |                        | START D       |  | 10/26/02            |
| SWMU#      | (AREA)                                       | :                       | D             | 2mo      | VV             |              |                        | FINISH D      | ATE;   | 1                   |
| SOP NO.    | <u>.                                    </u> |                         | 74            | 11175    |                |              |                        | CONTRAC       | CTOR:  | Lum Dolla           |
|            |  |                         | DRII          | LING SU  | JMMARY         |              | -                      | DRILLER       | :  | transition leile    |
| DRILLING   | HOLE   | DEP'                    | гн            | SAM      | PLER           | 18           | IAMMER                 | INSPECTOR:    |  | Ben / Jenu          |
| METHOD     | DIA.(ft)                                     | INTERV                  | AL (ft)       | SIZE     | ТҮРЕ           | TYPE         | WT/FALL                | CHECKE        | BY:  |                     |
| HSA-       | 4"   | <i>8</i>                | 8             | 2"       | 55             |              | ·                      | СНЕСК Г       | DATE:  |                     |
|            |  | Swift                   | 120-2         | 3"       | SS             |              |                        | BORING C      | CONVERTED  | томw? Y (N)         |
|            |  |                         |               |          | DRII           | LING ACE     | RONYMS                 |               |  |                     |
| HSA        | •  | HOLLOW-ST               | EM AUGI       | ERS '    | HMR            | HAMMER       |                        | SS            | SPLIT SPO  | ON                  |
| DW         |  | DRIVE-AND               |               |          | SHR            |              |                        | CS            | CONTINUO   | US SAMPLING .       |
| MRSLC      |  | MUD-ROTAL               |               | CORING   | HHR            |              | C HAMMER               |               |  | VAL SAMPLING        |
| CA<br>SPC  |  | CASING AD<br>SPIN CASIN |               |          | DHR<br>. WL    |              | LE HAMMER              | NS<br>ST      | NO SAMPLI<br>SHELBY TU                           |                     |
| SFC        | •  | SFIN CASIN              | u             |          | . WL           | WIKE-LINE    |                        | 3S            | 3 INCH SPL                                       |                     |
|            |  |                         |               |          | w              |              | ···                    |               |  | ·                   |
|            |  | ·                       |               | : MO     | NITORIN        | G EQUPM      | ENT SUMMA              | RY            |  |                     |
| INSTRU     | MENT   | DETEC                   | TOR           | RANGE    |                | BACKGRO      | UND                    | CALIE         | RATION   | WEATHER             |
| TYI        | PE   | TYPE/EN                 | IERGY         |          | READING        | тіме         | DATE                   | TIME          | DATE   | (TEMP., WIND, ETC.) |
|            |  | ļ                       |               |          |                | ·            |                        |               |  |                     |
|            |  |                         |               |          |                |              |                        |               |  |                     |
|            | -  |                         |               |          |                |              |                        |               |  |                     |
|            |  |                         |               |          |                |              | <del> </del>           | 1             |  |                     |
|            | ***  |                         |               | <u> </u> |                | <del>-</del> |                        |               | <del>                                     </del> |                     |
|            |  |                         |               |          |                |              |                        | <del>- </del> |  |                     |
|            |  | l                       |               |          |                |              | L                      | 1             | J  |                     |
|            |  |                         |               |          | MONI           |              | CRONYMS                |               |  |                     |
| PID        |  |                         |               | DETECTOR | BGD            |              |                        | DGRT          | DRAEGER  |                     |
| FID<br>GMD |  | GEIGER MU               |               | DETECTOR | CPM<br>PPM     |              | ER MINUTE<br>R MILLION | PPB<br>MDL    | PARTS PER  | DETECTION LIMIT     |
| SCT        |  | SCINTILLAT              |               |          | RAD            |              |                        | · ·           | METHOD   | DETECTION LIMIT     |
|            |  |                         |               |          |                |              |                        |               | ·· · · · · · · · · · · · · · · · · · ·           |                     |
|            |  |                         |               | INV      | 'ESTIGAT       | ION DERI     | VED WASTE              |               |  | ,                   |
|            | DATE   |                         |               | ····     |                |              |                        |               |  |                     |
| SOI        | L AMO  | INT:                    |               |          |                |              |                        | <del> </del>  | ····   |                     |
|            | ction of                                     |                         |               | ···      |                |              | ·                      |               |  |                     |
| DRUM       | I #, LOC                                     | ATION:                  |               |          |                |              |                        |               |  |                     |
|            | MMEN   |                         |               |          | <del>, ,</del> | <u>.</u>     | SAMPLES                | AKEN:         | · · · · · · · · · · · · · · · · · · ·            |                     |
|            |  |                         |               |          |                |              |                        |               | - 16-0   | ( 1) Dama halos/2-4 |
| 1          |  |                         |               |          |                |              | SAMPLES                | DIFTING       | 1-1059   | (0-1) DRMO-1060(Z-6 |
|            |  |                         |               |          |                |              | DUPLICATES             |               |  |                     |
|            |  |                         |               |          |                |              | MS/MSD                 |               | ·  |                     |
|            |  |                         |               |          |                |              | MRD                    | •             | _  |                     |

£

|                               | <del></del>                 |                                     |                                  |                        | ノ.Y          | L.        | K D         | OURDEN BURING REPURI   |               |                  |
|-------------------------------|-----------------------------|-------------------------------------|----------------------------------|------------------------|--------------|-----------|-------------|--|---------------|------------------|
|                               |                             |                                     | PARS                             | ONS                    | •            |           |             | CLIENT: UPA-COE BORING NO.: SBDRYMU-   | 11            |                  |
| COM                           | MENTS:                      |                                     |                                  |                        |              | -         |             | DRILLER: Haven Lyon  | ncAllist      |                  |
| D<br>E<br>P<br>T<br>H<br>(FT) | BLOWS<br>PER<br>6<br>INCHES | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>NO.   | voc       | RAD<br>SCRN | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS |
|                               | 7 21                        | 2'                                  | 2'                               |                        | DRMO-1059    | 0460      | _           | _ Moist to Day weathurd Shale and nock Pragmitts _ Dry Brum Clinse STIT w/possible clay.   | mL            | -                |
| 2-                            | 7 7 8                       | 2'                                  | ť                                |                        |              | 0 1430    |             | Brown Tan STLT Some weathered Shale beginn at hottom.  | mL            | -<br>-<br>-      |
| 4-<br>5-                      | 27<br>15<br>50/."           | 6"                                  | 6"                               |                        | 12 mg - 1800 | 0953 0    | _           | Dry Brown/trun SILT w/some rounded m grandle and Dry weathered shale at bottom   | mL            |                  |
| <br> -                        | 41<br>50/2"                 | 7"                                  | <i>1</i> 4€                      |                        | 7            |           |             | Dry wearnised stale  |               | -<br>-<br>-      |
| ادر –<br>ادر –                | <b>D</b> /z*                | 2"                                  | 震                                |                        |              | 1001 2101 | -<br>-<br>- | Dry weathered shale Split Spoon Relival  | ر ا           | -                |
| 10                            |                             |                                     |                                  |                        |              | 7         | _           | Spirt Spoon Kertwal.   |               |                  |
| _                             |                             |                                     |                                  |                        |              |           | _           |  |               | , . <del>.</del> |
|                               |                             |                                     |                                  |                        |              |           | -<br>  -    | · · · · · · · · · · · · · · · · · · ·  |               | -<br>-<br>-      |
| 15_<br>_                      |                             |                                     |                                  |                        |              |           | _           |  |               | -<br>-<br>-      |
| _                             |                             |                                     |                                  |                        |              |           | _           | -<br>-<br>-  |               | -<br>-           |
| _                             |                             |                                     |                                  |                        |              |           | _           |  | <b>X X</b>    |                  |
| 20_                           |                             |                                     |                                  |                        |              |           | -           | <u></u>  |               |                  |

| • • •        |                                   |                                       |          | <u>OVER</u> | BURD         | EN BOI       | RING RE               | PORT   |                                       | · .                  |  |  |
|--------------|-----------------------------------|---------------------------------------|----------|-------------|--------------|--------------|-----------------------|--|---------------------------------------|----------------------|--|--|
|              |                                   | PAI                                   | 75OI     | NS          |              | CLIENT:      | WACKE                 | BORII  | NG NO.:                               | SB Dramu-la          |  |  |
| PROJECT      | Γ:                                |                                       | PI       | D           |              | •            |                       | START D  |                                       | 10/25/02             |  |  |
| SWMU#        | (AREA)                            | · · · · · · · · · · · · · · · · · · · | -        | Tho         |              | -            | •                     | FINISH D   | ATÉ:                                  | +                    |  |  |
| SOP NO.      | :                                 | -                                     |          | 741175      | •            |              |                       | CONTRAC  | CTOR:                                 | Lyun Drillou         |  |  |
|              | -                                 | : ·.                                  |          |             | JMMARY       |              |                       | DRILLER  | :                                     | Aum Rich             |  |  |
| DRILLING     | HÖLE                              | DEP                                   | гн       | · SAM       | IPLER .      | Н            | IAMMER                | INSPECTO   | OR:                                   | Jenn Ben             |  |  |
| METHOD       | ETHOD DIA.(ft) INTERVAL.(ft) SIZE |                                       |          |             |              | ТҮРЕ         | WT/FALL               | СНЕСКЕ   | BY:                                   |                      |  |  |
| BA           | 4"                                | al - 8                                | }        | 2"          | 55           |              |                       | CHECK I  | DATE:                                 |                      |  |  |
|              |                                   | 0-2                                   | 2        | 3"          | S            |              |                       | BORING C   | ONVERTED                              | TO MW? Y N           |  |  |
|              |                                   |                                       |          | 7           | que DRII     | LING ACE     | RONYMS                | ٠.   |                                       | 9                    |  |  |
| . HSA        | •                                 | HOLLOW-ST                             |          | ers .       | HMR          | HAMMER       |                       | . ss   | SPLIT SPOO                            | N                    |  |  |
| , DW         |                                   | DRIVE-AND                             |          |             | SHR          | • .          |                       | CS   |                                       | US SAMPLING          |  |  |
| MR\$LC<br>CA |                                   | MUD-ROTAL<br>CASING AD                |          | CORING      | . HHR<br>DHR |              | C HAMMER<br>LE HAMMER | 5I<br>NS   | 5 FT INTERV                           | VAL SAMPLING         |  |  |
| SPC          | ••                                | SPIN CASIN                            |          |             | WL           | WIRE-LINE    | ٠.                    | ST   | SHELBY TU                             | . •                  |  |  |
|              | • •                               |                                       |          |             |              |              | :                     | 38   | 3 INCH SPLI                           |                      |  |  |
|              | ·                                 |                                       |          | MO          | NITODIN      | C FOIDM      | ENT SUMMA             | DV   | · · · · · · · · · · · · · · · · · · · |                      |  |  |
| INSTRU       | IMENIT                            | DETEC                                 | TOP      | RANGE       |              | BACKGRO      |                       |  | BRATION                               | WEATHER              |  |  |
| TYI          |                                   | TYPE/ENERGY                           |          | KANGE       | READING      | TIME         | DATE                  | TIME   | DATE                                  | (TEMP., WIND, ETC.)  |  |  |
| 111          | T.E.                              | TIPEE                                 | CERC I   |             | KEADING      | TIME         | DATE                  | TIME   | DATE                                  | (TEMP., WIND, ETC.)  |  |  |
|              |                                   |                                       |          |             | ·            | <del> </del> |                       | <u> </u>   |                                       |                      |  |  |
|              |                                   |                                       |          |             |              | ·            |                       | -  |                                       |                      |  |  |
|              |                                   |                                       |          |             | i            |              |                       |  |                                       |                      |  |  |
|              |                                   |                                       |          |             |              |              |                       | <del>                                     </del> |                                       |                      |  |  |
|              |                                   |                                       |          |             |              | _            |                       | +  | 1                                     |                      |  |  |
|              |                                   | L                                     |          | <u> </u>    | MONI         | FORING A     | CRONYMS               |  | .1                                    |                      |  |  |
| PID          |                                   | PHOTO - IO                            | NIZATION | DETECTOR    | BGD          |              |                       | DGRT   | DRAEGER '                             | TUBES                |  |  |
| FID          |                                   |                                       |          | DETECTOR    | CPM          |              | ER MINUTE             | PPB  | PARTS PER                             |                      |  |  |
| GMD          |                                   | GEIGER MU                             | JELLER D | ETECTOR     | PPM          | PARTS PE     | R MILLION             | MDL  | METHOD D                              | DETECTION LIMIT      |  |  |
| SCT          |                                   | SCINTILLAT                            | TION DET | ECTOR       | RAD          | RADIATIO     | N METER               |  |                                       |                      |  |  |
|              |                                   |                                       | ·        | INV         | ESTIGAT      | ION DERI     | VED WASTE             |  |                                       |                      |  |  |
|              | DATE                              |                                       |          |             |              | 1            |                       |  |                                       |                      |  |  |
| SOI          | L AMO                             | INT :                                 |          |             |              |              |                       |  |                                       |                      |  |  |
|              | action of                         |                                       |          |             |              |              |                       |  |                                       |                      |  |  |
| DRUM         | 1 #, LOC                          | ATION:                                |          |             |              |              |                       |  |                                       |                      |  |  |
| CC           | OMMEN                             | TS:                                   |          |             |              |              | SAMPLES               | ΓAKEN:   |                                       |                      |  |  |
|              |                                   |                                       |          |             |              |              | SAMPLES               | _DRM   | 10/02                                 | (0-2) DRMO -143/2-16 |  |  |
|              |                                   |                                       |          |             |              |              | DUPLICATES            |  |                                       | · · · /              |  |  |
|              |                                   |                                       |          |             |              |              |                       |  |                                       |                      |  |  |
|              |                                   |                                       |          |             |              |              | MS/MSD                |  |                                       |                      |  |  |
|              |                                   |                                       |          |             |              |              | MRD                   |  |                                       |                      |  |  |

| OVERBURDEN BORING REPORT  PARSONS  CLIENT: WACOE BORING NO.: 95 DRING -/2 |                             |                                     |                                  |                        |              |      |             |   |  |              |           |               |   |            |          |        |               |                  |
|---|-----------------------------|-------------------------------------|----------------------------------|------------------------|--------------|------|-------------|---|--|--------------|-----------|---------------|---|------------|----------|--------|---------------|------------------|
| PARSONS   |                             |                                     |                                  |                        |              |      |             |   | CLIEN  | r: W         | DA CO     | E             | BORING NO.: 85 DRMU-12                      |            |          |        |               |                  |
| COMI  | MENTS:                      |                                     |                                  |                        |              |      |             |   | DRILLER: Harry Lyon Rich<br>INSPECTOR: Rossmann / McAllist<br>DATE: 10/25/02 |              |           |               |   |            |          | lister |               |                  |
| D<br>E<br>P<br>T<br>H<br>(FT)   | BLOWS<br>PER<br>6<br>INCHES | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>No.   | VOC  | RAD<br>SCRN |   | wit  | h amount     | modifiers | and grain-siz | IPTION  AJOR COMPONE  2e, density, stratifi | ication, v | or Compo | nents  | USCS<br>CLASS | STRATUM<br>CLASS |
| _   | 5<br>16<br>12               | 2'                                  | 134'                             |                        | -/662        | 1128 | _           | _ Mw<br>_                               | iby Bn   | om/f<br>Csla | bloch (   | silty Cl      | y. Too                                      | u Ra       | grms     |        | 6L            | -                |
| 2-  | 3<br>13<br>30               | 2                                   | lo"                              |                        | 03 DRM0-1662 |      | :           | - Wol                                   | ar Broa  | m CL         | 'Ay d     | s vrewl       | hid Shale                                   | /soch      | lag      |        | CL            | -                |
| 4-<br>5-  | 12<br>30/4"                 | 4"                                  |                                  |                        | Demo-1663    | 1135 | _           | <br><br>SV/W                            | e CLAY   | . Mo         | ostly i   | ny ura        | wheed she                                   | rle.       |          |        | CL            | -<br>-<br>-      |
| 6-<br> -  | <b>20</b> 1,                | <i>t</i> "                          |                                  |                        |              |      | _           | _V0(                                    | recoveu<br>(   | ð -          | Split     | Spon          | lectrery                                    | ļ.         |          |        |               | -<br>-<br>-      |
| -<br>  -  |                             |                                     |                                  |                        |              |      |             | <b></b>                                 |  |              |           |               |   |            |          |        |               | -<br>-<br>-      |
| 10  |                             |                                     |                                  |                        |              |      |             | <del>-</del>                            |  |              |           |               |   |            |          |        |               | -<br>-<br>-      |
| <del></del>   |                             |                                     |                                  |                        |              | ir   |             | <br><br>                                |  |              |           |               |   |            |          |        |               | · –              |
| <br>15  |                             |                                     |                                  |                        |              |      | _           | - · · · · · · · · · · · · · · · · · · · |  |              |           |               |   |            |          |        |               | -<br>-<br>-      |
| <u>-</u>  |                             |                                     |                                  |                        |              |      | _           |   |  |              |           |               |   |            |          |        |               | <br><br>         |
|   |                             |                                     |                                  |                        |              |      | -           | _<br>_<br>_                             |  |              |           |               |   |            |          |        |               | _<br>_<br>_<br>_ |
| 20_   |                             |                                     |                                  |                        |              |      |             | _                                       |  |              |           |               |   |            |          |        |               |                  |

PAGE 1 OF 2

|                  |               |             |  | OVER                 | BURD        | EN BOI                                | RING RE                               | PORT         |              |                    |             |  |
|------------------|---------------|-------------|--|----------------------|-------------|---------------------------------------|---------------------------------------|--------------|--------------|--------------------|-------------|--|
|                  |               | PA          | RSOI   | NS                   |             | CLIENT:                               | WACKE                                 | BÓRII        | NG NO.:      | SB Demo            | <br>) - 13  |  |
| PROJECT          | Γ:            |             | PÍ   | 7)                   |             | · · · · · · · · · · · · · · · · · · · |                                       | START D      |              | whi                | loz         |  |
| SWMU#            | (AREA)        | ):          | M  | lmo                  |             |                                       |                                       | FINISH D     | ATE:         | 1                  |             |  |
| SOP NO.          | :             | •           |  | 41178                |             |                                       |                                       | CONTRAC      | CTOR;        | Lum Da             | 11.         |  |
| <del></del>      | <u> </u>      |             |  |                      | JMMARY      |                                       | · · · · · · · · · · · · · · · · · · · | DRILLER:     |              | UL                 | ezk         |  |
| ORILLING         | HOLE          | DEP         |  |                      | PLER        | · I                                   | IAMMER                                | INSPECTO     |              | Bear Harry / Kill  |             |  |
| METHOD           | DIA.(ft)      | INTERV      | 'AL (ft)                                       | SIZE                 | ТҮРЕ        | TYPE                                  | WT/FALL                               | CHECKE       | D BY:        | _ <i>porr j se</i> | <u> </u>    |  |
| HSA-             | 4"            | 2-8         | }  | 2"                   | 55          |                                       |                                       | CHECK D      | DATE:        |                    |             |  |
|                  |               |             | ue/or)   | 3"                   | 55          |                                       |                                       | BORING C     | ONVERTED 1   | TO MW?             | Y N         |  |
|                  | <u> </u>      | 20011       | ****( <u>*                                </u> |                      |             | LING ACE                              | RONYMS                                |              |              | · · · · · ·        |             |  |
| HSA              |               | HOLLOW-ST   | TEM AUGI                                       | ERS                  | HMR         |                                       | 10111111                              | SS           | SPLIT SPOO   | ON                 |             |  |
| DW               |               | DRIVE-AND   | -WASH  |                      | · SHR       | SAFETY H                              | AMMER                                 | CS           | CONTINUO     | US SAMPLING        |             |  |
| MRSLC            |               | MUD-ROTA    | RY SOIL-C                                      | CORING               | HHR         | HYDRAULI                              | C HAMMER                              | <b>5</b> I . | 5 FT INTERV  | VAL SAMPLING       |             |  |
| CA               |               | CASING AD   |  |                      | DHR         |                                       | LE HAMMER                             | NS           | NO SAMPLI    | NG                 |             |  |
| SPC <sub>.</sub> |               | SPIN CASIN  | 1G   |                      | WL          | WIRE-LINE                             | •                                     | ST           | SHELBY TU    |                    | •           |  |
|                  |               |             |  |                      |             |                                       |                                       | 3S           | 3 INCH SPLI  | 1 SPOON            |             |  |
|                  |               |             |  | МО                   | NITORIN     | G EQUPM                               | ENT SUMMA                             | RY           |              |                    |             |  |
| INSTRU           | MENT          | DETEC       | CTOR   | RANGE                |             | BACKGRO                               | JND                                   | CALIB        | RATION       | WE.                | ATHER       |  |
| TYF              | PE            | TYPE/ENERGY |  |                      | READING     |                                       | DATE                                  | ТІМЕ         | DATE         | (TEMP.,            | WIND, ETC.) |  |
|                  |               |             |  |                      |             |                                       | 1.2                                   |              |              |                    |             |  |
|                  |               | 1           |  |                      |             |                                       |                                       |              | 1            |                    |             |  |
|                  |               | -           |  |                      |             | 1                                     |                                       |              |              |                    |             |  |
|                  |               |             |  |                      |             |                                       |                                       |              | <del> </del> |                    | •           |  |
|                  |               |             |  |                      | <del></del> |                                       |                                       | -            | <del> </del> | <del> </del>       | <del></del> |  |
| <del></del>      |               |             |  | <u> </u>             |             |                                       |                                       | <u> </u>     | <del> </del> |                    |             |  |
|                  |               | 1           |  | ł                    |             |                                       | <u> </u>                              |              |              |                    |             |  |
| DID              |               | BHOTO IO    | NIZ A TION                                     | DETECTOR             |             |                                       | CRONYMS                               | DCDT         | DRAEGER      | THEC               |             |  |
| PID<br>FID       |               |             |  | DETECTOR<br>DETECTOR | BGD<br>CPM  |                                       | ER MINUTE                             | DGRT<br>PPB  | DRAEGER T    |                    |             |  |
| GMD              |               | GEIGER MI   |  |                      | PPM         |                                       | R MILLION                             | MDL          |              | DETECTION LIM      | IT          |  |
| SCT              |               | SCINTILLA   |  |                      | RAD         |                                       | N METER                               |              |              |                    |             |  |
|                  |               |             | <del></del>                                    | INV                  | FSTIGAT     | ION DERI                              | VED WASTE                             |              | <del></del>  |                    |             |  |
|                  | D 4 mm        |             |  |                      |             |                                       |                                       | ı            |              |                    |             |  |
|                  | DATE          | <u>د</u> -  |  |                      |             |                                       |                                       |              |              |                    |             |  |
|                  | L AMO         |             |  |                      |             |                                       |                                       |              |              |                    |             |  |
| (fra             | ction of      | drum)       |  |                      |             |                                       |                                       |              |              |                    |             |  |
| DRUM             | I #, LOC      | CATION:     |  |                      |             |                                       |                                       |              |              |                    |             |  |
|                  | MMEN          | <del></del> | <del></del>                                    |                      |             | <del></del>                           | SAMPLES '                             |              |              |                    |             |  |
|                  | ·= - <b>-</b> |             |  |                      |             |                                       |                                       |              | -100/        | (0-2) DRM          | n-INALA.    |  |
|                  |               |             |  |                      |             |                                       | SAMPLES                               | VEIIW        | 1UDIG        | U-L) UKIN          | v-jugge     |  |
|                  |               |             |  |                      |             |                                       | DUPLICATES                            |              |              |                    |             |  |
|                  |               |             |  |                      |             |                                       | MS/MSD                                |              |              |                    |             |  |
|                  |               |             |  |                      |             |                                       | MRD                                   |              |              |                    |             |  |

|   | O                                   | ERE              | SURDEN BORING REPORT   |               |                  |  |
|---|-------------------------------------|------------------|--|---------------|------------------|--|
|   | RSONS                               |                  | CLIENT: UDA (OF BORING NO.: SIS DRYNO  | -13           |                  |  |
| COMMENTS:                                 |                                     |                  | DRILLER: Hang Lyn<br>Inspector: Kossynumn<br>Date: Islaeloz  | mcAllistr     |                  |  |
| D   SAMPLING                              | OV- DEPTH<br>Y INT NO.<br>GE (FEET) | PLE RAD VOC SCRN | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS |  |
| 8 15 2 2                                  | Demo-loes                           | 980              | _ Moist topsoil and Shale fragments at top.  _ Dry Brum/turn SILT w/ unin mum day last 1/2.  | mL            |                  |  |
| 2 3 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ·                                   | % -              | mwist tan/Brown SILTW/clay last 3-4" Dry Weathered shale   | CL            | -<br>-<br>-<br>- |  |
| 5 5 4" Y" 3"                              | 2 40/- max                          | 880/             | bry wealthured Bedrock   | -             | -<br>-<br>-<br>- |  |
| Solu" 4"                                  |                                     | 101/             | - No Recovery - Some Dry Weathered Redrock<br>- Split spoon Rehasul  |               | -<br>-<br>-      |  |
| 8   |                                     |                  |  |               | -                |  |
| 10  |                                     |                  | -<br>-<br>   |               | _<br>_<br>       |  |
|   |                                     |                  | — .<br>— .<br>— .  |               | -<br>-<br>-      |  |
| 15  |                                     | -                | <br><br>   |               | -<br>-<br>-      |  |
|   |                                     |                  |  |               | -<br>-<br>-      |  |
|   |                                     |                  |  |               | -<br>-<br>-      |  |
| 20  |                                     |                  | -<br>-<br>-  |               | <br>             |  |

|                                       |          |  |  | OVER                | BURD                                     | EN BOF                            | RING RE                       | PORT                             |                      | · ·                                      |
|---------------------------------------|----------|--|--|---------------------|--|-----------------------------------|-------------------------------|----------------------------------|----------------------|--|
| ٠.                                    |          | PAI  | <b>350</b> 1                           | NS                  |  | CLIENT:                           | USACOE                        | BORI                             | NG NO.:              | SMD DRIMO -14                            |
| PROJEC                                | Т:       |  | DI                                     | G                   |  | ,                                 | 4.                            | START D                          |                      | 10/25/02                                 |
| SWMU#                                 |          |  |  | rmo                 |  |                                   |                               | FINISH D                         |                      | 1  |
| SOP NO.                               |          | ·  |  | 11175               |  |                                   |                               | CONTRAC                          |                      | Kun Daille                               |
| 301 1,0.                              | ·        | <del></del>  |  |                     | IMMADY                                   |                                   |                               | <b>1</b> // /                    |                      | Lyon Drilly                              |
|                                       |          |  |  |                     | JMMARY                                   | <u> </u>                          |                               | DRILLER:                         |                      | -ramy Lym /Kith                          |
| DRILLING                              | HOLE     | DEP1   |  | · · · · · ·         | PLER                                     |                                   | AMMER ·                       | INSPECTO                         | . '                  | COSSINGIAM /MCAllisty                    |
| METHOD                                | DIA.(ft) | INTERV   |  | SIZE                | TYPE                                     | TYPE                              | WT/FALL                       | CHECKED                          | D BY:                |  |
| rtsA                                  | 410      | <b>Q</b> ~   |  | 2"                  | <del>\$</del> \$                         |                                   |                               | СНЕСК Б                          | DATE:                | •  |
|                                       | <u> </u> | 0-   | 2                                      | 3"                  | \$5                                      |                                   |                               | BORING C                         | ONVERTED             | TOMW? Y N                                |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC       |          | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTAL<br>CASING AD<br>SPIN CASIN | WASH<br>RY SOIL-C<br>VANCER            | ERS 50 50<br>CORING | C DRII<br>HMR<br>SHR<br>HHR<br>DHR<br>WL | SAFETY HA<br>HYDRAULI<br>DOWN-HOL | AMMER<br>C HAMMER<br>E HAMMER | SS<br>CS<br>51<br>NS<br>ST<br>3S |                      | US SAMPLING<br>VAL SAMPLING<br>NG<br>IBE |
| · · · · · · · · · · · · · · · · · · · |          |  |  | . МО                | NITORIN                                  | G EOUPM                           | ENT SUMMA                     | RY                               | <del> </del>         |  |
| INSTRU                                | JMENT    | DETEC  | TOR                                    | RANGE               |  | BACKGROU                          |                               |                                  | BRATION              | WEATHER                                  |
| TY                                    |          | TYPE/EN  | IERGY                                  |                     | READING                                  | TIME                              | DATE                          | TIME                             | DATE                 | (TEMP., WIND, ETC.)                      |
|                                       |          |  |  |                     |  |                                   |                               |                                  |                      |  |
|                                       |          |  |  |                     |  |                                   |                               |                                  |                      |  |
|                                       |          |  |  |                     |  |                                   |                               | 1                                |                      |  |
|                                       |          |  |  |                     |  |                                   |                               |                                  |                      |  |
| <del></del>                           |          |  |  |                     |  | -                                 |                               |                                  |                      |  |
|                                       |          | <del> </del>   |  |                     |  |                                   |                               |                                  |                      |  |
|                                       |          | L  |  | L                   | <u> </u>                                 |                                   |                               |                                  | J                    |  |
|                                       |          |  |  |                     |  | TORING A                          |                               | DCF=                             | DB 4 COPC            | TUDES                                    |
| PID<br>FID                            |          |  |  | DETECTOR            | BGE<br>CPM                               |                                   | JND<br>ER MINUTE              | DGRT<br>PPB                      | DRAEGER<br>PARTS PER |  |
| GMD                                   |          | GEIGER MU  |  |                     | PPM                                      |                                   |                               | MDL                              |                      | DETECTION LIMIT                          |
| SCT                                   | 1        | SCINTILLAT   | TION DET                               | ECTOR               | RAD                                      | RADIATIO                          | N METER                       | •                                |                      |  |
|                                       |          | <del> </del>   | ······································ | INV                 | ESTIGAT                                  | TION DERI                         | VED WASTE                     | ····                             |                      |  |
|                                       | DATE     | : 1  |  |                     |  | 1                                 | <del></del> -                 | -T                               |                      | ·  |
| ~                                     |          |  |  |                     |  |                                   |                               |                                  |                      |  |
|                                       | IL AMO   |  |  |                     | ···                                      |                                   |                               |                                  |                      |  |
| DRUN                                  | И#, LOC  | CATION:  |  |                     |  |                                   |                               |                                  |                      |  |
| CC                                    | OMMEN    | NTS:   |  |                     |  |                                   | SAMPLES                       |                                  |                      |  |
|                                       |          |  |  |                     |  |                                   | SAMPLES                       | Derm                             | - 10le8              | 6-2) DRMO-1069(2-6)                      |
|                                       |          |  |  |                     |  |                                   | DUPLICATES                    |                                  |                      | <u> </u>                                 |
|                                       |          |  |  |                     |  |                                   |                               |                                  |                      |  |
|                                       |          |  |  |                     |  |                                   | MS/MSD                        |                                  |                      |  |
|                                       |          |  |  |                     |  |                                   | MRD                           |                                  |                      |  |

|                               |                     | ·                                   |                                  |                        | <b>→ V</b> |      | KI  | BURDEN BURING REPORT   |               | ····                                    |
|-------------------------------|---------------------|-------------------------------------|----------------------------------|------------------------|------------|------|-----|--|---------------|---|
| . •                           |                     | • •                                 | PARS                             | ONS                    | 5          |      |     | CLIENT: WALOE BORING NO.: SBDRWW -14   | <b>!</b>      |   |
| COM                           | MENTS:              |                                     |                                  |                        |            | •    |     | DRILLER: HUMY LYON INSPECTOR: ROSSMOMN DATE: 10/25/02  | - 1-          | <u></u>                                 |
| D<br>E<br>P<br>T<br>H<br>(FT) | BLOWS PER 6' INCHES | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>NO. | (PLE | RAD | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS                        |
| •                             | 5<br>9<br>15        | Z'                                  | 134'                             |                        | Demo-1068  | 2%   | _   | _ Moist Ok Brown/Black SiTty Clay Frighented<br>_ Shale  | 6L            |   |
|                               | 2000                | z'                                  | 1/2                              |                        | ZZ         | 1220 |     | Wet de Brom 13/ac CLAY  6" water in hole   | 6L            | -<br>-<br>-                             |
| 4—<br>5—                      | 1<br>2<br>12        | 2'                                  | , (*                             |                        | DEMO-1669  | 052/ |     | - Moist Brown I gray Clay & Stiff SILTY CLAY  Sine wood at bottom above weashered Shale layer  (6 inchis)  | CL            | -<br>-                                  |
| ?<br>_                        | 50/2"               | Ζ'"                                 | 44                               |                        |            | 1235 | _   | - Dry weathed shale  |               |   |
| 6 —<br>—                      | 5V/1"               | i <sup>a</sup>                      |                                  |                        |            |      |     | -No Recovery.  |               |   |
| 10                            |                     |                                     |                                  |                        |            |      |     |  |               |   |
| _                             |                     |                                     |                                  |                        |            |      |     |  |               |   |
| .5                            |                     |                                     |                                  | -                      |            |      |     |  |               | € .                                     |
|                               |                     |                                     |                                  |                        |            |      |     |  |               |   |
|                               |                     |                                     |                                  |                        | `          | i    |     |  | es<br>Angal   | * · · · · · · · · · · · · · · · · · · · |
| 20                            |                     |                                     |                                  |                        |            |      | -   |  |               | ı                                       |

|            |                             |                         |               | OVER     | BURD        | EN BOI    | RING REI               | PORT                                     |             |                            |  |  |  |  |
|------------|-----------------------------|-------------------------|---------------|----------|-------------|-----------|------------------------|--|-------------|----------------------------|--|--|--|--|
|            |                             | PAI                     | 7 <b>5</b> 01 | NS       |             | CLIENT:   | WALVE                  | BORIN                                    | NG NO.:     | SBDRMO·15                  |  |  |  |  |
| PROJECT    | Γ:                          | _                       | PID           | )        |             |           |                        | START D                                  |             | 10/26/02                   |  |  |  |  |
| SWMU#      | (AREA)                      | :                       | DRI           | no       |             |           |                        | FINISH D                                 | ATE:        | <b>→</b>                   |  |  |  |  |
| SOP NO.    | ;                           |                         | 74            | 1175     |             |           |                        | CONTRAC                                  | CTOR:       | Lyon Dalla                 |  |  |  |  |
|            |                             |                         | DRII          | LING SU  | JMMARY      |           |                        | DRILLER:                                 |             | Horry / Ride               |  |  |  |  |
| DRILLING   | HOLE                        | DEP                     | гн            | SAM      | PLER        | Н         | AMMER                  | INSPECTO                                 | DR:         | Ben /Jen                   |  |  |  |  |
| метнор     | DIA.(ft)                    | INTERV                  | AL (ft)       | SIZE     | ТҮРЕ        | TYPE      | WT/FALL                | CHECKER                                  | BY:         |                            |  |  |  |  |
| HSA        | 4"                          | 52-                     | 8             | ₽"       | 55          |           |                        | CHECK D                                  | DATE:       |                            |  |  |  |  |
|            |                             | 0-                      | 2             | 3"       | 55          |           |                        | BORING C                                 | ONVERTED 1  | TO MW? Y N                 |  |  |  |  |
|            |                             |                         |               |          | DRII        | LING ACE  | RONYMS                 |  |             |                            |  |  |  |  |
| HSA        |                             | HOLLOW-ST               | EM AUGI       | ERS      | HMR         | HAMMER    |                        | SS                                       | SPLIT SPOO  | N                          |  |  |  |  |
| DW         |                             | DRIVE-AND               |               |          | AMMER       | CS        |                        | JS SAMPLING                              |             |                            |  |  |  |  |
| MRSLC      |                             | MUD-ROTAL               |               | CORING   | HHR         |           | C HAMMER               | 5I 5 FT INTERVAL SAMPLING NS NO SAMPLING |             |                            |  |  |  |  |
| CA<br>SPC  |                             | CASING AD<br>SPIN CASIN |               |          | DHR<br>· WL |           | LE HAMMER              | NS<br>ST                                 | SHELBY TU   |                            |  |  |  |  |
| J. SPC     |                             | or in Choire            | •             |          | . 172       | WIND-DINE |                        | 38                                       | 3 INCH SPLI |                            |  |  |  |  |
|            |                             |                         | <del></del>   |          |             | A 702     |                        | D. T. /                                  |             |                            |  |  |  |  |
|            | MONITORING EQUPMENT SUMMARY |                         |               |          |             |           |                        |  |             |                            |  |  |  |  |
| INSTRU     | MENT                        | DETEC                   | TOR           | RANGE    |             | BACKGROU  | JND                    | CALIB                                    | RATION      | WEATHER                    |  |  |  |  |
| TY         | PE                          | TYPE/EN                 | IERGY         |          | READING     | TIME      | DATE                   | TIME                                     | DATE        | (TEMP., WIND, ETC.)        |  |  |  |  |
|            |                             |                         |               | <u> </u> |             | _         |                        |  |             |                            |  |  |  |  |
|            | · .,                        |                         |               |          |             |           |                        | 1  |             |                            |  |  |  |  |
|            |                             |                         |               |          |             |           |                        | -  |             |                            |  |  |  |  |
|            |                             | 1                       |               |          |             |           |                        | ļ  |             |                            |  |  |  |  |
|            |                             |                         |               | !        |             | <u> </u>  |                        | ļ  |             |                            |  |  |  |  |
|            |                             |                         |               |          |             |           | L                      | <u></u>                                  |             | ]                          |  |  |  |  |
|            |                             |                         |               |          |             |           | CRONYMS                |  |             |                            |  |  |  |  |
| PID        |                             |                         |               | DETECTOR | BGD         |           |                        | DGRT                                     | DRAEGER '   |                            |  |  |  |  |
| FID        |                             |                         |               | DETECTOR | CPM<br>PPM  |           | ER MINUTE<br>R MILLION | PPB<br>MDL                               | PARTS PER   | BILLION<br>DETECTION LIMIT |  |  |  |  |
| GMD<br>SCT |                             | GEIGER MU<br>SCINTILLAT |               |          | RAD         |           |                        | MDL                                      | METHOD D    |                            |  |  |  |  |
|            |                             |                         |               | Thir     | TECTIO AT   | ION DEDI  | VED WASTE              |  |             |                            |  |  |  |  |
|            |                             |                         |               | INV      | ESTIGAT     | TON DEKI  | VED WASIE              |  |             |                            |  |  |  |  |
|            | DATE                        |                         |               |          |             |           |                        |  |             |                            |  |  |  |  |
|            | L AMO                       |                         |               |          | J           |           |                        |  |             |                            |  |  |  |  |
|            |                             | CATION:                 |               |          |             |           |                        |  |             |                            |  |  |  |  |
|            | OMMEN                       |                         |               |          | ·····       |           | SAMPLES T              | AKEN:                                    |             |                            |  |  |  |  |
|            | >14T14TF7,                  | 110.                    |               |          |             |           | SAMPLES                | DRMO                                     | -1071       |                            |  |  |  |  |
|            |                             |                         |               |          |             |           | DUPLICATES             | <u> </u>                                 | [0.7]       |                            |  |  |  |  |
|            |                             |                         |               |          |             |           |                        |  |             |                            |  |  |  |  |
|            |                             |                         |               |          |             |           | MS/MSD<br>MRD          |  |             |                            |  |  |  |  |

| OVERBURDEN BORING REPORT  CLIENT: WALVE BORING NO.: SB DRM - 15   |   |     |                        |          |                |  |               |                  |  |  |  |  |  |  |  |
|---|---|-----|------------------------|----------|----------------|--|---------------|------------------|--|--|--|--|--|--|--|
| CLIENT: WHUE BORING NO.: SB DRM -15  COMMENTS:  DRILLER: Harn 400 |   |     |                        |          |                |  |               |                  |  |  |  |  |  |  |  |
| COMMENTS:   | DRILLER: Hash you INSPECTOR: LOSSMAN / MC DATE: DOZLO 2  SAMPLING SAMPLE BLOWS PENE RECOV. DEPTH RAD US |     |                        |          |                |  |               |                  |  |  |  |  |  |  |  |
| E   |   | l   | DEPTH<br>INT<br>(FEET) | NO.      | Voc            | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS |  |  |  |  |  |  |  |
| 2 3<br>6 3<br>7 3<br>5 5<br>7 3<br>5 5<br>6 33<br>50              | 2'<br>2'<br>2'  | 18° |                        | Demo-677 | 1411 1405 1403 | - moist Fill Shall Brock Sitt door turds  wet @ 2f4  no recovery.  moist Grey / Brown CLAY w/shall intermixed or layered mostly Short no Sample taken                      |               |                  |  |  |  |  |  |  |  |
| 8 D/2"  | 2"  | 12  |                        |          | 141 1411       | wet Grey CLAY/SILT/Shale (weathered)  not worth surply due to contact of spoor   |               | -                |  |  |  |  |  |  |  |
| 15  |   |     |                        |          |                |  |               |                  |  |  |  |  |  |  |  |
| 20  |   |     |                        |          |                |  |               |                  |  |  |  |  |  |  |  |

|            |             |             | (           | OVER     | BURDI       | EN BOE                                | RING RE   | PORT        |  |                     |
|------------|-------------|-------------|-------------|----------|-------------|---------------------------------------|---|-------------|--|---------------------|
|            |             | PAF         | <b>3501</b> | NS       |             | CLIENT:                               | WALOE   | BORI        | NG NO.:                                | SBDEMO-16           |
| PROJECT    | Γ:          |             | 70          | Ð        |             |                                       |   | START D     |  | 1/02/02             |
| SWMU#      | (AREA)      | : -         | DIEN        | No       |             |                                       |   | FINISH D    | ATE:                                   | +                   |
| SOP NO.    |             | _           | -,          | 11175    |             |                                       |   | CONTRAC     | CTOR:                                  | Lum ralle           |
| ,          | <del></del> |             |             |          | JMMARY      |                                       |   | DRILLER     |  | Heral Lack          |
| DRILLING   | HOLE        | DEPT        |             |          | PLER        | . н                                   | AMMER   | INSPECTO    |  | Ben / Teph          |
| METHOD     | DIA.(ft)    | INTERV      | AL (ft)     | SIZE     | ТУРЕ        | ТҮРЕ                                  | WT/FALL   | CHECKEI     | BY:                                    | - VO.1.7 JOIN.      |
| HSA        | y"          | 2-8.        |             | 2"       | 55          |                                       |   | СНЕСК І     | DATE:                                  |                     |
|            |             | 0-2         |             | 3"       | 55          |                                       |   | BORING C    | ONVERTED 1                             | TOMW? Y (N          |
|            |             |             |             |          | DRIL        | LING ACE                              | ONYMS   |             |  |                     |
| HSA        |             | HOLLOW-ST   | EM AUGI     | ERS      | HMR         | HAMMER                                |   | SS          | SPLIT SPOC                             | N                   |
| DW         |             | DRIVE-AND-  | WASH        |          | SHR         | SAFETY H                              | AMMER   | CS          | CONTINUO                               | US SAMPLING         |
| MRSLC      |             | MUD-ROTAF   |             | CORING   | HHR         |                                       | C HAMMER  |             |  | VAL SAMPLING        |
| CA<br>SPC  |             | CASING AD   |             |          | DHR<br>, WL | WIRE-LINE                             | E HAMMER  | NS<br>ST    | NO SAMPLII<br>SHELBY TU                |                     |
| 51.0       |             | orni Choni  | •           | •        | ""          | WHEE PHYP                             |   | 38          | 3 INCH SPLI                            |                     |
|            |             |             |             |          |             |                                       |   |             |  |                     |
| ·          |             | 1           |             | MO       | NITORIN     | G EQUPM                               | ENT SUMMA   | ARY         |  | T                   |
| INSTRU     | MENT        | DETEC       | TOR         | RANGE    |             | BACKGRO                               | JND   | CALIE       | RATION                                 | WEATHER             |
| TY         | PE          | * TYPE/EN   | ERGY        |          | READING     | TIME                                  | DATE  | TIME        | DATE                                   | (TEMP., WIND, ETC.) |
|            |             |             |             |          | ·           |                                       | ·   |             |  |                     |
|            |             |             |             |          |             |                                       |   |             |  |                     |
|            |             | -           |             |          |             |                                       |   |             |  |                     |
|            |             |             |             |          | <u> </u>    | <del> </del>                          |   |             | <del> </del>                           |                     |
|            |             | -           | <del></del> |          | <u> </u>    |                                       |   |             |  |                     |
|            |             |             |             |          |             | · · · · · · · · · · · · · · · · · · · |   | <del></del> |  |                     |
|            | ··          |             |             | 1        | ļ           |                                       |   |             | <u> </u>                               |                     |
|            |             |             |             |          | MONI        | TORING A                              | CRONYMS   |             |  |                     |
| PID        |             | PHOTO - ION |             |          | BGD         | BACKGRO                               |   | DGRT<br>PPB | DRAEGER<br>PARTS PER                   |                     |
| FID<br>GMD |             | GEIGER MU   |             | DETECTOR | CPM<br>PPM  |                                       | ER MINUTE<br>R MILLION  | MDL         |  | DETECTION LIMIT     |
| SCT        |             | SCINTILLAT  |             |          | RAD         |                                       |   |             |  |                     |
|            |             |             |             | INI      | ESTICAT     | ION DERI                              | VED WASTE   |             | ······································ |                     |
|            |             |             |             | 1111     | ESTIGAT     | ION DERI                              | VED WASTE   |             |  | ,                   |
|            | DATE        | ;           |             |          |             |                                       |   |             |  |                     |
| SOI        | L AMO       | UNT :       |             |          |             | <u> </u>                              |   |             |  |                     |
|            | action of   |             |             |          |             |                                       |   |             |  |                     |
| DRUM       | 1 #. LOC    | CATION:     |             |          |             |                                       |   |             |  |                     |
|            | OMMEN       |             |             |          |             |                                       | SAMPLES   | TAKEN:      |  |                     |
|            |             |             |             |          |             |                                       | SAMPLES   |             | -1074 /                                | n-2) Dama-1075/2-1  |
|            |             |             |             |          |             |                                       |   | Dam         | - 1AOm                                 | V-/ VMIIV-1-100     |
|            |             |             |             |          |             |                                       | DUPLICATES  | DEM         | -1000                                  | Ann walket          |
|            |             |             |             |          |             |                                       | SAMPLES         DKMO-1074 (0-2)         DRMO-1075 (7           DUPLICATES         DLMO-1080           MS/MSD         DRMO-1074 ms |             |  |                     |
| 1          |             |             |             |          |             |                                       | MRD   | DRM         | 0-107                                  | 4mkD                |

| OVERBURDEN BORING REPORT  PARSONS CLIENT: 1124 CMF. BORING NO.: S& DEMO - 1/2 |                          |           |       |   |   |                                       |                  |  |  |  |  |  |  |
|---|--------------------------|-----------|-------|---|---|---------------------------------------|------------------|--|--|--|--|--|--|
|   | PARS                     | SONS      | 1.50  | CLIENT: USA COE                                 | boring no.: SB DRMO -1  | le                                    |                  |  |  |  |  |  |  |
| COMMENTS:   |                          |           |       |   | DRILLER: Harry Lyc  |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       |   | INSPECTOR: ROSSMUMA   | _/MeA                                 | lloster          |  |  |  |  |  |  |
| D SAME  | PLING                    | l SAM     | PLE   | :   | DATE:   0 27 12   | · · · · · · · · · · · · · · · · · · · | T'               |  |  |  |  |  |  |
| E P BLOWS PE  | ENE- RECOV-              | DEPTH NO. | voc R |   | MPLE<br>RIPTION   | USCS<br>CLASS                         | STRATUM<br>CLASS |  |  |  |  |  |  |
| H 6 RA  | NGE RANGE<br>EET) (FEET) | (FEET)    | s     | with amount modifiers and grain-s               | AJOR COMPONENT, Minor Components . ize, density, stratification, wetness, etc.) | CLASS                                 | CLASS            |  |  |  |  |  |  |
| 4   |                          | 16/20     | 7     | - poist Brum-tops on for (<br>w/shale rock trag | 25" Hun Brown SILL  | ML                                    |                  |  |  |  |  |  |  |
| 14 2  | 1 2                      | 77.01-02X | \$    | + w/shale roca may                              | •   |                                       |                  |  |  |  |  |  |  |
| 2 9   |                          |           |       | + moist Brown SILT W/S                          | sometrace cf-f-8AMS   | ML                                    |                  |  |  |  |  |  |  |
| 7.  |                          |           | 3.20  | Moist Brown SILT W/ Sometrace of FSAMS          |   |                                       |                  |  |  |  |  |  |  |
| 4 4   |                          | 4         |       |   |   |                                       |                  |  |  |  |  |  |  |
| 5 3   | $ r _{H^1}$              | 12        | 之     | Moisit Brown SIZT. UN                           |   | CZ                                    |                  |  |  |  |  |  |  |
| 5 2   | / /2"                    | DRMO-1075 | 1348  |   |   |                                       |                  |  |  |  |  |  |  |
| 6 20  |                          | 1 1%      |       | wet weathered shale                             | -arly.  | _                                     |                  |  |  |  |  |  |  |
| 9/2 8   | u Pu                     |           | 34,   |   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           | 5     | - Cal & Carrie                                  | . 0 0 0   |                                       |                  |  |  |  |  |  |  |
| 3 91 1  | ••                       |           | 4     | No become Split spour                           | Kefuoali  | ,                                     |                  |  |  |  |  |  |  |
| 1   |                          |           | 4     | +   |   |                                       |                  |  |  |  |  |  |  |
| 0   |                          |           |       |   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       |   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       |   |   |                                       |                  |  |  |  |  |  |  |
| \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \   |                          |           |       | †   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | +   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       |   |   |                                       |                  |  |  |  |  |  |  |
| 5   |                          |           |       | _   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | <del>-</del>                                    |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | +   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | <u> </u>  |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | <u> </u>  |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | -   |   |                                       |                  |  |  |  |  |  |  |
|   |                          |           |       | +   |   |                                       |                  |  |  |  |  |  |  |
| 20  |                          |           |       | -   |   |                                       |                  |  |  |  |  |  |  |

|            |                                       |  |               | OVER                                      | BURD       | EN BOI     | RING RE    | PORT        |             | •                       |  |  |
|------------|---------------------------------------|--|---------------|---|------------|------------|------------|-------------|-------------|-------------------------|--|--|
|            |                                       | PAF  | <b>150</b> 1  | VS  |            | CLIENT:    | LUSALOE    | BORIN       | IG NO.:     | 5B DEMO-17              |  |  |
| PROJEC     | Γ:                                    |  | P             | FD  |            |            |            | START D     |             | 10/28/02                |  |  |
| SWMU#      | (AREA)                                | •  | Dr.           | emo                                       |            |            |            | FINISH D    | ATE:        | Ψ                       |  |  |
| SOP NO.    |                                       |  | 7             | 41178                                     |            |            |            | CONTRAC     | CTOR:       | Lyon Drilly             |  |  |
|            |                                       |  | DRII          | LING SU                                   | JMMARY     |            |            | DRILLER:    | •           | to Hamilech             |  |  |
| DRILLING   | HOLE                                  | DEPT   | .H            | SAM                                       | PLER       | Н          | AMMER      | INSPECTO    | DR:         | Ben / Jem               |  |  |
| METHOD     | DIA.(ft)                              | INTERV   | AL (ft)       | SIZE                                      | ТҮРЕ       | TYPE       | WT/FALL    | CHECKED     | BY:         |                         |  |  |
| HSA        | 46                                    | 2-8  | , v           | 2"  | 2.5        |            |            | CHECK D     | ATE:        |                         |  |  |
| ••         |                                       | 0-   | 2             | 3"  | 55         |            |            | BORING C    | ONVERTED 1  | romw <sub>?</sub> Y (N) |  |  |
|            |                                       | ·  |               | ,   |            | LING ACE   | RONYMS     |             |             |                         |  |  |
| HSA        |                                       | HOLLOW-ST  | EM AUGI       | ERS                                       | HMR        |            |            | SS          | SPLIT SPOO  | М                       |  |  |
| DW         |                                       | DRIVE-AND-                                       | WASH          |   | SHR        | SAFETY H   | AMMER      | CS          | CONTINUOL   | JS SAMPLING             |  |  |
| MRSLC      |                                       | MUD-ROTAL  | RY SOIL-C     | CORING                                    | HHR        | HYDRAULI   | C HAMMER   | 51 .        | 5 FT INTERV | /AL SAMPLING            |  |  |
| CA         | 4                                     | CASING AD  | VANCER        |   | DHR        | DOWN-HOI   | E HAMMER   | NS          | NO SAMPLI   | NG                      |  |  |
| SPC        |                                       | SPIN CASIN                                       | G             |   | . WL       | WIRE-LINE  |            | ST          | SHELBY TU   |                         |  |  |
|            |                                       |  |               |   |            |            |            | 3S          | 3 INCH SPLI | T SPOON                 |  |  |
|            | · · · · · · · · · · · · · · · · · · · |  |               | MO  | NITORIN    | G EQUPM    | ENT SUMMA  | RY          |             |                         |  |  |
| INSTRU     | MENT                                  | DETEC  | TOR           | RANGE                                     |            | BACKGRO    |            |             | RATION      | WEATHER                 |  |  |
| TY         | PE                                    | TYPE/EN  | ERGY          |   | READING    | тіме       | DATE       | TIME        | DATE        | (TEMP., WIND, ETC.)     |  |  |
|            |                                       |  |               |   | 100/101/10 |            |            |             |             |                         |  |  |
|            |                                       | <del>                                     </del> |               | ·   |            |            |            |             |             |                         |  |  |
|            |                                       |  |               |   |            |            |            |             | <u> </u>    |                         |  |  |
|            |                                       |  |               |   |            |            | ,          |             |             |                         |  |  |
|            |                                       |  |               |   |            |            |            |             |             |                         |  |  |
|            |                                       |  |               |   |            |            |            |             |             |                         |  |  |
|            |                                       | <del>                                     </del> |               |   |            |            |            | · · ·       |             |                         |  |  |
|            | <del></del>                           | L  |               | 1   | 1          | TOPING     | CDONVING   |             | J           |                         |  |  |
|            |                                       |  | W7 - FF61     | P. D. |            |            | CRONYMS    | DCDT.       | DD AECED 1  | TIDES                   |  |  |
| PID<br>FID |                                       | PHOTO - IO                                       |               | DETECTOR                                  | BGD<br>CPM |            | ER MINUTE  | DGRT<br>PPB | DRAEGER '   |                         |  |  |
| GMD        |                                       | GEIGER MU  |               |   | PPM        |            | R MILLION  | MDL         |             | DETECTION LIMIT         |  |  |
| SCT        |                                       | SCINTILLA  |               |   | RAD        |            | N METER    | *           |             |                         |  |  |
|            |                                       | · · · · · · · · · · · · · · · · · · ·            | <del></del> - | INI                                       | /FSTICAT   | TION DERI  | VED WASTE  |             |             |                         |  |  |
|            | D                                     | , ,  |               |   | LULIGHI    | TO TO DEIG | 11110 111  |             |             |                         |  |  |
|            | DATE                                  | ,  | /6            | 28/02                                     |            |            |            |             |             |                         |  |  |
|            | L AMO                                 |  | 7.5           | -01                                       |            |            |            |             |             |                         |  |  |
| (fra       | action of                             | drum)  |               | V   |            |            |            |             |             | <u>.</u>                |  |  |
| DRUM       | 1 #, LOC                              | CATION:  |               |   |            |            |            |             |             |                         |  |  |
|            | OMMEN                                 |  |               | ·   |            |            | SAMPLES    | TAKEN:      |             |                         |  |  |
|            |                                       |  |               |   |            |            |            |             | 1077 /      | - 1 Nous 1078/s         |  |  |
|            |                                       |  |               |   |            |            | SAMPLES    | HOLLAN.     | 1011 (      | 0-2) DXMO-1078(2        |  |  |
|            |                                       |  |               |   |            |            | DUPLICATES |             |             |                         |  |  |
|            |                                       |  |               |   |            |            | MS/MSD     |             |             |                         |  |  |
|            |                                       |  |               |   |            |            | MRD        | *****       |             |                         |  |  |

| OVERBURDEN BORING REPORT  PARSONS  CLIENT: WDA COE  BORING NO.: SB DEMO - 17 |                    |                            |                        |        |       |      |      |   |       |         |  |  |  |
|--|--------------------|----------------------------|------------------------|--------|-------|------|------|---|-------|---------|--|--|--|
| COLG   |                    |                            |                        |        |       |      |      |   |       |         |  |  |  |
| COMIN  | AEN15:             |                            |                        |        | :     |      | :    | DRILLER: HOWN LYON  | ,     |         |  |  |  |
|  |                    |                            |                        |        | ٠.    |      | -    | INSPECTOR: LOSSINUMA  | ma    | lister  |  |  |  |
| D  |                    | AMPLIN                     |                        |        | 5434  | OV E |      | DATE: 10/28/02  |       | *       |  |  |  |
| E<br>P   | BLOWS              | PENE-                      | RECOV-                 | DEPTH  | SAM   |      | RAD  | SAMPLE<br>DESCRIPTION   | USCS  | STRATUM |  |  |  |
| T<br>H<br>(FT)   | PER<br>6<br>INCHES | TRATION<br>RANGE<br>(FEET) | ERY<br>RANGE<br>(FEET) | (FEET) | NO.   | voc  | SCRN | (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.). | CLASS | CLASS   |  |  |  |
|  | 50                 |                            |                        |        | 0     | 0    |      | Muist 18th bot Black rock short looks like  |       |         |  |  |  |
| _  | 70<br>18           | 2'                         | 2                      |        | Deno. | =    | -    | - (bal but is not mixed w/lunger rock + shale shale w/Asphalt. 2nd Bot Brown SELT   | ML    |         |  |  |  |
| 2-   | 14                 |                            |                        |        | 23    |      |      | - Shale with product 2  |       |         |  |  |  |
| L  | 4                  | _ (                        | //                     |        | 820   | SO.  |      | - moist Hyrey/orange/willow SILT.   | mL    |         |  |  |  |
| _  | 6                  | 2                          | /2                     |        | 1     | -    | _    | -<br>-  |       |         |  |  |  |
| 4_   | 0                  |                            | ار                     | ·      | DKM   |      |      | Dry weathered Bedrock   |       |         |  |  |  |
| 5  | 50/4"              | /O*                        | 5"                     |        | 4     | 17.  |      |   | _     |         |  |  |  |
|  |                    |                            |                        |        |       | ~    |      | -<br>-  |       |         |  |  |  |
| 6-   | 40/v               |                            |                        |        |       |      | _    | Now manufacted Bectrock   | _     |         |  |  |  |
|  |                    | 4"                         | 1"                     |        | . ,   | _    |      | - Dry weathered Bectrock - No Recovery. Spour befusal   |       |         |  |  |  |
| d  |                    |                            |                        |        |       | 130  |      | - Samo lehing V   |       |         |  |  |  |
| 8-   | <b>5</b> 0 i       | 111                        |                        | -      |       |      |      | - Mokeway. You'll cousine   |       |         |  |  |  |
| _  |                    | '                          |                        | 4,     |       |      | _    |   |       |         |  |  |  |
| 10   |                    |                            |                        |        |       |      | _    | <del>-</del><br>-   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      |      | _   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      | _    |   | 1     |         |  |  |  |
|  |                    |                            |                        |        |       |      |      | <del>-</del>  |       | т       |  |  |  |
|  |                    |                            |                        |        |       |      |      |   | ,     |         |  |  |  |
|  |                    |                            |                        |        |       |      |      | -   |       | ±.      |  |  |  |
|  |                    |                            |                        |        |       |      | -    |   |       | - F     |  |  |  |
| 15   |                    |                            |                        |        |       |      | _    |   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      |      | -   |       |         |  |  |  |
|  |                    |                            |                        |        |       | 177  |      | -<br>-<br>-   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      | _    | - · · · · · · · · · · · · · · · · · · ·   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      | _    | _<br>   |       |         |  |  |  |
|  |                    |                            |                        |        |       |      |      | _   |       |         |  |  |  |
| -  |                    |                            |                        |        |       |      | _    | _   |       |         |  |  |  |
| 20   |                    |                            |                        |        |       |      | _    | _   |       |         |  |  |  |

PAGE 1 OF L

|                                       |          |                         | <del></del>   |                                       | BURD       |              | RING RE              |             |                        |                     |
|---------------------------------------|----------|-------------------------|---------------|---------------------------------------|------------|--------------|----------------------|-------------|------------------------|---------------------|
|                                       |          | PAI                     | RSOI          | NS<br>                                |            | CLIENT:      | WACOE                | BORI        | NG NO.:                | S130RMU -418        |
| PROJECT                               | Γ:       |                         | $\mathcal{P}$ |                                       |            |              |                      | START D     | •                      | 10/27/02            |
| WMU#                                  | (AREA)   | :                       | NRY           | no                                    |            |              |                      | FINISH D    | ATE:                   | +                   |
| SOP NO.                               | <b>.</b> |                         | 0             | 1175                                  |            |              |                      | CONTRAC     | CTOR:                  | Lyon Drilly         |
|                                       |          |                         | DRII          | LING S                                | UMMARY     |              |                      | DRILLER:    |                        | Horry / Rick        |
| ORILLING                              | HOLE     | DEP.                    | тн            | SAN                                   | IPLER .    | , I          | IAMMER               | INSPECTO    | OR:                    | Bert Lenn           |
| METHOD                                | DIA.(ft) | INTERV                  | AL (ft)       | SłZE                                  | ТҮРЕ       | TYPE         | WT/FALL              | CHECKE      | BY;                    |                     |
| HSA                                   | 64       | 2-6                     | 2             | 3"                                    | <i>5</i> 5 | ·            |                      | CHECK D     | DATE:                  |                     |
|                                       |          | 0-2                     | 2_            | 3ª                                    | دی         |              |                      | BORING C    | ONVERTED               | томw? Y (N          |
|                                       |          |                         |               |                                       | DRIL       | LING ACE     | RONYMS               |             |                        |                     |
| HSA                                   |          | HOLLOW-ST               | ΓEΜ AUG       | ERS                                   | HMR        | HAMMER       |                      | SS          | SPLIT SPOO             | ON .                |
| DW                                    | ,        | DRIVE-AND               |               | •                                     | SHR        | SAFETY H     |                      | CS          |                        | US SAMPLING         |
| MRSLC                                 | •        | MUD-ROTAL               |               | ORING                                 | HHR        |              | C HAMMER             |             |                        | VAL SAMPLING        |
| C.A<br>SPC                            |          | CASING AD<br>SPIN CASIN |               |                                       | DHR<br>WL  | WIRE-LINE    | LE HAMMER            | NS<br>ST    | NO SAMPLI<br>SHELBY TU |                     |
|                                       |          | Di II, Cribii           |               |                                       | ""         | WING-DINE    |                      | 3S          | 3 INCH SPLI            |                     |
|                                       |          | ·                       |               | · · · · · · · · · · · · · · · · · · · |            | <del> </del> |                      |             |                        |                     |
| · · · · · · · · · · · · · · · · · · · |          |                         |               | MC                                    | NITORIN    | G EQUPM      | ENT SUMMA            | ARY         |                        |                     |
| INSTRU                                | MENT     | DETEC                   | CTOR          | RANGE                                 |            | BACKGRO      | JND                  | CALIB       | RATION                 | WEATHER             |
| TYI                                   | PE       | TYPE/EN                 | NERGY         |                                       | READING    | TIME         | DATE                 | TIME        | DATE                   | (TEMP., WIND, ETC.) |
|                                       |          |                         |               |                                       |            |              | ·                    |             |                        |                     |
|                                       |          |                         |               |                                       | -          |              |                      |             |                        |                     |
|                                       |          |                         |               |                                       |            |              |                      | -           |                        |                     |
|                                       |          | <u> </u>                |               |                                       |            | -            |                      | <del></del> | -                      |                     |
|                                       |          |                         |               |                                       |            |              |                      |             |                        |                     |
|                                       |          |                         |               |                                       |            |              |                      |             | ļ                      |                     |
|                                       |          |                         |               |                                       |            |              | <u> </u>             | l           |                        |                     |
|                                       |          |                         |               |                                       | MONIT      | ORING A      | CRONYMS              |             |                        |                     |
| PID                                   |          |                         |               | DETECTOR                              | BGD        | BACKGRO      |                      | DGRT        | DRAEGER                | TUBES               |
| FID                                   |          |                         |               | DETECTOR                              | CPM        |              | ER MINUTE            | PPB         | PARTS PER              |                     |
| GMD<br>SCT                            |          | GEIGER MU<br>SCINTILLAT |               |                                       | PPM<br>RAD |              | R MILLION<br>N METER | MDL         | METHOD I               | DETECTION LIMIT     |
|                                       |          |                         |               |                                       |            |              |                      |             |                        |                     |
|                                       |          |                         |               | INV                                   | ESTIGAT    | ION DERI     | VED WASTE            |             |                        |                     |
|                                       | DATE     | : !                     |               |                                       |            |              |                      |             |                        |                     |
|                                       |          |                         |               |                                       |            |              |                      |             |                        |                     |
|                                       | L AMO    |                         | '             |                                       |            |              |                      |             |                        |                     |
| (Ira                                  | ction of | utum)                   |               | -                                     |            |              |                      | <del></del> |                        |                     |
| DRUM                                  | 1 #, LOC | ATION:                  |               |                                       |            |              |                      |             |                        |                     |
| CC                                    | MMEN     | TS:                     |               |                                       |            |              | SAMPLES              | TAKEN:      |                        |                     |
|                                       |          |                         |               |                                       |            |              | SAMPLES              | Dem.        | 1081 6                 | -2) DRMO -1052      |
|                                       |          |                         |               |                                       |            |              | ,                    | JAN V       | 150. (5                | -, -,               |
|                                       |          |                         |               |                                       |            |              | DUPLICATES           |             | -                      |                     |
|                                       |          |                         |               |                                       |            |              | MS/MSD               |             |                        |                     |
|                                       |          |                         |               |                                       |            |              | MPD                  |             |                        |                     |

FIGURE A-2

|   | PARSONS CLIENT: WA-COE BORING NO.: SB DEMO-24 (8 |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             |           |
|---|--|--|------------------------|------------------------------|------|--------|------|-----------|-------------|----------|------------|-----------------------------------|-----------------|--------|--------|-----------|------------|--------------|---------|-------------|-----------|
|   | PARSONS CLIENT: WAA-COE BORING NO.: SB XMD-24/18 |  |                        |                              |      |        |      |           |             |          |            |                                   |                 | 18     |        |           |            |              |         |             |           |
| COM   | DMMENTS:  DRILLER: Have Lynn                     |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        | -      |           |            |              |         |             |           |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   | 1               |        |        | • .       | U          | ,            | - 111's | <u></u>     | -         |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        | JK:    |           | munnn<br>I | - 1          | CAllo   | <u>u</u>    | -         |
| D   | S  | AMPLIN   | G                      | _                            | SAM  | PLE    |      |           |             |          |            |                                   | <u>tl</u>       | DATE:  |        | 10/2      | 7/02       | <del>-</del> |         |             |           |
| E P   | BLOWS  | PENE-  | RECOV-                 | DEPTH                        |      |        | RAD  |           |             |          |            |                                   | MPLE<br>RIPTION |        |        |           |            |              | uscs    | STRATU      | м         |
| T<br>H<br>(FT)  | PER<br>6<br>INCHES                               | TRATION<br>RANGE<br>(FEET)                               | ERY<br>RANGE<br>(FEET) | INT<br>(FEET)                | NO.  | voc    | SCRN |           | (As pe      | r Burmei | ister: col | or, grain size, Miers and grain-s | AAJOR C         | OMPONI | ENT, M | linor Con | ponents    |              | CLASS   | CLASS       | ;         |
| (-1)  | 15   | (1221)   | (122.1)                | <u> </u>                     | -    |        |      | Ma        | <del></del> |          |            |                                   | <del></del>     |        |        |           |            | 5.           |         | <del></del> |           |
| . <u> </u>  | 30   | 2' 2' 2'   Maist today Fill material glass/bolk/nails@no |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        | 104       | -          | . •          | _       |             |           |
|   | 35   | 2  | 10                     | Born Sut and Small day laver |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              | -       |             |           |
| u -   | 15   |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           | _          |              |         |             |           |
|   | 9 2.5  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        | -      |           |            |              |         |             |           |
|   | 15   | 2'   | ル                      |                              |      | 033    |      | Ė         |             |          |            | ·                                 |                 |        |        |           |            |              |         |             | -         |
| U-  | 32   |  |                        |                              | 9    | ~      |      | <u> </u>  |             | _        |            |                                   |                 | 0.     |        |           |            |              |         |             |           |
| [   | 15<br>50/4"                                      | 10"  | 6                      |                              | £9/- |        |      | _Mbi      | <b>st</b> ) | NUK      | clay       | w/pos                             | sible           | 15     | ind    | nt i      | where      | d            | ML      |             | _         |
| 5 —   | <i>30)4</i> "                                    | ~  | •                      |                              | 2    | 8      | _    | ⊢ SI      | rall        | ! at     | both       | on                                |                 |        |        |           |            |              | ""      |             | -         |
| 1.  |  |  |                        | ŀ                            | 23   | 1 2601 |      | _         |             |          | _          | rale                              |                 |        |        |           |            |              |         |             | -         |
| \ \( \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ | 59/2"  | 2"   | 2"                     |                              |      |        | _    | Dny       | wea         | shen     | cel Sl     | rale                              |                 |        |        |           |            |              |         |             |           |
|   |  |  |                        |                              |      |        | _    | L 0       |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
| ~   |  |  |                        |                              |      |        |      | -         |             |          |            |                                   |                 |        |        |           |            |              |         |             | -         |
| 8-  |  |  |                        |                              |      |        | _    | $\vdash$  |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             | 1         |
| 10  |  |  |                        |                              |      |        |      | -         |             |          |            |                                   |                 |        |        |           |            |              |         | ÷           | -         |
|   |  |  |                        |                              |      |        |      | -         |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        | _    |           |             |          |            |                                   |                 |        |        |           |            |              | ľ       |             | -         |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             |           |
|   |  |  |                        |                              |      |        |      | L         |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        | _    | -         |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        |      | <u> </u>  |             |          |            |                                   |                 |        |        |           |            |              |         |             | -         |
| · .   |  |  |                        |                              |      |        | _    |           |             |          |            |                                   |                 |        |        |           |            |              |         |             |           |
| 15_   |  |  |                        |                              |      |        | _    | -         |             |          |            |                                   |                 |        |        |           |            |              |         |             | 4         |
|   |  |  |                        |                              |      |        |      | -         |             |          |            |                                   |                 |        |        |           |            |              |         |             | -         |
|   |  |  |                        |                              |      |        |      | $\vdash$  |             |          |            |                                   |                 |        |        |           |            |              |         |             | $\exists$ |
|   |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             |           |
|   |  |  |                        |                              |      |        |      | L         | •           |          |            |                                   |                 |        |        |           |            |              |         |             |           |
|   |  |  |                        |                              |      |        | _    | <u> -</u> |             |          |            |                                   |                 |        |        |           |            |              |         |             | _         |
|   |  |  |                        |                              |      |        |      | H         |             |          |            |                                   |                 |        |        |           |            |              |         |             | -         |
|   |  |  |                        |                              |      |        | _    | <u> </u>  |             |          |            |                                   |                 |        |        |           |            |              | ĺ       |             | -         |
| 20  |  |  |                        |                              |      |        |      |           |             |          |            |                                   |                 |        |        |           |            |              |         |             |           |
| <u></u>   | l  |  | <u> </u>               | <b></b>                      |      |        |      | L         |             |          |            |                                   |                 |        |        |           |            | i            |         |             |           |

|                             |                  |                        |             | OVER       | BURD       | EN BOI    | RING RE                 |            |                       |  |  |  |  |
|-----------------------------|------------------|------------------------|-------------|------------|------------|-----------|-------------------------|------------|-----------------------|--|--|--|--|
|                             |                  | PAI                    | <b>2501</b> | <b>N</b> S |            | CLIENT:   | WALDE                   | BORI       | NG NO.:               | SBDRMO-19  |  |  |  |
| PROJEC                      | Γ:               |                        | P.          | ID         |            |           |                         | START D    | ATE:                  | SBDR1110-19<br>10/27/02                          |  |  |  |
| SWMU#                       | (AREA)           | : _                    | D(          | unu        |            |           |                         | FINISH D   |                       | _ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \          |  |  |  |
| SOP NO.                     | :                |                        |             | 741178     |            |           |                         | CONTRAC    | CTOR:                 | Lym Doth   |  |  |  |
|                             |                  |                        | DRII        | LING SU    | JMMARY     |           |                         | DRILLER    | :                     | Hary Irick                                       |  |  |  |
| DRILLING                    | HOLE             | DEPT                   | ТH          | SAM        | PLER       | . H       | IAMMER                  | INSPECTO   | OR:                   | Bun YJony  |  |  |  |
| METHOD                      | DIA.(ft)         | INTERV                 |             | SIZE       | TYPE       | ТҮРЕ      | WT/FALL                 | CHECKE     | D BY:                 |  |  |  |  |
| HSA                         | 411              | 2-4                    | •           | . Z*       | #-5s       |           | • .                     | СНЕСК І    | DATE:                 |  |  |  |  |
|                             |                  | 6-2                    |             | 34         | SS         |           |                         | BORING (   | CONVERTED             | TOMW? Y (N)                                      |  |  |  |
|                             |                  |                        |             |            | DRII       | LLING ACT | RONYMS                  |            |                       |  |  |  |  |
| HSA                         |                  | HOLLOW-ST              | EM AUGI     | ERS        | HMR        | HAMMER    | •                       | SS         | SPLIT SPOO            | ON   |  |  |  |
| DW                          |                  | DRIVE-AND              |             |            | SHR        |           |                         | CS         |                       | US SAMPLING                                      |  |  |  |
| MRSLC                       |                  | MUD-ROTAF<br>CASING AD |             | CORING     | HHR<br>DHR |           | C HAMMER<br>LE HAMMER   | SI .<br>NS | NO SAMPLI             | VAL SAMPLING<br>NG                               |  |  |  |
| CA<br>SPC                   | •                | SPIN CASIN             |             |            |            | WIRE-LINE |                         | ST         | SHELBY TU             |  |  |  |  |
|                             |                  |                        |             |            |            |           |                         | 3S         | 3 INCH SPL            |  |  |  |  |
| MONITORING EQUPMENT SUMMARY |                  |                        |             |            |            |           |                         |            |                       |  |  |  |  |
| · ·                         |                  | <u> </u>               |             |            | NITORIN    |           |                         |            |                       |  |  |  |  |
| INSTRU                      | JMENT            | DETEC                  | TOR         | RANGE      |            | BACKGRO   | UND                     | CALII      | BRATION               | WEATHER  |  |  |  |
| TY                          | PE               | TYPE/EN                | ERGY        |            | READING    | TIME      | DATE                    | TIME       | DATE                  | (TEMP., WIND, ETC.)                              |  |  |  |
|                             |                  |                        |             |            |            |           |                         |            |                       |  |  |  |  |
|                             |                  |                        |             |            | ·          |           |                         |            |                       |  |  |  |  |
|                             |                  | -                      |             |            |            |           |                         |            |                       |  |  |  |  |
|                             |                  |                        |             |            |            |           |                         |            |                       |  |  |  |  |
|                             |                  |                        |             |            |            |           | -                       | +          |                       |  |  |  |  |
| -                           | -                |                        |             |            |            |           |                         |            | <del> </del>          | <del>                                     </del> |  |  |  |
|                             |                  | <u> </u>               |             |            | <u> </u>   |           | <u> </u>                |            | <u> </u>              |  |  |  |  |
|                             |                  |                        |             |            | MONI       |           | CRONYMS                 |            |                       |  |  |  |  |
| PID                         |                  |                        |             | DETECTOR   | BGD        |           |                         | DGRT       | DRAEGER               |  |  |  |  |
| FID<br>GMD                  |                  | GEIGER MU              |             | DETECTOR   | CPM<br>PPM |           | PER MINUTE<br>R MILLION | PPB<br>MDL | PARTS PER<br>METHOD I | DETECTION LIMIT                                  |  |  |  |
| SCT                         |                  | SCINTILLAT             |             |            | RAD        |           |                         |            |                       |  |  |  |  |
|                             |                  | ····                   |             | TAIX       | TECTIC AT  | TION DEDI | VED WASTE               |            | ·                     | 1  |  |  |  |
|                             |                  |                        |             |            | ESTIGAT    | TON DEKI  | TED WASIE               |            |                       | ,  |  |  |  |
|                             | DATE             |                        |             |            |            |           |                         |            |                       |  |  |  |  |
|                             | IL AMO action of |                        |             |            |            |           |                         |            |                       |  |  |  |  |
| DRUM                        | 4#. LOC          | CATION:                |             |            |            |           |                         |            |                       |  |  |  |  |
|                             | OMMEN            |                        |             |            |            |           | SAMPLES                 | TAKEN:     |                       |  |  |  |  |
|                             |                  |                        |             |            |            |           | SAMPLES                 |            | - 1084                | 1/0-2  |  |  |  |
|                             |                  |                        |             |            |            |           | ,                       | Dan        | , - 10 % ·            |  |  |  |  |
|                             |                  |                        |             |            |            |           | DUPLICATES              |            |                       |  |  |  |  |
|                             |                  |                        |             |            |            |           | MS/MSD                  |            |                       |  |  |  |  |
| 1                           |                  |                        |             |            |            |           | L/BD                    |            |                       |  |  |  |  |

| COMMENTS:  COMMENTS:  COMMENTS:  DATE: PARTYLY  INSPECTOR: LASSINGEN MAHINGTON  DATE: 100710-  D |      | OVERBURDEN BORING REPORT  PARSONS CLIENT: UNL ( DE BORING NO.: CIR DAMA - 19 |         |        |        |     |          |           |          |                                 |             |                              |                                   |         |      |
|--|------|--|---------|--------|--------|-----|----------|-----------|----------|---------------------------------|-------------|------------------------------|-----------------------------------|---------|------|
| DRILIER HOMELAND  DRILIER HOME |      | PARSONS CLIENT: WALDE BORING NO.: SB DENU-                                   |         |        |        |     |          |           |          |                                 |             |                              |                                   |         |      |
| DSTATE: LOSS TATION MUHICLEY  DOTT: 1748 ARROWS 1800.  DOTT: 1749 ARROW | COM  | MENTS:   |         |        |        |     |          |           |          | ,                               |             | DRILLER:                     | . 1                               |         |      |
| DATE 10 FAME NOTE TO SAMPLE DESCRIPTION OF THE PROPERTY OF THE |      |  |         |        |        |     |          |           |          |                                 |             | INSPECTOR:                   | Rossmann                          | I MANIC | Ster |
| D SAMPLENC DOWN MECON: TO NO NO NO FIRST DESCRIPTION D |      |  |         |        |        |     |          |           | •        |                                 |             | DATE:                        |                                   |         |      |
| The state of the s | E    |  | AMPLIN  | G<br>I |        | SAM | PLE      | · · · · · |          |                                 | SAN         | MPLE                         | 1310                              |         |      |
| 4  | T    | PER  | TRATION | ERY    | INT    | NO. | voc      |           |          | (As are Discovering as less are |             |                              | r                                 |         |      |
| 10   10   15   15   15   16   16   16   16   16  |      |  |         |        | (FEE1) |     | <u> </u> | SCKN      | <u> </u> |                                 | nd grain-si | ize, density, stratification | withor Components, wetness, etc.) |         |      |
| 19   2   1   8   Dry weatherd Shale.   -   |      | 6  |         |        |        | \$  |          |           | (0-      | 1') Fill -Rocks                 |             | . ST. T. 1/50                | 1.0 C/o .                         | m       |      |
| 19   2   1   8   Dry weatherd Shale.   -   | -    | 7  | Z       | z'     |        | 1-9 | 85       | ·         | -(ı -    | 2) MIST TOM /DI                 |             |                              | w cracy                           | 1112    |      |
| 19 2 1   | 12 - |  |         |        |        | 3   |          | _         |          |                                 |             |                              | •                                 |         |      |
| 10   |      | 14   |         | ,      |        |     | 4        |           | Dy       | . weatherd Shall                | L           |                              |                                   | -       | -    |
| 10   | -    |  | Z.      | ١,     |        |     | 92       | _         |          |                                 |             |                              |                                   |         | -    |
| 10   | 4_   | 35   |         |        |        |     | V        | _         | _        |                                 |             |                              |                                   |         | ]    |
| 10   | 5    | 32   | .,      |        |        |     | ۵        |           | - DV     | j weashered sheet               | د           |                              |                                   |         | _    |
| No kecorey Spht Spoon Refusel   -  |      | 21   | 2.      | 1      |        |     | 79.11    | _         | "        | ,                               |             |                              |                                   |         | -    |
| 8  | (0-  | 3%   |         |        |        |     | 7        | _         |          |                                 | 6           | .0.0                         | •                                 |         |      |
| 8  | ٦    | 45   | 7       |        |        |     | 4        |           | -No      | Recover Spht                    | Spoo        | in Kurusiu                   | 2                                 |         |      |
|  | -    | 30/1   |         | _      |        |     | 16       |           | -        | <i>d</i> '                      |             | 1                            |                                   |         | -    |
|  | 8-   |  |         |        |        |     | 0        |           |          |                                 |             | •                            |                                   |         |      |
|  | "    |  |         |        |        |     |          |           | -        | -                               |             | ,                            |                                   |         |      |
|  | -    |  |         | ð      |        |     |          |           | -        |                                 |             |                              |                                   | ,       | -    |
|  | 10   |  |         |        |        |     |          | _         |          |                                 |             |                              |                                   |         |      |
|  | 1    |  |         |        |        |     |          |           | <u>_</u> |                                 |             |                              |                                   |         | 4    |
|  | -    |  |         |        |        |     |          | _         | -        |                                 |             |                              |                                   |         | -    |
|  |      |  |         |        |        |     |          |           | <u> </u> |                                 |             |                              |                                   |         |      |
|  | _    |  | :       |        |        |     |          |           |          |                                 |             |                              |                                   |         |      |
|  | -    |  |         |        |        |     |          | _         | <u> </u> |                                 |             |                              |                                   |         | -    |
|  |      | ļ  | F.      |        |        |     |          |           | <u> </u> |                                 |             |                              |                                   |         | -    |
|  | -    |  |         |        |        |     |          | -         |          |                                 |             |                              |                                   |         |      |
|  | 15_  |  |         |        |        |     |          | _         | -        |                                 |             |                              |                                   |         | ]    |
|  |      |  |         |        |        |     |          |           | -        |                                 |             | •                            |                                   |         | -    |
|  | -    |  |         |        |        |     |          |           | +        |                                 |             |                              |                                   |         | -    |
|  | _    |  |         |        |        |     |          |           |          |                                 |             |                              |                                   |         |      |
|  |      |  |         |        |        |     |          |           | _        |                                 |             |                              |                                   |         | _    |
|  | -    |  |         |        |        |     |          |           | -        |                                 |             |                              |                                   |         | -    |
|  | 1    |  |         |        |        |     |          |           | -        |                                 |             |                              |                                   |         |      |
|  |      |  |         |        |        |     |          |           |          |                                 |             |                              |                                   |         |      |
|  | 20_  |  |         |        |        |     |          | _         | -        |                                 |             |                              |                                   |         |      |

|   |             |                        |             | <u>OV</u> ER | BURDI     | EN BOI    | RING RE               | PORT                                     |                 |                                       |  |  |
|---|-------------|------------------------|-------------|--------------|-----------|-----------|-----------------------|--|-----------------|---------------------------------------|--|--|
|   |             | PAI                    | 25OI        | NS           |           | CLIENT:   | WSACOE                | BORI                                     | NG NO.:         | SB DRMO. 20                           |  |  |
| PROJECT                                 | Γ:          | -                      | PI          | D            |           | ``        |                       | START D                                  |                 | 10/26/02                              |  |  |
| SWMU#                                   | (AREA)      | :                      | DV          | MO           |           |           |                       | FINISH D                                 | ATE:            | '                                     |  |  |
| SOP NO.                                 |             |                        | Jι          | 11178        |           |           |                       | CONTRAC                                  | CTOR:           | Lum Dollm                             |  |  |
|   |             |                        | DRII        | LING SU      | JMMARY    |           |                       | DRILLER                                  | :               | Ham I Rick                            |  |  |
| DRILLING                                | HOLE        | DEPT                   | Ή           | SAM          | PLER      | Н         | IAMMER                | INSPECTO                                 | OR:             | Ben   Jum                             |  |  |
| METHOD                                  | DIA.(ft)    | INTERV                 | AL (ft)     | SIZE         | TYPE      | ТҮРЕ      | WT/FALL               | СНЕСКЕ                                   | D BY:           |                                       |  |  |
| KA                                      | 4"          | 2-8                    | .2          | 2"           | 55        |           |                       | СНЕСК Г                                  | DATE:           |                                       |  |  |
| •                                       |             | 0-7                    |             | 31           | 55        |           |                       | BORING C                                 | CONVERTED       | TO MW? Y N                            |  |  |
|   |             |                        |             |              | DRIL      | LING ACE  | RONYMS                |  |                 |                                       |  |  |
| HSA                                     |             | HOLLOW-ST              | EM AUGI     | ERS          | HMR       | HAMMER    |                       | SS                                       | SPLIT SPOO      | ON                                    |  |  |
| DW                                      |             | DRIVE-AND              |             |              | . SHR     | SAFETY H  |                       | CS                                       |                 | US SAMPLING                           |  |  |
| MRSLC<br>CA                             | •           | MUD-ROTAL<br>CASING AD |             | CORING       | HHR       |           | C HAMMER<br>LE HAMMER | 5I 5 FT INTERVAL SAMPLING NS NO SAMPLING |                 |                                       |  |  |
| SPC                                     |             | SPIN CASIN             |             |              | DHŖ<br>WL | WIRE-LINE | •                     | NS<br>ST                                 | SHELBY TU       |                                       |  |  |
|   |             |                        | _           |              |           |           |                       | 38                                       | 3 INCH SPL      |                                       |  |  |
|   |             | ····                   |             |              |           |           |                       |  |                 | · · · · · · · · · · · · · · · · · · · |  |  |
|   | _           |                        |             | MO           | NITORIN   | G EQUPM   | ENT SUMMA             | ARY                                      |                 |                                       |  |  |
| INSTRU                                  | MENT        | DETEC                  | TOR         | RANGE        |           | BACKGRO   | JND                   | CALIE                                    | BRATION         | WEATHER                               |  |  |
| TYI                                     | PE          | TYPE/EN                | ERGY        |              | READING   | ТІМЕ      | DATE                  | TIME                                     | DATE            | (TEMP., WIND, ETC.)                   |  |  |
|   |             |                        |             |              |           |           |                       |  |                 |                                       |  |  |
|   | •           |                        |             |              |           | +         |                       |  |                 |                                       |  |  |
|   |             |                        |             |              |           |           |                       |  |                 |                                       |  |  |
|   |             | ļ                      |             | <u> </u>     |           |           |                       |  | 1               |                                       |  |  |
|   |             |                        |             | ļ<br>        |           |           |                       |  |                 | :                                     |  |  |
|   |             |                        |             |              |           |           |                       |  |                 |                                       |  |  |
|   |             |                        |             |              |           |           |                       |  |                 | ,                                     |  |  |
| *************************************** |             |                        |             |              | MONIT     | ORING A   | CRONYMS               | ···                                      | -4. <sub></sub> | - <del> </del>                        |  |  |
| PID                                     |             | PHOTO - IO             | IZATION     | DETECTOR     | BGD       | BACKGRO   |                       | DGRT                                     | DRAEGER         | TUBES                                 |  |  |
| FID                                     |             | FLAME - IO             | NIZATIOÑ    | DETECTOR     | СРМ       |           | ER MINUTE             | PPB                                      | PARTS PER       | BILLION                               |  |  |
| GMD                                     |             | GEIGER MU              | ieller d    | ETECTOR      | PPM       | PARTS PE  | R MILLION             | MDL                                      | METHOD I        | DETECTION LIMIT                       |  |  |
| SCT                                     |             | SCINTILLAT             | ION DET     | ECTOR        | RAD       | RADIATIO  | N METER               |  |                 |                                       |  |  |
|   |             |                        | <del></del> | INV          | ESTIGAT   | ION DERI  | VED WASTE             |  |                 |                                       |  |  |
|   | DATE        | :                      |             |              |           |           |                       |  | <del></del>     | ·                                     |  |  |
| COT.                                    | 1 A MAO     | IDAT                   |             |              |           |           |                       |  |                 |                                       |  |  |
|   | L AMO       |                        |             | ···-         |           |           |                       |  |                 |                                       |  |  |
| DRUM                                    | 1 #, LOC    | CATION:                |             |              |           |           |                       |  |                 |                                       |  |  |
|   | MMEN        |                        |             | .:           |           |           | SAMPLES               | TAKEN                                    | <del></del>     |                                       |  |  |
|   | , LIERTARUL |                        |             |              |           |           |                       |  | 1000            | (nu) hama lace/a                      |  |  |
|   |             |                        |             |              |           |           | SAMPLES               | DICIM                                    | -108/           | (0-2) DRMO-1088(2-6)                  |  |  |
|   |             |                        |             |              |           |           | DUPLICATES            |  |                 |                                       |  |  |
|   |             |                        |             |              |           |           | MS/MSD                |  |                 | ····                                  |  |  |
|   |             |                        |             |              |           |           | MRD                   |  |                 |                                       |  |  |

|                          | PARSONS CLIENT: WORLDE BORING NO.: SR DRIMN - 20 |                                     |   |                        |                                       |      |       |  |               |                  |  |  |  |  |
|--------------------------|--|-------------------------------------|---|------------------------|---------------------------------------|------|-------|--|---------------|------------------|--|--|--|--|
|                          |  |                                     | PARS  | ONS                    | ;                                     |      |       | CLIENT: UDALOE BORING NO.: SB DRYNO-2  | 20            |                  |  |  |  |  |
| COMIN                    | MENTS:   |                                     | DRILLER: Hom Lyon INSPECTOR: ROSMING MO DATE: 10/26/0 | . 1 .                  | · · · · · · · · · · · · · · · · · · · |      |       |  |               |                  |  |  |  |  |
| D                        | S  | AMPLIN                              | G   |                        | SAM                                   | PLE  |       |  |               |                  |  |  |  |  |
| E<br>P<br>T<br>H<br>(FT) | BLOWS<br>PER<br>6<br>INCHES                      | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET)                      | DEPTH<br>INT<br>(FEET) | NO.                                   | voc  | RAD   | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS |  |  |  |  |
|                          | 22<br>25   | , 1                                 | 1   |                        | 180                                   | 49   |       | - Mist + Dry Fill - rocks/bolts/shale  | 7             | _                |  |  |  |  |
|                          | 21   | L                                   | 1/2   |                        | DRM6-1087                             | 120  | · . — | <del>-</del>   |               |                  |  |  |  |  |
| 1-                       | 10   |                                     |   |                        | Ä                                     | Ĺ    |       | Dry tom STET Granite rock Rayments   | mL            | =                |  |  |  |  |
|                          | 18   | 2                                   | 1'  |                        | 880,                                  | 1253 | -     |  |               | · -              |  |  |  |  |
| 4                        | 18   |                                     |   |                        | Jemo-1088                             |      | _     | Shiptly monist gray/green CLAY Fractured Shale last 2". Some well rounded gravel   | <u> </u>      | _                |  |  |  |  |
| 5 _                      | 10   | l'                                  | ,   |                        | 4                                     | 1301 | -     | Plast 2". Some well rounded gravel   | CL            | =                |  |  |  |  |
| (e-                      | 40<br>70/4"                                      | 4"                                  | -4"   |                        |                                       |      | -     | Dry washered Shale   | _             |                  |  |  |  |  |
| -                        |  | •                                   | 4   |                        |                                       |      |       |  |               | _                |  |  |  |  |
| 8-                       | 54i°   | ľ                                   | z"  | ٠.                     |                                       |      | · · · | Long Whathard Shale  |               |                  |  |  |  |  |
| 1                        | •  | U                                   |   |                        |                                       |      | -     |  |               | _                |  |  |  |  |
| 10                       |  |                                     | .   |                        |                                       |      | _     |  |               | _                |  |  |  |  |
|                          | <b>Sn</b>  | •                                   |   |                        |                                       |      | -     |  |               |                  |  |  |  |  |
| _                        | 300  |                                     |   |                        |                                       |      | -     |  |               |                  |  |  |  |  |
|                          | ,  |                                     |   |                        |                                       |      | _     |  |               | _                |  |  |  |  |
|                          | *  |                                     |   |                        |                                       |      | -     | F<br>- , , ,   |               | -                |  |  |  |  |
| 15_                      |  |                                     |   |                        |                                       |      | _     | <del>-</del>   |               | -                |  |  |  |  |
|                          |  |                                     |   |                        |                                       |      | _     | <del>-</del>   |               |                  |  |  |  |  |
| _                        |  |                                     |   |                        |                                       |      |       | · ·  |               | -                |  |  |  |  |
|                          |  |                                     | <b>5</b> 3  | :                      |                                       |      | _     | -  |               | -                |  |  |  |  |
| _                        |  | ·<br>•                              |   |                        |                                       |      | _     | -<br> -  |               |                  |  |  |  |  |
| 20                       |  | 1                                   |   |                        |                                       |      | _     | _  |               | . —<br>:<br>—    |  |  |  |  |

|                                       |                             |             | •                                      | OVER                                  | BURD       | EN BOI                                | RING RE                               | PORT         |             |                                       |  |  |  |
|---------------------------------------|-----------------------------|-------------|--|---------------------------------------|------------|---------------------------------------|---------------------------------------|--------------|-------------|---------------------------------------|--|--|--|
|                                       |                             | PA          | RSOI                                   | NS                                    |            | CLIENT:                               | WALDE                                 | BORI         | NG NO.:     | 33 DRMU-21                            |  |  |  |
| PROJECT                               |                             | :           | P                                      | ED<br>RYKD                            |            |                                       |                                       | START D      | ATE:        | 10/27/02                              |  |  |  |
| SOP NO.                               | :                           | •           | 74                                     | 1175                                  |            |                                       |                                       | CONTRAC      | CTOR:       | Lyon Drille                           |  |  |  |
|                                       |                             |             | DRII                                   | LING SU                               | IMMADV     |                                       |                                       | DRILLER      |             | 2901 1016                             |  |  |  |
| DRILLING                              | HOLE                        | DEP*        |  |                                       | PLER       | H                                     | IAMMER                                | INSPECTO     |             | Ben Home                              |  |  |  |
| METHOD                                | DIA.(ft)                    | INTERV      | AL (ft)                                | SIZE                                  | ТҮРЕ       | ТҮРЕ                                  | WT/FALL                               | CHECKE       | BY:         | - Sur June                            |  |  |  |
| HSA                                   | 4"                          | 2-(         | p. 2                                   | . 7 (1                                | <b>S</b> S |                                       |                                       | CHECK I      | DATE:       | · · · · · · · · · · · · · · · · · · · |  |  |  |
|                                       | •                           | 0-          | 2                                      | . 311                                 | 55         | •                                     |                                       | BORING C     | ONVERTED 1  | TO MW? Y (N)                          |  |  |  |
|                                       |                             |             |  | · · · · · · · · · · · · · · · · · · · |            | LING ACE                              | RONYMS                                | <del></del>  |             |                                       |  |  |  |
| HSĀ                                   |                             | HOLLOW-ST   | TEM AUGI                               | ERS                                   | HMR        | HAMMER                                |                                       | SS           | SPLIT SPOO  | N                                     |  |  |  |
| DW                                    |                             | DRIVE-AND   | -WASH                                  |                                       | SHR        | SAFETY H                              | AMMER                                 | CS           | CONTINUOL   | JS SAMPLING                           |  |  |  |
| MRSLC                                 |                             | MUD-ROTA    |  | CORING                                | C HAMMER   |                                       |                                       | 'AL SAMPLING |             |                                       |  |  |  |
| . CA                                  |                             | CASING AD   |  |                                       | DHR        |                                       | E HAMMER                              | NS<br>om     | NO SAMPLII  |                                       |  |  |  |
| SPC                                   |                             | SPIN CASIN  | lG                                     | ٠.                                    | WL         | WIRE-LINE                             |                                       | ST<br>3S     | 3 INCH SPLI |                                       |  |  |  |
|                                       |                             |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
| · · · · · · · · · · · · · · · · · · · | MONITORING EQUPMENT SUMMARY |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
| INSTRU                                | MENT                        | DETEC       | CTOR                                   | RANGE                                 |            | BACKGROU                              | JND                                   | CALIE        | RATION      | WEATHER                               |  |  |  |
| TYI                                   | PE                          | TYPE/EN     | NERGY                                  |                                       | READING    | тіме                                  | DATE                                  | TIME         | DATE        | (TEMP., WIND, ETC.)                   |  |  |  |
|                                       |                             |             |  |                                       | •••        |                                       |                                       |              |             |                                       |  |  |  |
|                                       |                             |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
|                                       |                             |             |  |                                       |            |                                       |                                       |              | -           |                                       |  |  |  |
|                                       |                             |             |  |                                       |            |                                       |                                       |              |             | ·                                     |  |  |  |
|                                       |                             |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
|                                       |                             |             |  | \$                                    |            |                                       |                                       |              |             |                                       |  |  |  |
|                                       |                             | •           |  |                                       | MONIT      | ORING A                               | CRONYMS                               | •            | •           |                                       |  |  |  |
| PID                                   |                             | PHOTO - IOI | NIZATION                               | DETECTOR                              | BGD        | BACKGRO                               |                                       | DGRT         | DRAEGER T   | TUBES                                 |  |  |  |
| FID                                   |                             | FLAME - IO  | NIZATION                               | DETECTOR                              | СРМ        | COUNTS P                              | ER MINUTE                             | PPB          | PARTS PER   | BILLION                               |  |  |  |
| GMD                                   |                             | GEIGER MU   |  |                                       | PPM        | PARTS PEI                             |                                       | MDL          | METHOD D    | ETECTION LIMIT                        |  |  |  |
| SCT                                   |                             | SCINTILLA   | TION DET                               | ECTOR                                 | RAD        | RADIATIO                              | N METER                               |              |             |                                       |  |  |  |
|                                       |                             | <u> </u>    | ······································ | INV                                   | ESTIGAT    | ION DERI                              | VED WASTE                             |              | <del></del> |                                       |  |  |  |
|                                       | DATE                        |             |  | <del> </del>                          |            |                                       | · · · · · · · · · · · · · · · · · · · | 1            |             |                                       |  |  |  |
| 801                                   | L AMOI                      | INIT .      |  |                                       |            |                                       |                                       | -            |             |                                       |  |  |  |
|                                       | ction of                    |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
| DRUM #, LOCATION:                     |                             |             |  |                                       |            |                                       |                                       |              |             |                                       |  |  |  |
|                                       | MMEN                        |             | •                                      |                                       |            | · · · · · · · · · · · · · · · · · · · | SAMPLES T                             | AKEN:        | <u> </u>    |                                       |  |  |  |
|                                       |                             | -           |  |                                       |            |                                       | SAMPLES                               |              | 1090        | 12) DRMO-1/02                         |  |  |  |
| 1                                     |                             |             |  |                                       |            |                                       | · .                                   | ₩1-1100      | iv ov L     | 110-                                  |  |  |  |
|                                       |                             |             |  |                                       |            |                                       | DUPLICATES                            |              |             |                                       |  |  |  |
|                                       |                             |             |  |                                       |            |                                       | MS/MSD                                |              |             |                                       |  |  |  |
| 1                                     |                             |             |  |                                       |            |                                       | MPD                                   |              |             |                                       |  |  |  |

|                |                    |                            |                        | (             | VC          | E          | RB   | URDEN BORING REPORT  |       |         |
|----------------|--------------------|----------------------------|------------------------|---------------|-------------|------------|------|--|-------|---------|
| -              |                    |                            | PAR                    | 30N9          | 5           |            |      | CLIENT: WALDE BORING NO.: SB DYMO  | - 21  |         |
| COM            | MENTS:             |                            |                        |               |             |            |      | driller: Hary Llan   | /     |         |
|                |                    |                            | į                      |               |             |            |      | INSPECTOR: RESSEGUEN   | McAll | Fer     |
|                |                    |                            |                        | ·             |             |            |      | DATE: 10/27/02   | •     |         |
| D<br>E<br>P    | BLOWS              | AMPLIN                     | RECOV                  | DEPTH         | SAM         | PLE        | RAD  | SAMPLE<br>DESCRIPTION  | USCS  | STRATUM |
| T<br>H<br>(FT) | PER<br>6<br>INCHES | TRATION<br>RANGE<br>(FEET) | ERY<br>RANGE<br>(FEET) | INT<br>(FEET) | NO.         | voc        | SCRN | (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | CLASS | CLASS   |
|                | Ţ                  | (1.2.1)                    |                        | 11            | 0           | 4          |      |  |       |         |
| -              | 5                  | Z'                         | 2                      |               | Diemo ~1090 | 1522       | _    | - Moist Brun to PK Brown SILTW/CLAY  topsoil on top. Brum CLAY 5' botton   | LCL.  |         |
| l              | 10                 |                            |                        |               | 300         |            |      |  |       | -       |
| v              | 2                  |                            |                        |               | Ä           |            |      | -Maist Brum CLAY W some sitt.  | 0,    | ]       |
| -              | 15                 | 1.8                        | 1                      |               | ÿ           | 1530       | _    | - wearhuned Bedrock 3"   | CL    | -       |
| y_             | 90/2°              |                            | .,                     |               | DRMO-1102   | \ <u>`</u> | _    | Maist Brown CLAY W/some size. (from top)   |       | , ]     |
| 5              | 50/4"              | y*                         | 8"                     |               | 12k         |            |      | _ We asked Bedrock 3"  | CL    | -       |
| _              |                    | '                          |                        |               | 7           |            |      |  |       |         |
| 6-             | D.                 |                            |                        |               |             |            |      | inclushing shale The   |       | -       |
|                | SUP                | 1"                         |                        |               |             |            |      | _ Memoral shale and  |       |         |
|                |                    |                            |                        |               |             |            |      | weathered shall Dry<br>Huger Refusalle.2'  |       |         |
| 8-             |                    |                            |                        |               |             |            |      | THIST KENDELEIC  |       | ·       |
| _              |                    |                            |                        |               |             |            | _    | <b>'</b><br>·  |       |         |
| 10             |                    |                            |                        |               |             |            |      | <b>-</b> *   |       | -       |
| ``_            |                    |                            |                        |               |             |            | _    | <del>-</del>   |       | _       |
| _              |                    |                            |                        |               |             |            |      | _  |       | _       |
|                |                    |                            |                        |               |             |            |      | -  |       | -       |
|                |                    |                            |                        |               |             |            |      | <del>-</del>   |       |         |
| -              |                    |                            |                        |               |             |            | _    | <u>-</u>   |       | -       |
| _              |                    |                            |                        |               |             |            |      | <del>-</del><br>-  |       |         |
| 15             | <u> </u>           |                            |                        |               |             |            |      | _  |       | _       |
| 15_            |                    |                            |                        |               |             |            | _    | _  |       | -       |
| _              |                    |                            |                        |               |             |            | _    | -<br>-   |       |         |
|                |                    |                            |                        |               |             |            |      | _  |       | -       |
| _              |                    |                            |                        |               |             |            | _    |  |       |         |
| _              |                    |                            |                        |               |             |            | _    | _  |       |         |
|                |                    |                            |                        |               |             |            |      | _  |       | -       |
|                |                    |                            |                        |               |             |            | _    | —<br>—   |       | ]       |
| 20             |                    |                            |                        |               |             |            |      |  |       |         |

|   |                          |             |          | OVER                                   | BURD     | EN BOI    | RING RE    | PORT     |                         |                     |
|---|--------------------------|-------------|----------|--|----------|-----------|------------|----------|-------------------------|---------------------|
|   |                          | PAF         | 25OI     | NS                                     |          | CLIENT:   | USALOE     | BORII    | NG NO.:                 | SBDKMO-22           |
| PROJECT                                 | Γ:                       |             | 70       | 0                                      |          |           |            | START D  |                         | 10/27/02            |
| SWMU#                                   | (AREA)                   | : -         | DK       | ino                                    |          |           |            | FINISH D | ATE:                    | 4                   |
| SOP NO.                                 | <b>:</b> ,               | _           |          | 175                                    |          |           |            | CONTRAC  | CTOR:                   | Lum Dolly           |
|   |                          |             |          |  | JMMARY   |           |            | DRILLER  | :                       | Hwm / Pak           |
| DRILLING                                | HOLE                     | DEPT        | Н        | ŞAM                                    | PLER .   | I         | HAMMER     | INSPECTO | OR:                     | Jun/sen             |
| METHOD                                  | DIA.(ft)                 | INTERV      | AL (ft)  | SIZE                                   | ТҮРЕ     | TYPE      | WT/FALL    | CHECKE   | O BY:                   |                     |
| H5A                                     | 8"                       | 2-(         | .9       | 2"                                     | 55       |           |            | СНЕСК І  | DATE:                   |                     |
|   |                          | 6-2         |          | 3''                                    | 55       |           |            | BORING C | CONVERTED               | TO MW? Y N          |
|   |                          |             |          |  |          | LING ACI  | RONYMS     |          |                         |                     |
| HSA                                     |                          | HOLLOW-ST   | EM: AUGI | ERS                                    | HMR      | HAMMER    |            | SS       | SPLIT SPOO              | И                   |
| DW                                      |                          | DRIVE-AND-  |          | •                                      | SHR      |           |            | CS       |                         | JS SAMPLING         |
| MRSLC                                   |                          | MUD-ROTAR   |          | CORING                                 | HHR      |           | IC HAMMER  |          |                         | AL SAMPLING         |
| CA                                      |                          | CASING AD   |          |  | DHR      |           | LE HAMMER  | NS<br>ST | NO SAMPLII<br>SHELBY TU |                     |
| SPC                                     |                          | SPIN CASIN  | ď        |  | WL       | WIRE-LINE |            | 3S       | 3 INCH SPLI             |                     |
|   |                          |             | ···-     |  |          |           |            |          |                         |                     |
|   |                          |             |          | MO                                     | NITORIN  | G EQUPM   | IENT SUMMA | RY       |                         |                     |
| INSTRU                                  | MENT                     | DETEC       | TOR      | RANGE                                  |          | BACKGRO   | UND        | CALIE    | BRATION                 | WEATHER             |
| TYI                                     | PE                       | TYPE/EN     | ERGY     |  | READING  | TIME      | DATE       | TIME     | DATE                    | (TEMP., WIND, ETC.) |
|   |                          |             |          |  |          |           |            |          |                         |                     |
| -                                       |                          |             |          |  |          |           |            |          |                         |                     |
|   |                          |             |          |  |          |           |            |          |                         |                     |
|   |                          |             |          |  | <u> </u> |           |            |          |                         |                     |
|   |                          |             |          |  |          |           |            | 1        |                         |                     |
|   |                          |             |          |  |          |           |            |          |                         |                     |
|   |                          | <del></del> |          | l :                                    | MONI     | TORING A  | CRONYMS    |          |                         |                     |
| PID                                     |                          | PHOTO - ION | NIZATION | DETECTOR                               | BGD      |           |            | DGRT     | DRAEGER                 | TUBES               |
| FID                                     |                          |             |          | DETECTOR                               | СРМ      |           | PER MINUTE | PPB      | PARTS PER               | BILLION             |
| GMD                                     |                          | GEIGER MU   | ELLER D  | ETECTOR                                | PPM      | PARTS PE  | R MILLION  | MDL      | METHOD D                | DETECTION LIMIT     |
| SCT                                     |                          | SCINTILLAT  | ION DET  | ECTOR                                  | RAD      | RADIATIO  | N METER    |          |                         |                     |
|   |                          |             |          | INV                                    | ESTIGAT  | ION DERI  | VED WASTE  | ·        |                         |                     |
|   | DATE                     | ; [         |          |  |          |           |            | 1        |                         |                     |
|   | •                        |             |          |  |          |           |            |          |                         |                     |
|   | L AMO                    |             |          |  |          |           |            |          |                         |                     |
| ,                                       |                          | CATION:     |          |  |          |           |            |          |                         |                     |
| *************************************** | MMEN                     |             |          | ······································ |          |           | SAMPLES    | TAKEN:   |                         |                     |
|   | > 14 <b>11 4 1 1</b> 71, | 110.        |          |  |          |           |            |          | n - /ne                 | (0-2)               |
|   |                          |             |          |  |          |           | SAMPLES    | DICIN    | <u>v – 107</u>          | (0-0)               |
|   |                          |             |          |  |          |           | DUPLICATES |          |                         |                     |
|   |                          |             |          |  |          |           | MS/MSD     |          |                         |                     |
|   |                          |             |          |  |          |           | MRD        |          |                         |                     |

| <u>.</u> :      |              |                  |                 |              | · 1       | <b>1</b> 11. |              | ORDEN BORING REPORT   |               |                  |
|-----------------|--------------|------------------|-----------------|--------------|-----------|--------------|--------------|---|---------------|------------------|
| COM             | MENTS:       | ı                | PARS            | ONS          | <b>5</b>  |              |              | CLIENT: WACOE BORING NO.: SBORMO -  | 2             |                  |
| COM             | VIEN 13.     |                  |                 |              |           |              |              | driller: Hony Lyun  |               |                  |
|                 |              |                  |                 |              |           |              |              | INSPECTOR: Rossiania /  | ncAllot       | ~                |
|                 |              |                  |                 |              |           |              |              | DATE: 10/27/02  |               |                  |
| D<br>E          | S            | AMPLIN           | G               |              | SAN       | APLE         |              | SAMPLE  | T             |                  |
| P               | BLOWS<br>PER | PENE-<br>TRATION | RECOV-<br>ERY   | DEPTH<br>INT | NO.       | voc          | RAD          | DESCRIPTION   | USCS<br>CLASS | STRATUM<br>CLASS |
| H<br>(FT)       | 6<br>INCHES  | RANGE<br>(FEET)  | RANGE<br>(FEET) | (FEET)       |           |              | SCRN         | with amount modifiers and grain-size, density, stratification, wetness, etc.) |               |                  |
|                 | 3            |                  |                 |              | 1         | 4            |              | morist Brow topsoil w/shale fragments   |               | _                |
| _               | 3            | z'               | z'              |              | Q         | 25%          | -            | 1 . ,   | -             | -                |
|                 | 11           |                  |                 |              | Cemo-1091 |              |              |   |               | -                |
| 2-              | G            |                  |                 |              | 2         |              |              | Major Bram Gry CLAY w/shall traginions and                                    | CZ            |                  |
|                 | 16           | 2'               | ) n             |              |           | 3            | <del> </del> | Major Bramlery CLAY w/shale fragmets and 2A br 51H.                           | CL            |                  |
| .,              | 7            |                  | '               |              |           | 9            |              | <b>-</b> .  |               | -                |
| 4-              | 9            |                  |                 |              |           |              | -            | Dry weathered shale   |               | -                |
| 5 _             | 11           | 1'10"            | 4"              |              |           | ۱,           | _            | End accordances are   |               |                  |
|                 | (8           | 1,,,             |                 | İ            |           | 82/2/        | _            |   | -             | ]                |
| <b> </b> G_     | 50/u°        |                  |                 |              |           | 12           | -            | to the shall standy   |               | -                |
|                 | 40           | 9"               | 3"              |              |           |              |              | Dry weadhered shale - Iron staining   |               | -                |
|                 | 30/3         | 1                |                 |              |           | 2/5/25       | -            | T • .   |               |                  |
| <b>K</b> -      |              |                  | ľ               |              |           | 1            | Ì            |   |               |                  |
| 9               | 99/1"        | 1"               | -               |              |           |              |              | no recovery. Splitsporm refusal   |               | 4                |
| _               |              |                  |                 |              |           |              | -            | 1, 0  |               | -                |
| 10              |              |                  |                 |              |           |              |              |   |               | 1                |
| _               |              |                  |                 |              |           |              | _            | Ţ   |               |                  |
| _               |              |                  |                 |              |           |              | _            | _   |               |                  |
|                 |              |                  |                 |              |           |              |              | -   |               | -                |
| -               |              |                  |                 |              |           |              | -            |   |               |                  |
| _               |              |                  |                 |              |           |              | _            |   |               |                  |
|                 |              |                  |                 |              |           |              |              |   |               |                  |
| _               |              |                  |                 |              |           |              | -            | _   |               | -                |
| 15              |              |                  |                 |              |           |              |              | · ·   |               | -                |
|                 |              |                  |                 |              |           |              | -            | <u> </u>  |               |                  |
| _               |              |                  |                 |              |           |              | ۱ _          |   |               |                  |
|                 |              |                  |                 |              |           |              |              |   |               | _                |
| _               |              |                  |                 |              |           |              | -            | <del> </del>  |               | -                |
|                 |              |                  |                 |              |           |              |              |   |               |                  |
|                 |              |                  |                 |              |           |              | -            | Ţ   |               |                  |
| _               |              |                  |                 |              |           |              | _            |   |               |                  |
|                 |              |                  |                 |              |           |              |              |   |               |                  |
| <sup>20</sup> — |              |                  |                 |              |           |              | -            | <del> -</del>   |               | -                |

| SWMU # (AREA):   | Hany perh<br>Bun Jern           |  |  |  |  |
|--|---------------------------------|--|--|--|--|
| SWMU # (AREA):  DIMO SOP NO.:  DRILLING SUMMARY  DRILLING SUMMARY  DRILLING HOLE  DEPTH  SAMPLER  HAMMER  INSPECTOR:  CHECKED BY  CHECK DATE  DO -2  3"  DRILLING ACRONYMS  HSA  HOLLOW-STEM AUGERS  HMR HAMMER  SS SPL  | Lyon Drilly Hamy perch Bun Jehn |  |  |  |  |
| SWMU # (AREA):  DILMO SOP NO.:  DRILLING SUMMARY  DRILLING SUMMARY  DRILLING HOLE  DEPTH  SAMPLER  HAMMER  INSPECTOR:  CHECKED BY  HSA  HOLLOW-STEM AUGERS  HISA  HOLLOW-STEM AUGERS  HISA  FINISH DATE:  CONTRACTOR  TONILLING  CONTRACTOR  TONICLING  TONICLING  CONTRACTOR  TONICLING   Lyon Drilly Hamy perch Bun Jehn |  |  |  |  |
| DRILLING SUMMARY  DRILLING SUMMARY  DRILLING HOLE  DEPTH SAMPLER HAMMER INSPECTOR:  METHOD DIA (A) INTERVAL (A) SIZE TYPE TYPE WT/FALL CHECKED BY  HSA HOLLOW-STEM AUGERS HMR HAMMER  CONTRACTOR  DRILLING ACRONYMS  STELLING ACRONYMS  HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPIL  | Hany perch<br>Bun Jeen          |  |  |  |  |
| DRILLING SUMMARY  DRILLER:  DRILLING HOLE DEPTH SAMPLER HAMMER INSPECTOR:  METHOD DIA (ft) INTERVAL (ft) SIZE TYPE TYPE WT/FALL CHECKED BY  THE TYPE TYPE WT/FALL CHECKED BY  CHECK DATE  DO -2 3" 55 CHECK DATE  DRILLING ACRONYMS  HSA HOLLOW-STEM AUGERS HAW HAMMER SS SPL  | Hany perch<br>Bun Jeen          |  |  |  |  |
| RILLING HOLE DEPTH SAMPLER HAMMER INSPECTOR: METHOD DIA (A) INTERVAL (A) SIZE TYPE TYPE WT/FALL CHECKED BY CHECK DATE O -2 3" 55  BORING CONV DRILLING ACRONYMS HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPL   |                                 |  |  |  |  |
| METHOD DIA (ft) INTERVAL (ft) SIZE TYPE TYPE WT/FALL CHECKED BY CHECK DATE BORING CONV.  DRILLING ACRONYMS  HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPL   |                                 |  |  |  |  |
| HSA HOLLOW-STEM AUGERS  CHECK DATE BORING CONV BORILLING ACRONYMS HMR HAMMER  SS SPL   | ŧ                               |  |  |  |  |
| DRILLING ACRONYMS  HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPL  |                                 |  |  |  |  |
| DRILLING ACRONYMS  HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPL  | VERTED TO MW? Y                 |  |  |  |  |
| HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPL   | NYMS                            |  |  |  |  |
|  | JT SPOON                        |  |  |  |  |
| DW DRIVE-AND-WASH SHR SAFETY HAMMER CS COI   | NTINUOUS SAMPLING               |  |  |  |  |
| MRSLC MUD-ROTARY SOIL-CORING HHR HYDRAULIC HAMMER 51 5 FT  | T INTERVAL SAMPLING             |  |  |  |  |
| CA CASING ADVANCER DHR DOWN-HOLE HAMMER NS NO  | SAMPLING                        |  |  |  |  |
| SPC SPIN CASING WL WIRE-LINE ST SHI  | ELBY TUBE                       |  |  |  |  |
| 3S . 3 IN  | NCH SPLIT SPOON                 |  |  |  |  |
| MONITORING EQUPMENT SUMMARY  |                                 |  |  |  |  |
| INSTRUMENT DETECTOR RANGE BACKGROUND CALIBRAT  | TION WEATHER                    |  |  |  |  |
| TYPE TYPE/ENERGY READING TIME DATE TIME  | DATE (TEMP., WIND, ETC.)        |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
|  |                                 |  |  |  |  |
| MONITORING ACRONYMS  PID PHOTO-IONIZATION DETECTOR BGD BACKGROUND DGRT DR  | AEGER TUBES                     |  |  |  |  |
|  | RTS PER BILLION                 |  |  |  |  |
|  | ETHOD DETECTION LIMIT           |  |  |  |  |
| SCT SCINTILLATION DETECTOR RAD RADIATION METER   |                                 |  |  |  |  |
| INVESTIGATION DERIVED WASTE  |                                 |  |  |  |  |
| DATE   |                                 |  |  |  |  |
| 10/28/02   |                                 |  |  |  |  |
| SOIL AMOUNT:   |                                 |  |  |  |  |
| (fraction of drum)   |                                 |  |  |  |  |
| DRUM #, LOCATION:  |                                 |  |  |  |  |
| COMMENTS: SAMPLES TAKEN:   |                                 |  |  |  |  |
| 1  | 1015 (6-2) DRO - 1096           |  |  |  |  |
| SAMPLES DRING-/  |                                 |  |  |  |  |
| <b>,</b>   | ŕ                               |  |  |  |  |
| SAMPLES DRMO-/ DUPLICATES  MS/MSD  |                                 |  |  |  |  |

|                                       |                             |       | <b>) V</b> ] | LKI              | BURDEN BURING   | REPU                                   | K I                                    |               |                  |
|---------------------------------------|-----------------------------|-------|--------------|------------------|---|--|--|---------------|------------------|
|                                       | PARS                        | SONS  |              |                  | CLIENT: WA COR  | BORING NO.:                            | SBDKMU-Z                               | 3             |                  |
| COMMENTS:                             |                             |       |              |                  |   | DRILLER: INSPECTOR: DATE;              | Harry Lyon Rossmann 10/28/12           |               | lister           |
| D   SAMPL                             | RECOV-<br>ON ERY<br>E RANGE | DEPTH | NO. V        | /OC RAD          | DESCR  (As per Burmeister: color, grain size, M with amount modifiers and grain-si  | ze, density, stratification            | Minor Components                       | USCS<br>CLASS | STRATUM<br>CLASS |
| 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | z'<br>' '                   |       | DEMO-1096 DR | 010 VS 0 000 100 | -moist Brown STAT/C  -noist Brown/Gry SZLT  - C6-8. nchus  - Maist Brown STAT W/ T  - gravel to Brown  - it some FSAMD.  - Noist Brown SIAT w  - bottom.  - Refusal. Spoon leteral.  - not encury sample in | f sano aud<br>w/si/t roo<br>/ weashard | l orgular-<br>und gravel<br>I Shale at |               |                  |

|             |                    | •                       |             | OVER        | BURDI  | EN BOI      | RING RE                               | PORT     |  |                       |
|-------------|--------------------|-------------------------|-------------|-------------|--|-------------|---------------------------------------|----------|--|-----------------------|
|             |                    | PAF                     | 150I        | NS          |  | CLIENT:     | USACOE                                | BORI     | NG NO.:  | SB DRM0-284           |
| PROJEC      | Γ:                 |                         | PI          | D.          |  |             |                                       | START D  |  | 10/28/02              |
| SWMU#       | (AREA)             | : -                     | DR          | omo         |  |             |                                       | FINISH D |  | - 1 L                 |
| SOP NO.     |                    | -                       |             | 74117       | <del>/                                    </del> | · · ·       |                                       |          |  | Tues Dalle            |
| 301 110.    | •                  |                         | <del></del> |             |  | <del></del> |                                       | CONTRA   | CIOK:  | Fyon only             |
|             |                    |                         | DRII        | LING SU     | JMMARY   |             |                                       | DRILLER  | :  | Hary Kick             |
| ORILLING    | HOLE               | DEPT                    | н           | SAM         | PLER   | Н           | AMMER                                 | INSPECT  | OR:  | Jenn Bon              |
| METHOD      | DIA.(ft)           | INTERVA                 | L (ft)      | SIZE        | TYPE   | ТҮРЕ        | WT/FALL                               | CHECKE   | D BY:  | •                     |
| HSA         | 161                | 2-8                     |             | 2"          | 35   |             |                                       | CHECK I  | DATE:  |                       |
|             | <u> </u>           | 0-2                     |             | 3"          | \$5  |             |                                       | ┪        | CONVERTED  | TO MW? Y              |
|             |                    | , V ,                   |             |             | 1  | LING ACE    | ONVMS                                 | BORING   | ONVERTED   | IOMW! I               |
| HSA         |                    | HOLLOW-STI              | EM AUGI     | FRS         | HMR  | · HAMMER    | CONTINIS                              | SS       | SPLIT SPOO                                       | NN .                  |
| DW          |                    | DRIVE-AND-              |             |             | SHR  | SAFETY H    | AMMER                                 | CS       |  | US SAMPLING           |
| MRSLC       |                    | MUD-ROTAR               |             | CORING      | HHR  |             | C HAMMER                              | 5I       |  | /AL SAMPLING          |
| CA          |                    | CASING ADV              | VANCER      |             | DHR  |             | E HAMMER                              | NS       | NO SAMPLI  | NG                    |
| SPC         |                    | SPIN CASING             | 3           |             | WL   | WIRE-LINE   |                                       | ST       | SHELBY TU  | BE                    |
|             |                    |                         |             |             |  |             |                                       | 3\$      | 3 INCH SPLI                                      | T SPOON               |
| <del></del> |                    |                         |             | MO          | NITORING   | C EOUPM     | ENT SUMMA                             | ARV      |  |                       |
| INIETDI     | IMENIT             | DETEC                   | TOP         | RANGE       |  | BACKGROU    |                                       |          | BRATION  | WEATHER               |
| INSTRUMENT  |                    | DETECTOR                |             |             |  | 1           |                                       |          | 1  | WEATHER               |
| ТҮРЕ        |                    | TYPE/ENERGY             |             |             | READING  | TIME        | DATE                                  | TIME     | DATE   | (TEMP., WIND, ETC.)   |
|             |                    |                         |             |             |  | -           |                                       |          |  |                       |
|             |                    |                         |             |             |  |             |                                       |          |  |                       |
|             |                    |                         |             |             |  |             |                                       |          | ĺ  |                       |
|             |                    |                         |             |             |  |             |                                       |          |  |                       |
|             |                    | <u> </u>                |             | <del></del> |  |             |                                       |          | <del>                                     </del> |                       |
|             |                    |                         |             |             |  |             |                                       |          |  |                       |
|             |                    |                         |             | <u>L.</u>   | <u> </u>   | <u></u>     |                                       |          |  |                       |
|             |                    |                         |             |             |  |             | CRONYMS                               |          |  |                       |
| PID         |                    | PHOTO - ION             |             |             | BGD  | BACKGRO     |                                       | DGRT     | DRAEGER  |                       |
| FID         |                    | FLAME - ION             |             |             | CPM  |             | ER MINUTE                             | PPB      | PARTS PER  |                       |
| GMD<br>SCT  |                    | GEIGER MU<br>SCINTILLAT |             |             | PPM<br>RAD                                       | RADIATIO    | R MILLION                             | MDL      | METHOD L   | DETECTION LIMIT       |
| 301         |                    | SCHVILLAT               | ION DET     | Letok       | IQAD   | IOIDIATIO   | N WILLER                              |          |  |                       |
|             |                    |                         |             | INV         | ESTIGAT  | ION DERI    | VED WASTE                             |          |  |                       |
|             | DATE               | ε Γ                     |             |             |  |             | · · · · · · · · · · · · · · · · · · · | 1'       |  | -                     |
|             | •                  |                         | /6/         | 18/12       |  |             |                                       |          |  |                       |
|             | L AMO<br>action of |                         |             |             |  |             |                                       |          |  |                       |
| DRUN        | 1 #, LOC           | CATION:                 |             |             |  |             |                                       |          |  |                       |
|             | OMMEN              |                         |             |             |  |             | SAMPLES                               | TAKEN:   |  |                       |
|             |                    |                         |             |             |  |             |                                       |          | D -1×98  | (0-2) DEMO-1077       |
|             |                    |                         |             |             |  |             | SAMPLES                               | Dr III   | O toro   | (n = ) Thing = lot (( |
|             |                    |                         |             |             |  |             | DUPLICATES                            |          |  | ·                     |
|             |                    |                         |             |             |  |             | MS/MSD                                |          |  |                       |
|             |                    |                         |             |             |  |             |                                       |          |  |                       |

|                                 |               |  |                              | OVER                | BURD   | EN BO                                 | RING RE                               | PORT                 |                                  | •                                     |
|---------------------------------|---------------|--|------------------------------|---------------------|--|---------------------------------------|---------------------------------------|----------------------|----------------------------------|---------------------------------------|
|                                 |               | PA   | RSOI                         | NS                  |  | CLIENT:                               | LISACOE                               | BORII                | NG NO.:                          | Mw Demo-3                             |
| PROJECT                         | Γ:            |  | PE                           | 2                   |  |                                       |                                       | START D              |                                  | iolzalor                              |
| SWMU#                           |               | ·: ·   | DRY                          |                     | <del></del> -                                |                                       | · · · · · · · · · · · · · · · · · · · | FINISH D             |                                  | 10/2:102                              |
| SOP NO.                         |               | •  |                              | 1175                |  |                                       |                                       | CONTRAC              |                                  | Lyon Inlly                            |
| <u> </u>                        |               |  |                              |                     | JMMARY                                       | · · · · · · · · · · · · · · · · · · · |                                       | DRILLER              |                                  | Augu / Kil                            |
| DRILLING                        | HOLE          | DEP  | ГН                           | SAM                 | IPLER .                                      | • .                                   | :<br>HAMMER                           | INSPECTO             | OR;                              | Jenn Ben                              |
| METHOD                          | DIA.(ft)      | INTERV   | AL (ft)                      | SIZE .              | ТҮРЕ   | ТҮРЕ                                  | WT/FALL                               | СНЕСКЕ               | Ď BY:                            |                                       |
| HSA                             |               | 0-8  |                              | 2"                  | SS   |                                       |                                       | Снеск г              | DATE:                            |                                       |
|                                 |               |  | •                            |                     |  |                                       |                                       | BORING (             | ONVERTED                         | томw? (У) N                           |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC | de un         | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTAL<br>CASING AD<br>SPIN CASIN | -WASH<br>RY SOIL-C<br>VANCER | •                   | DRI) HMR SHR HHR DHR                         | SAFETY H<br>HYDRAUL<br>DOWN-HO        | IAMMER ••<br>IC HAMMER<br>ILE HAMMER  | SS<br>CS<br>51<br>NS | 5 FT INTERV                      | US SAMPLING<br>VAL SAMPLING           |
|                                 |               |  |                              | · · · · · ·         |  |                                       |                                       | 38                   | 3 INCH SPLI                      |                                       |
| . ·                             |               |  |                              | MO                  | NITORIN                                      | G EQUPM                               | IENT SUMMA                            | RY                   | <u> </u>                         | · ·                                   |
| INSTRU                          | MENT          | DETEC  | TOR                          | RANGE               |  | BACKGRO                               | UND                                   | CALIE                | RATION                           | WEATHER                               |
| TYF                             | Έ             | TYPE/ENERGY  |                              |                     | READING                                      | TIME                                  | DATE                                  | TIME                 | DATE                             | (TEMP., WIND, ETC.)                   |
|                                 | ·             | •  | •                            |                     |  |                                       | ļ                                     |                      |                                  |                                       |
|                                 |               | ļ  |                              |                     |  |                                       |                                       |                      | ļ                                |                                       |
|                                 | •:            | ·  |                              |                     |  | , .                                   |                                       |                      |                                  |                                       |
|                                 | ••            | <del> </del>   |                              |                     |  |                                       |                                       | -                    | <u> </u>                         | · · · · · · · · · · · · · · · · · · · |
| <u>.</u>                        | <u> </u>      | -:   |                              |                     |  |                                       | · .                                   | <del>   </del>       | <u> </u>                         |                                       |
| ·                               |               | <u> </u>   |                              | <u> </u>            | <u>.</u>                                     |                                       | <u> </u>                              | .] :                 |                                  |                                       |
| PID<br>FID<br>GMD<br>SCT        |               | PHOTO - 101 FLAME - 101 GEIGER MU SCINTILLAT                   | NIZATION<br>JELLER D         | DETECTOR<br>ETECTOR | MONI<br>BGE<br>CPM<br>PPM<br>RAE             | BACKGRO COUNTS I PARTS PE             | PER MINUTE<br>R MILLION               | DGRT<br>PPB<br>MDL   | DRAEGER<br>PARTS PER<br>METHOD D |                                       |
|                                 |               |  |                              | INV                 | ESTIGAT                                      | TION DERI                             | VED WASTE                             | •                    |                                  |                                       |
| SOII                            | DATE<br>L AMO |  |                              | 1/29/02<br>1/2 drem |  |                                       | •                                     |                      |                                  |                                       |
|                                 | ction of      |  |                              | 1/2 drim            | <u>)                                    </u> |                                       |                                       |                      |                                  |                                       |
| DRUM                            | I #, LOC      | CATION:  |                              |                     |  |                                       |                                       |                      |                                  |                                       |
| CO                              | MMEN          | ITS:   |                              |                     |  |                                       | SAMPLES SAMPLES                       | ΓAKEN:               | none                             |                                       |
|                                 |               |  |                              |                     |  |                                       | DUPLICATES                            |                      |                                  |                                       |
|                                 |               |  |                              |                     |  |                                       | MS/MSD                                |                      |                                  |                                       |
|                                 |               |  |                              |                     |  |                                       | MRD                                   | -                    |                                  |                                       |

| OVERBURDEN BORING REPORT  PARSONS CLIENT: 110 & Card BORING NO.: MW NO wo - 2 |                    |                            |                        |               |       |     |             |  |          |            |  |  |
|---|--------------------|----------------------------|------------------------|---------------|-------|-----|-------------|--|----------|------------|--|--|
|   |                    |                            | PARS                   | 50NS          | •     |     |             | CLIENT: WA COE BORING NO.: MW DRYNO-   | - 3      |            |  |  |
| COMN  | MENTS:             |                            |                        |               | .1    |     |             | DRILLER: Harry Lyon  | ノ        |            |  |  |
|   | W S                | 07/5                       | suple                  | s C           | ellee | tul |             | INSPECTOR: Rossmann  |          | str        |  |  |
|   |                    |                            | <u>.</u>               | ,             |       |     |             | DATE: loh9/or  | <i>x</i> |            |  |  |
| D<br>E<br>P   | BLOWS              | AMPLING<br>PENE-           | G<br>RECOV-            | DEPTH         | SAM   | PLE | RAD         | SAMPLE<br>DESCRIPTION  | USCS     | STRATUM    |  |  |
| T<br>H<br>(FT)  | PER<br>6<br>INCHES | TRATION<br>RANGE<br>(FEET) | ERY<br>RANGE<br>(FEET) | INT<br>(FEET) | NO.   | voc | SCRN        | (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | CLASS    | CLASS      |  |  |
| (17)  | 8                  | (FEET)                     | (PESI)                 |               |       |     | <del></del> |  | 7-       |            |  |  |
|   | 14                 | Z'                         | ,*                     | <b>A</b>      |       |     | _           | - on Roch only   |          | -          |  |  |
|   | 13                 | 8                          | •                      | 1             |       |     |             |  |          | · -        |  |  |
| 27  | 490                |                            |                        |               |       |     |             | slightly nowat Brown sit   | Wr       | _          |  |  |
| 9   | 120<br>121         | 2'                         | 1                      | W'            |       |     | <u> </u>    | F  |          | -          |  |  |
| 14_   | 41                 |                            | ľ                      |               |       |     |             |  |          | _          |  |  |
| 5   | 10                 |                            | ,                      | ,             |       |     |             | muist Brown SILT w/ weathered shakat bother<br>Cary)   | m2       | · _        |  |  |
|   | 27                 | 2'                         | 1                      | U             |       |     | -           | _  |          |            |  |  |
| 6-  | 41                 |                            |                        |               |       |     | -           | Transferred Chale - DM.  |          |            |  |  |
|   | 15<br>190/2"       | 8"                         | ø"                     |               |       |     |             | Weathing Shale - Dry.  |          |            |  |  |
|   | -                  |                            |                        |               |       |     |             |  |          | 4          |  |  |
| 8 —   | ,                  |                            |                        |               |       |     | -           | -  |          | -          |  |  |
| _   |                    |                            |                        |               |       |     | -           | <del>-</del><br>-  |          |            |  |  |
| 10  |                    |                            |                        |               |       |     |             | <del>-</del>   |          | _          |  |  |
|   |                    |                            |                        |               |       |     |             | _  |          | · <u>-</u> |  |  |
|   |                    |                            |                        |               |       |     |             | _  |          | _          |  |  |
|   | <u>.</u>           |                            |                        |               |       |     |             | _  |          | -          |  |  |
|   |                    |                            |                        |               |       |     |             |  |          | ]          |  |  |
|   |                    |                            |                        |               |       |     | _           | -  |          |            |  |  |
|   |                    |                            |                        |               |       |     |             | <del>-</del><br>   |          |            |  |  |
| 15  |                    |                            |                        |               |       |     |             | <u> </u>   |          | _          |  |  |
| 13  |                    |                            |                        |               |       |     |             |  |          | -          |  |  |
|   |                    |                            |                        |               |       |     | _           |  |          |            |  |  |
|   |                    |                            |                        |               |       |     |             | -  |          |            |  |  |
| _   |                    |                            |                        |               |       |     |             |  |          |            |  |  |
|   |                    |                            |                        |               |       |     | -           |  |          | _          |  |  |
|   |                    |                            |                        |               |       |     | _           | <del>-</del>   |          | _          |  |  |
| 22  |                    |                            |                        |               |       |     |             | _  |          |            |  |  |
| 20  |                    |                            |                        |               |       |     | -           |  |          | —          |  |  |

|                                 |          |  |                              | OVER                | BURD                     | EN BOI                    | RING REI               | PORT                              |             |   |
|---------------------------------|----------|--|------------------------------|---------------------|--------------------------|---------------------------|------------------------|-----------------------------------|-------------|---|
|                                 |          | PA   | RSOI                         | NS                  |                          | CLIENT:                   | WACOE                  | BORI                              | NG NO.:     | Mw dremo-4                              |
| PROJEC                          | T: .     |  | PI                           | 2                   |                          |                           |                        | START I                           |             | 10/29/02                                |
| SWMU#                           | (AREA)   | :  | DRY                          | · .                 | <del></del>              | -                         |                        | FINISH I                          |             | <i>\\</i>                               |
| SOP NO                          |          |  | 774                          |                     | **                       |                           |                        | CONTRA                            | CTOR: ·     | Hum Lun Drilly                          |
|                                 |          |  | DRII                         | LING S              | UMMARY                   | f.                        |                        | DRILLER                           | :: .        | Ham I Rick                              |
| DRILLING                        | HOLE     | DEP'   | гн                           | SAN                 | /PLER                    | 1                         | IAMMER                 | INSPECT                           | or: Je      | m Jisen                                 |
| METHOD.                         | DIA.(ft) | INTERV   | AL (ft) .                    | SIZE .              | TYPE .                   | ТҮРЕ                      | WT/FALL .              | СНЕСКЕ                            | D BY:       |   |
| HSA                             | 414      | 0-8  | }                            | 2"                  | SS                       |                           |                        | CHECK                             | DATE:       |   |
| ·                               | <u> </u> |  |                              |                     |                          | OMW? (Y) N                |                        |                                   |             |   |
|                                 | :        |  |                              | •                   | DRII                     | LLING ACI                 | RONYMS                 | • •                               |             |   |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC |          | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTAL<br>CASING AD<br>SPIN CASIN | -WASH<br>RY SOIL-C<br>VANCER |                     | HMR<br>SHR<br>HHR<br>DHR | SAFETY H HYDRAULI DOWN-HO | C HAMMER<br>LE HAMMER  | SS<br>CS.<br>5I<br>NS<br>ST<br>3S |             | US SAMPLING<br>VAL SAMPLING<br>NG<br>BE |
|                                 |          |  |                              | MC                  | NITORIN                  | IG EOUPM                  | ENT SUMMA              | RY                                | <del></del> |   |
| INSTRU                          | JMENT    | DETEC  | CTOR                         | RANGE               |                          | BACKGRO                   |                        | T                                 | BRATION:    | WEATHER                                 |
| ·<br>TY                         | PE .     | TYPE/EN  | ERGY                         |                     | READING                  | TIME -                    | · DATE                 | TIME                              | DATE        | (TEMP., WIND, ETC.)                     |
|                                 |          |  | •                            |                     |                          |                           | ·                      |                                   |             |   |
|                                 |          |  |                              |                     |                          |                           |                        |                                   |             |   |
|                                 |          |  |                              |                     |                          |                           |                        |                                   |             |   |
|                                 |          |  |                              |                     |                          |                           |                        |                                   |             |   |
| •                               |          |  |                              |                     |                          |                           |                        | <u>.</u>                          |             |   |
|                                 | ·        |  |                              |                     |                          |                           |                        | <u> </u>                          |             |   |
|                                 |          |  |                              |                     | MONI                     | TORING A                  | CRONYMS                |                                   |             |   |
| PID                             |          |  |                              | DETECTOR            | BGD                      |                           |                        | DGRT                              | DRAEGER 1   |   |
| FID<br>GMD                      |          | GEIGER MU  |                              | DETECTOR<br>ETECTOR | CPM<br>PPM               |                           | ER MINUTE<br>R MILLION | PPB<br>MDL                        | PARTS PER   | BILLION<br>ETECTION LIMIT               |
| SCT                             |          | SCINTILLA  |                              |                     | RAD                      |                           |                        |                                   |             | •                                       |
|                                 |          |  |                              | INV                 | ESTIGAT                  | TION DERI                 | VED WASTE              | •                                 | •           |   |
|                                 | DATE     |  | <del></del>                  |                     |                          | Υ-                        |                        | т                                 | ,           |   |
|                                 |          |  | 10                           | 129/02              |                          |                           |                        |                                   |             |   |
|                                 | L AMO    |  | 1/2                          | 129/02<br>L chum    | /                        |                           |                        |                                   |             |   |
| DRUN                            | л #, LOC | CATION:  |                              |                     |                          |                           |                        |                                   | *           |   |
|                                 | OMMEN    |  |                              |                     |                          |                           | SAMPLES T              | AKEN:                             | None        |   |
|                                 |          |  |                              |                     |                          |                           | SAMPLES                |                                   |             |   |
|                                 |          |  |                              |                     |                          |                           | DUPLICATES             |                                   |             |   |
|                                 |          |  |                              |                     |                          |                           | MS/MSD                 |                                   |             |   |
| 1                               |          |  |                              |                     |                          |                           | MRD                    |                                   |             |   |

| OVERBURDEN BORING REPORT      |                             |                                    |                                  |                        |            |     |             |                          |                         |                |  |                      |              |           |                    |               |                  |
|-------------------------------|-----------------------------|------------------------------------|----------------------------------|------------------------|------------|-----|-------------|--------------------------|-------------------------|----------------|--|----------------------|--------------|-----------|--------------------|---------------|------------------|
|                               |                             | . 1                                | PARS                             | <b>50N</b> 9           | 3          |     |             |                          | CLIENT: (               | WA CO          | E  | BORING               | NO.:         | INW DE    | emo -4             | ,             |                  |
| COM                           | MENTS:                      |                                    |                                  |                        |            |     |             |                          |                         |                |  | DRILI<br>INSPEC      | ER:<br>CTOR: | _         | Jeyun J<br>nunn /r |               | ster             |
| D<br>E<br>P<br>T<br>H<br>(FT) | BLOWS<br>PER<br>6<br>INCHES | AMPLING PENE- TRATION RANGE (FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>No. | voc | RAD<br>SCRN |                          | (As per Burm<br>with am | eister: color, | SAM<br>DESCR<br>grain size, M<br>rs and grain-si | IPTION<br>AJOR COMPO | ONENT,       | Minor Com | ponents            | USCS<br>CLASS | STRATUM<br>CLASS |
|                               | 8 5                         | 2'                                 | 1'                               |                        |            |     | _           | _ Mux                    | ist Brock (Ony          | run (elK)      | SFLT   | last 3               | //<br>•      | 9"cf      |                    | m.2           |                  |
| 2-                            | 7 10 32                     | 2'                                 | i l                              | :                      |            |     |             | _wis                     | ot Great<br>last        | y SFL          | T w/so<br>trace of                               | me de                | is u         | Yethine   | el Shake           | mL.           | · -              |
| 5 —                           | 24<br>842"                  | 8"                                 | 6"                               |                        |            |     | _           | bg w                     | eallured                | l shale        | ۷  |                      |              |           | · .                |               |                  |
| 6-                            | 54,°                        | 1ª                                 | _                                |                        |            |     | _           | ראס מ                    | eway.                   | Refus          | al Sple  | t spon               |              |           |                    | _             | -<br>-<br>-      |
| 8 –                           |                             |                                    |                                  |                        |            |     | _           | _                        |                         |                |  |                      |              |           |                    |               | -<br>-<br>-      |
| 10                            |                             |                                    |                                  |                        |            |     | -           | _                        |                         |                |  |                      |              |           |                    |               | -<br>-<br>-      |
| _                             |                             |                                    |                                  |                        |            |     | _           |                          |                         |                |  |                      |              | •         |                    |               | -<br>-<br>-      |
| _                             |                             |                                    |                                  |                        |            |     | -<br>  -    |                          |                         |                |  |                      |              |           |                    |               | <br><br>         |
| 15_                           |                             |                                    |                                  |                        |            |     | -           |                          |                         |                |  |                      |              |           |                    |               | -<br>-<br>-      |
| _                             |                             |                                    |                                  |                        |            |     | _           | -                        |                         |                |  |                      |              |           |                    |               | _<br>_<br>_      |
|                               |                             |                                    |                                  | :                      |            |     | -           | <del> </del><br> -<br> - |                         |                |  |                      |              |           |                    |               | -                |
| 20                            |                             | _                                  |                                  |                        |            |     | _           | <u> </u>                 |                         |                |  | <del>-</del>         | <del></del>  |           |                    | -             |                  |

|                          |             |         |                      | <u>OVE</u> R | BURD                     | EN BOI   | RING REI                                 | PORT   | ·                                | •                   |  |  |  |  |
|--------------------------|-------------|---------|----------------------|--------------|--------------------------|--|--|--|----------------------------------|---------------------|--|--|--|--|
|                          |             | PA      | RSOI                 | NS           |                          | CLIENT:  | WACOE                                    | BORII  | NG NO.:                          | MWDRMO-6            |  |  |  |  |
| PROJEC                   | Γ:          |         |                      | PIO          |                          |  |  | START D  | ATE:                             | 10/29/02            |  |  |  |  |
| SWMU#                    | (AREA)      |         |                      | DRMO         |                          |  | •  | FINISH D   | ATE:                             | +                   |  |  |  |  |
| SOP NO.                  |             |         |                      | 741175       |                          |  |  | CONTRA   | CTOR:                            | Luan Onth           |  |  |  |  |
|                          |             |         | <del> </del>         |              | JMMARY                   |  |  | DRILLER  | :                                | Hum I Rock          |  |  |  |  |
| DRILLING                 | HOLE        | DEP.    | гн                   | SAM          | PLER                     | Н  | AMMER                                    | INSPECTO   | OR:                              | Ben / Linu          |  |  |  |  |
| метнор                   | DIA.(ft)    | INTERV  | AL (ft)              | SIZE         | ТҮРЕ                     | ТҮРЕ   | WT/FALL                                  | СНЕСКЕ   | D BY:                            |                     |  |  |  |  |
| ASA                      | . C"        | 0-      | 8                    | 2"           | SS                       |  |  | СНЕСК Г  | DATE:                            |                     |  |  |  |  |
|                          |             |         |                      |              |                          |  |  | BORING C   | BORING CONVERTED TO MW? (Y) N    |                     |  |  |  |  |
|                          | · :         |         |                      |              | DRIL                     | LING ACE   | RONYMS                                   |  |                                  |                     |  |  |  |  |
| CA                       |             |         |                      |              |                          |  |  |  |                                  |                     |  |  |  |  |
|                          |             |         |                      | MO           | NITORIN                  | G EOUPM  | ENT SUMMA                                | RY   |                                  |                     |  |  |  |  |
| . INSTRU                 | IMENT       | DETEC   | TOR                  | RANGE        |                          | BACKGROU   |  | T :  | BRATION                          | - WEATHER           |  |  |  |  |
| TY                       |             | TYPE/EN |                      |              | READING                  | TIME   | DATE                                     | TIME-  | DATE                             | (TEMP., WIND, ETC.) |  |  |  |  |
|                          |             |         | · Diggs i            |              | ILADINO                  |  | DATE                                     | T. TIME  | DATE                             | (TEML., WIND, ETC.) |  |  |  |  |
| :                        |             |         |                      | · ·          |                          | 1  |  | <del>                                     </del> |                                  |                     |  |  |  |  |
|                          |             |         |                      |              |                          |  | · .                                      | <del> </del>                                     | <del> </del>                     |                     |  |  |  |  |
|                          |             |         |                      |              |                          | <del>                                     </del> |  | <del> </del>                                     | -                                |                     |  |  |  |  |
| ·                        | <u> </u>    |         |                      |              |                          | <u> </u>   |  |  |                                  |                     |  |  |  |  |
|                          | <del></del> |         | <del></del> .        |              | .,                       | ·  |  | <del>                                     </del> |                                  |                     |  |  |  |  |
|                          |             |         |                      |              | MONIT                    | FORING A   | CRONYMS                                  | <del>-1</del>                                    | <u> </u>                         |                     |  |  |  |  |
| PID<br>FID<br>GMD<br>SCT |             |         | NIZATION<br>JELLER D |              | BGD<br>CPM<br>PPM<br>RAD | BACKGROU<br>COUNTS P<br>PARTS PER                | UND<br>ER MINUTE<br>R MILLION            | DGRT<br>PPB<br>MDL                               | DRAEGER<br>PARTS PER<br>METHOD I |                     |  |  |  |  |
|                          |             |         | :                    | INV          | ESTIGAT                  | ION DERI   | VED WASTE                                |  | <del></del>                      |                     |  |  |  |  |
|                          | DATE        | ,       | 1.                   | ob als.      |                          |  |  | T  | -                                | <u></u>             |  |  |  |  |
| L                        | L AMO       |         | <i>\</i>             | 1/29/02      | 1                        |  |  |  |                                  | A                   |  |  |  |  |
| (fra                     | action of   | drum)   |                      | 1/2 drum     | ~                        |  | ······································   | -  |                                  | Mar Au              |  |  |  |  |
| DRUM                     | 1 #, LOC    | CATION: |                      |              |                          |  |  |  |                                  |                     |  |  |  |  |
| CO                       | OMMEN       | VTS:    |                      |              |                          |  | SAMPLES TAKEN: NOWL  SAMPLES  DUPLICATES |  |                                  |                     |  |  |  |  |
|                          |             |         |                      |              |                          |  | MS/MSD                                   |  |                                  |                     |  |  |  |  |
|                          |             |         |                      |              |                          |  | MRD                                      |  |                                  |                     |  |  |  |  |

|                               | PARSONS CLIENT: WA COE BORING NO.: MW DRMO -6 |                                     |                                  |                        |            |     |             |   |       |            |   |         |                     |        |         |           |     |               |                  |
|-------------------------------|---|-------------------------------------|----------------------------------|------------------------|------------|-----|-------------|---|-------|------------|---|---------|---------------------|--------|---------|-----------|-----|---------------|------------------|
|                               |   |                                     | PARS                             | 50N9                   | 5          |     |             |   | CLIE  | ENT:LL     | ACOE                                    |         | BORING              | NO.:   | mw      | DRM       | 0 - | Ь             |                  |
| COM                           | MENTS:  |                                     |                                  |                        |            |     |             | DRILLER: Huny Lyon<br>INSPECTOR: Los Mann<br>DATE: 10/29/02 |       |            |   |         |                     | w /    | mcA(l   | istir     |     |               |                  |
| D<br>E<br>P<br>†<br>H<br>(FT) | BLOWS PER 6 INCHES                            | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>NO. | Voc | RAD<br>SCRN |   |       | with amoun | er: color, grain s<br>t modifiers and g | ize, MA | IPTION<br>AJOR COMP | ONENT, | Minor C | omponents |     | USCS<br>CLASS | STRATUM<br>CLASS |
| _                             | 10  | z'                                  | 344                              |                        |            |     |             | - K<br>-  | ock   | FII        | l                                       |         |                     |        |         |           |     | 1             |                  |
| 2-<br>-                       | 8 4   | J'                                  | 1                                |                        |            |     | _           | -   |       | Ÿ          | Brown                                   |         |                     | F      |         |           |     | ML.           |                  |
| 4 -<br>5 -                    | 10 1<br>50/2                                  | 8"                                  | ·8"                              |                        |            |     | <u>-</u>    | -pry  | we    | ather      | d shale<br>credshal                     | •       |                     |        |         |           |     |               | · .              |
| 6-<br>-                       | 9/,*  | ı'`                                 | 4''                              |                        |            |     | _           | ר<br> -<br> -<br> -   | ny li | n addi     | eredshal                                | le/     |                     |        |         |           |     |               |                  |
| -3                            |   |                                     |                                  |                        |            |     | <u>-</u>    | _<br>_<br>_   |       |            |   |         |                     |        |         |           |     |               | -                |
| <sup>10</sup> —               |   |                                     |                                  |                        |            |     |             | <b>-</b>  |       |            |   |         |                     |        |         |           |     |               |                  |
|                               |   |                                     |                                  |                        |            |     |             | _<br>_<br>_   |       |            |   |         |                     |        |         |           |     |               | -<br>-           |
| 15_                           |   |                                     |                                  |                        |            |     |             | <del>-</del>  |       |            |   |         |                     |        |         |           |     |               | -                |
| -<br> <br> -                  |   |                                     |                                  |                        |            |     | _           | _   |       |            |   |         |                     |        |         |           |     |               | <br>             |
| _                             |   |                                     | :                                |                        |            |     |             | _   |       |            |   |         |                     |        |         |           |     |               | -<br>-           |
| 20                            |   |                                     |                                  |                        |            |     | _           | _   |       |            |   |         |                     |        |         |           |     |               |                  |

| . ,         |  |                          |             | OVER                                  | BURD           | EN BOI    | RING REI                | PORT           |                |                             |  |
|-------------|--|--------------------------|-------------|---------------------------------------|----------------|-----------|-------------------------|----------------|----------------|-----------------------------|--|
|             |  | PAI                      | <b>3501</b> | VS                                    |                | CLIENT:   | WACOE                   | BORI           | NG NO.:        | MWDRMU-5                    |  |
| PROJEC      | Γ:                                     |                          | PI          | CD.                                   |                |           |                         | START D        |                | 10/2/02                     |  |
| SWMU#       | (AREA)                                 | :                        | Dr          | 2mo                                   | -              | •         | •                       | FINISH D       | ATE:           | 10/29/02                    |  |
| SOP NO.     | <b>:</b> ,                             |                          |             | 14/175                                | -              |           |                         | CONTRA         | CTOR:          | Lyon Drilling               |  |
|             |  |                          |             | · · · · · · · · · · · · · · · · · · · | J <b>MMARY</b> |           |                         | DRILLER        | : •            | Tarry 1 Rich                |  |
| DRILLING    | HOLE                                   | · DEP                    | н           | · SAM                                 | PLER .         | . I       | IAMMER                  | INSPECT        | OR; .          | Ben Jenn                    |  |
| METHOD      | DIA.(ft)                               | INTERV                   | AL (ft)     | SIZE                                  | ТҮРЕ           | TYPE      | WT/FALL                 | CHECKE         | BY:            |                             |  |
| HSA         | 6                                      | 0-8                      | ۲.          | 2"                                    | <i>5</i> S     |           |                         | СНЕСК І        | DATE:          |                             |  |
|             | 1                                      |                          |             |                                       |                | : .       |                         | BORING (       | CONVERTED      | TO MW? Y N                  |  |
|             |  | :                        |             |                                       | DRII           | LLING ACI | RONYMS.                 |                |                |                             |  |
| HSA         |  | HOLLOW-ST                | •           | ERS.                                  | HMR            |           |                         | SS             | SPLIT SPOC     |                             |  |
| DW<br>MRSLC |  | DRIVE-AND<br>MUD-ROTAL   |             | OPING                                 | SHR<br>HHR     |           | AMMÈR<br>C HAMMER       | CS<br>51       |                | US SAMPLING<br>VAL SAMPLING |  |
| CA          |  | CASING AD                |             | ·                                     | DHR            |           | LE HAMMER               | NS .           | NO SAMPLE      |                             |  |
| SPC         |  | SPIN CASIN               |             | -                                     | WL             | WIRE-LINE |                         | ST             | SHELBY TU      | _                           |  |
|             | • •                                    |                          | · · :       |                                       |                | :         | 1.00                    | .3S            | 3 INCH SPLI    | T SPOON                     |  |
| <del></del> | ······································ |                          |             | MO                                    | NITORIN        | G EOUPM   | ENT SUMMAI              | RY             |                |                             |  |
| INSTRU      | IMENIT                                 | DETEC                    | TOP         | RANGE                                 |                | BACKGRO   |                         | -              | BRATION        | WEATHER                     |  |
|             |  |                          |             | KANGE .                               | DEADING        |           | DATE                    | TIME           |                | 1                           |  |
| TY          | re                                     | TYPE/EN                  | EKGY        |                                       | READING        | TIME .    | DATE                    | TIME           | DATE           | (TEMP., WIND, ETC.)         |  |
|             |  |                          |             |                                       |                |           | • • •                   | <del> </del> - | <del> </del> - |                             |  |
|             |  |                          |             |                                       |                |           |                         | <del> </del>   | <del> </del>   |                             |  |
|             |  |                          |             |                                       | · .            |           |                         |                | ļ              |                             |  |
|             |  | ļ                        |             |                                       |                |           |                         | <b>-</b>       | ļ              |                             |  |
| . ,         |  | ļ                        |             |                                       | <u> </u>       |           |                         | ļ              |                |                             |  |
|             | ٠                                      | l                        |             |                                       |                |           |                         |                | 1              |                             |  |
|             |  |                          |             |                                       | MONI           | TORING A  | CRONYMS                 |                |                |                             |  |
| PID         |  |                          |             | DETECTOR                              | BGD            |           |                         | DGRT           | DRAEGER        |                             |  |
| FID<br>GMD  |  | FLAME - IOI<br>GEIGER MU |             | DETECTOR                              | CPM<br>PPM     |           | PER MINUTE<br>R MILLION | PPB<br>MDL     | PARTS PER      | BILLION<br>DETECTION LIMIT  |  |
| SCT         |  | SCINTILLAT               |             |                                       | RAD            | -         |                         | MDD            | METHOD E       | · ·                         |  |
|             |  |                          |             |                                       | ************   |           |                         |                |                |                             |  |
|             |  |                          |             | INV                                   | ESTIGAT        | TON DERI  | VED WASTE               |                |                |                             |  |
|             | DATE                                   | ;                        | ···         | hales                                 |                |           |                         |                |                |                             |  |
| SOI         | L AMO                                  | UNT :                    |             | 0/29/62<br>1/2 drus                   | <u> </u>       |           |                         |                |                |                             |  |
|             | action of                              |                          |             | 1/2 dru                               | <u>~_</u>      |           |                         | 1              |                |                             |  |
| DRUM        | 1 #, LOC                               | CATION:                  |             |                                       |                |           |                         |                |                |                             |  |
|             | OMMEN                                  |                          |             |                                       |                |           | SAMPLES T               | AKEN:          | none           |                             |  |
|             |  |                          |             |                                       |                |           | SAMPLES                 |                |                |                             |  |
|             |  |                          |             |                                       |                |           | DUPLICATES              |                |                |                             |  |
|             |  |                          |             |                                       |                |           | MS/MSD                  |                |                |                             |  |
|             |  |                          |             |                                       |                |           | MRD                     |                |                |                             |  |

20

|            | -         | •                            |          | OVER           | BURD         | EN BOI    | RING RE           | PORT         |                   |                      |
|------------|-----------|------------------------------|----------|----------------|--------------|-----------|-------------------|--------------|-------------------|----------------------|
|            |           | PAF                          | SOF      | VS             |              | CLIENT:   | USACOE            | BORI         | NG NO.:           | SBIBIT-1             |
| PROJECT    | Γ:        |                              | PID      |                |              |           |                   | START D      |                   | 10/24/02             |
| SWMU#      | (AREA)    | : -                          | RII      |                |              |           |                   | FINISH D     | DATE:             | J.                   |
| SOP NO.    | ,         | _                            | 74117    |                |              |           |                   | CONTRA       | CTOR:             | Lyan Dirlling        |
| 301 1101   | •.        |                              |          |                | IMMADV       |           |                   | ┪            |                   | Jan 1                |
|            |           | <u> </u>                     |          |                | IMMARY       |           |                   | DRILLER      |                   | 1 Pary Align         |
| ORILLING   | HOLE      | DEPTI                        |          | SAM            | PLER         |           | IAMMER            | INSPECT      | OR:               | J LOSSMAN /B MCHING  |
| METHOD     | DIA.(ft)  | INTERVA                      | L (ft)   | SIZE           | ТҮРЕ         | TYPE      | WT/FALL           | CHECKE       | D BY:             |                      |
| HSA-       | 414       | 0-2.8                        |          | 3"             | <u> </u>     |           |                   | СНЕСК 1      | DATE:             |                      |
|            |           |                              |          |                |              |           |                   | BORING (     | CONVERTED         | томw? Y (N)          |
|            |           |                              |          |                | DRII         | LING ACE  | RONYMS            |              |                   |                      |
| HSA        |           | HOLLOW-STE                   | M AUGE   | RS             | HMR          | HAMMER    |                   | SS           | SPLIT SPOO        | ON                   |
| DW         |           | DRIVE-AND-V                  | VASH     |                | SHR          | SAFETY H  | AMMER             | CS           | CONTINUO          | US SAMPLING          |
| MRSLC      |           | MUD-ROTAR'                   | Y SOIL-C | ORING          | HHR          | HYDRAULI  | IC HAMMER         | 51           | 5 FT INTER        | VAL SAMPLING         |
| CA         |           | CASING ADV                   | ANCER    |                | DHR          |           | LE HAMMER         | NS           | NO SAMPLI         |                      |
| SPC        |           | SPIN CASING                  | i        |                | WL           | WIRE-LINE | :                 | ST           | SHELBY TU         |                      |
|            |           |                              |          |                |              |           |                   | 38           | 3 INCH SPLI       | II SPOON             |
|            |           |                              |          | МО             | NITORIN      | G EOUPM   | ENT SUMMA         | ARY          |                   |                      |
| INSTRU     | MENT      | DETECT                       | OR       | RANGE          |              | BACKGRO   |                   |              | BRATION           | WEATHER              |
| TY         | DE:       | TYPE/ENE                     | ERGY     |                | READING      | TIME      | DATE              | TIME         | DATE              | (TEMP., WIND, ETC.)  |
|            | E         | TIFEENE                      | ako i    |                | KEADING      | TIME      | DAIL              |              | DAIL              | (TEINI., WIND, ETC.) |
|            |           |                              |          |                | <del> </del> |           |                   | <del> </del> | <del> </del>      |                      |
|            |           |                              |          |                |              |           |                   |              | -                 |                      |
|            |           |                              |          |                |              |           |                   |              |                   |                      |
|            |           |                              |          | ļ              |              |           |                   |              |                   |                      |
|            |           |                              |          |                |              |           |                   |              |                   |                      |
|            |           |                              |          |                |              |           |                   |              |                   |                      |
|            |           | L                            |          | <u> </u>       |              |           | GD 6377756        |              |                   | 1                    |
|            |           |                              |          | D.E.T.C.T.O.D. |              |           | CRONYMS           | DORT         | DD 4 ECED         | TUDE                 |
| PID        |           | PHOTO - IONI<br>FLAME - IONI |          |                | BGD<br>CPM   |           | UND<br>PER MINUTE | DGRT<br>PPB  | DRAEGER PARTS PER |                      |
| FID<br>GMD |           | GEIGER MUE                   |          |                | PPM          |           | R MILLION         | MDL          |                   | DETECTION LIMIT      |
| SCT        |           | SCINTILLATION                |          |                | RAD          |           |                   | MDD          | MEMOD E           | DIDETION DIMIT       |
|            |           |                              |          |                |              |           |                   |              |                   |                      |
|            |           |                              |          | INV            | ESTIGAT      | ION DERI  | VED WASTE         |              |                   |                      |
|            | DATE      | Г                            |          |                |              |           |                   |              | ·········         |                      |
| ~~-        |           |                              |          |                |              |           |                   |              |                   |                      |
|            | L AMO     |                              |          |                |              |           |                   | İ            |                   |                      |
| (Ira       | ection of | arum)                        |          |                |              |           |                   |              |                   |                      |
| DRUM       | 1 #, LOC  | CATION:                      |          |                |              |           |                   |              |                   |                      |
|            | OMMEN     |                              |          |                |              |           | SAMPLES           | TAKEN:       | 121I -            | 1040                 |
|            |           |                              |          |                |              |           |                   |              |                   | <i>i i</i> I         |
|            |           |                              |          |                |              |           | SAMPLES           | · VOC/10     | USTING ISV        | oc/Rest/Restrutulsky |
|            |           |                              |          |                |              |           | DUPLICATES        |              | toc               | /71H                 |
|            |           |                              |          |                |              |           | MS/MSD            |              |                   |                      |
|            |           |                              |          |                |              |           | Wishvisb          | _,           |                   |                      |

|                  |                   |                           |                        |                        |            | -    |              |          |         | ·        |                  |               | · · ·                     | •      |           |          |               |           |       | PAGE <b>J</b> OF | 2                    |   |
|------------------|-------------------|---------------------------|------------------------|------------------------|------------|------|--------------|----------|---------|----------|------------------|---------------|---------------------------|--------|-----------|----------|---------------|-----------|-------|------------------|----------------------|---|
|                  |                   |                           |                        | (                      | <b>V</b> C | E    | RB           | UF       | RDE     | IN       | BO               | RIN           | G                         | R      | EP        | OI       | <del>?T</del> |           |       |                  |                      |   |
|                  |                   | ļ                         | PARS                   | ONS                    | 3          | •    |              |          | CILIE   | NT: U    | UDA C            | NE            |                           | BORI   | NG I      | NO.:     | SBI           | 21I       | -1    |                  |                      |   |
| COM              | MENTS:            |                           |                        | :                      |            |      |              |          |         |          |                  |               |                           | DR     | ILLE      | R:       | Hari          | y 2       | lyon  |                  |                      |   |
|                  |                   |                           |                        |                        |            |      |              |          |         |          | , cv             |               |                           | INS    | PECTO     | OR:      | Jkd           | <u> </u>  | m/B   | McAllis          | ter                  |   |
| D                | s                 | AMPLIN                    | G-                     | <u> </u>               | SAM        | PLE  |              |          |         |          |                  | <del></del>   |                           | I      | DATE:     |          | _/\)          | 24/1      | $\nu$ |                  |                      |   |
| E<br>P<br>T<br>H | BLOWS<br>PER<br>6 | PENE-<br>TRATION<br>RANGE | RECOV-<br>ERY<br>RANGE | DEPTH<br>INT<br>(FEET) | NO.        | 100  | RAD<br>SCRN  |          | (As per | Burme    | ister: colo      |               | SAMP<br>ESCRIP<br>2e, MAJ | MOIT   | MPON      | ENT. N   | Ainor C       | ompone    | ents  | USCS<br>CLASS    | STRA<br>CL           |   |
| (FT)             | INCHES            | (FEET)                    | (FEET)                 |                        | 20         | '    | T,           |          | w       | rith amo | ount modif       | fiers and gra | ain-size.                 | densit | v. strati | fication | wetnes        | ss. etc.) |       | 1                | · <del> :···</del> · |   |
| _                | 14<br>15          | 2'                        | ľ                      |                        | 181E-1040  | 6/// | ,<br>_       | _ m      | אפונ    | free     | n /grei<br>ineut | Still<br>s.   | $\omega_{l}$              | / WK   | whi       | ~e0( .   | >nчŒ          | 2.        |       | CL               | -                    | - |
| z —              | 13                |                           |                        |                        | 1/8/17     |      |              | מו       | Lecove  | in ,     | Refu             | sal           |                           |        |           |          |               |           |       |                  |                      |   |
|                  | 50 3              |                           |                        | , Ans                  |            | 1/30 | _            |          |         | đ        |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
| 4-               |                   |                           |                        |                        |            |      |              |          |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
| 5                |                   |                           |                        |                        | -          |      | _            | _ ·<br>  |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
|                  |                   |                           |                        |                        |            |      | _            | _<br>_   |         |          |                  |               |                           |        |           |          |               |           |       |                  | -                    |   |
| _                |                   |                           |                        | :                      |            |      |              | _<br>_   |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      | - |
|                  |                   |                           |                        |                        |            |      | _            | <u> </u> |         |          |                  |               |                           |        |           |          |               |           | ÷     |                  | -                    | _ |
| 10               |                   |                           |                        |                        |            |      | <del>-</del> | _        |         |          |                  |               |                           |        |           | ٠        |               |           |       |                  |                      | _ |
| 10               |                   |                           |                        |                        |            |      |              |          |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      | 1 |
|                  |                   |                           |                        | :                      |            |      |              | <u> </u> |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
|                  |                   |                           |                        |                        |            |      |              | <b>-</b> |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      | - |
|                  |                   |                           |                        |                        |            |      |              | _        |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
| 15               |                   | •                         |                        |                        |            |      |              | <u>-</u> |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
|                  |                   |                           |                        |                        |            |      | _            |          |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
|                  |                   |                           |                        |                        |            |      | _            | _        |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |
|                  |                   |                           |                        |                        |            |      | _            | _        |         |          |                  |               |                           |        |           |          |               |           |       |                  |                      |   |

|           |             |   | OVER  | BURD   | EN BO   | RING RE  |  |   |   |  |  |  |
|-----------|-------------|---|---|--|---|--|--|---|---|--|--|--|
|           | PAI         | RSOI  | NS  |  | CLIENT  | USA COE  | BORI   | NG NO.:   | SB1211-6  |  |  |  |
| Γ;        |             | PI  | D   |  |   |  | li .   |   | 10/24/02  |  |  |  |
| (AREA)    | : -         | 3   | 12LL  |  |   |  | FINISH D   | ATE:  |   |  |  |  |
| :         | _           |   |   |  |   |  | CONTRAC  | CTOR:   | Lyon Drilly   |  |  |  |
|           |             |   |   | JMMARY   | <del></del>   |  | DRILLER:   |   | Ham Zum   |  |  |  |
| HOLE      | DEP         |   |   |  |   | HAMMER   | INSPECTO   | OR:   | J Rosmann Brethlis  |  |  |  |
| DIA.(ft)  | INTERV      | AL (ft)   | SIZE  | ТҮРЕ   | TYPE  | WT/FALL  | CHECKE   | BY:   |   |  |  |  |
| 80034h    | 0-3         | 3   | 3"  | 25   |   |  | CHECK D  | DATE:   |   |  |  |  |
|           |             |   |   |  |   |  | BORING C   | ONVERTED 1  | TOMW? Y (N)   |  |  |  |
|           | ·           |   |   | DRII   | LING AC   | RONYMS   |  |   |   |  |  |  |
|           | HOLLOW-\$1  | TEM AUGI  | ERS   | HMR  | HAMMER  |  | SS   | SPLIT SPOC  | ON  |  |  |  |
|           | DRIVE-AND   | -WASH   |   | SHR  | SAFETY  | HAMMER   | CS   | CONTINUO  | US SAMPLING   |  |  |  |
|           |             |   | CORING  |  |   |  | 51   |   | VAL SAMPLING  |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
|           | SPIN CASIN  | G   |   | WL   | WIKE-LIN  | E  | 38   | 3 INCH SPLI   |   |  |  |  |
|           |             |   |   |  |   | ······   |  |   |   |  |  |  |
|           |             |   | MO  | NITORIN  | G EQUPI   | MENT SUMMA   | ARY  |   |   |  |  |  |
| MENT      | DETEC       | TOR   | RANGE   |  | BACKGRO   | OUND   | CALIE  | RATION  | WEATHER   |  |  |  |
| PE        | TYPE/ENERGY |   |   | READING  | TIME  | DATE   | TIME   | DATE  | (TEMP., WIND, ETC.)   |  |  |  |
|           | 1112512101  |   |   |  |   |  |  |   |   |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
|           |             |   |   |  | <del></del>   |  |  |   |   |  |  |  |
|           |             |   |   |  | <del>-   · · · · -</del>  | <u> </u>   |  | <del> </del>  |   |  |  |  |
|           |             |   |   |  |   |  | +  |   |   |  |  |  |
|           | <u> </u>    | •   | l   | 1  |   |  |  | .i  |   |  |  |  |
|           |             |   |   |  |   |  | D.COT.   | DD 4 505D   | THE POST  |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
|           |             |   |   |  |   |  |  |   | DETECTION LIMIT   |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
|           | ·           |   | INI   | FSTICAT  | TON DER   | IVED WASTE   |  |   |   |  |  |  |
|           |             |   | 1111  | ESTIGAT  | ION DER   | (VED WASIE   |  |   |   |  |  |  |
| DATE      |             |   |   |  |   |  |  |   |   |  |  |  |
|           |             |   |   |  |   |  |  |   |   |  |  |  |
| action of | drum)       |   |   |  |   |  |  |   |   |  |  |  |
| iction of |             |   |   |  | l .   |  | 1  |   |   |  |  |  |
|           | ATION:      |   |   |  | <u>l</u>  |  | l  |   |   |  |  |  |
|           |             |   |   |  | <u></u>   | SAMPLES  | TAKEN:   | <del></del>   |   |  |  |  |
| 1#, LOC   |             |   |   |  | <u> </u>  | SAMPLES  |  | - l <del>s</del> /3   |   |  |  |  |
| 1#, LOC   |             |   |   |  | <u>                                     </u>  | SAMPLES  | 1211   | - 1813<br>- 1814  |   |  |  |  |
| 1#, LOC   |             |   |   |  | 1   | ŀ  | 121I<br>121I   |   | s /msp  |  |  |  |
|           | DATE  LAMO  | HOLE DEP DIA.(A) INTERV  HOLLOW-ST DRIVE-AND MUD-ROTAL CASING AD SPIN CASIN  MENT DETECT PE TYPE/EN  PHOTO-IOL GEIGER MIL | PARSOI  T: PI  (AREA):  THOLE DEPTH  DIA.(R) INTERVAL (R)  HOLLOW-STEM AUGI DRIVE-AND-WASH MUD-ROTARY SOIL-C CASING ADVANCER SPIN CASING  PHOTO - IONIZATION FLAME - IONIZATION GEIGER MUELLER D SCINTILLATION DET  DATE  L AMOUNT: | PARSONS  T: PID  (AREA): \$12LT  TYITS  DRILLING SU  HOLE DEPTH SAM DIA.(R) INTERVAL (R) SIZE  HOLLOW-STEM AUGERS DRIVE-AND-WASH MUD-ROTARY SOIL-CORING CASING ADVANCER SPIN CASING  MO  MENT DETECTOR RANGE TYPE/ENERGY  PE TYPE/ENERGY  PHOTO - IONIZATION DETECTOR GEIGER MUELLER DETECTOR SCINTILLATION DETECTOR SCINTILLATION DETECTOR INV  DATE  L AMOUNT: | PARSONS  T: PID  (AREA): \$ 1211  THITTS  DRILLING SUMMARY  HOLE DEPTH SAMPLER DIA.(h) INTERVAL (h) SIZE TYPE  BECA O-3 3" JS  DRIL  HOLLOW-STEM AUGERS HMR CASING ADVANCER DHR SPIN CASING WL  MONITORIN  MENT DETECTOR RANGE  PE TYPE/ENERGY READING  PHOTO - IONIZATION DETECTOR CPM GEIGER MUELLER DETECTOR PPM SCINTILLATION DETECTOR RAD  INVESTIGAT  DATE  L AMOUNT: | PARSONS  T: PID  (AREA): 3   2UT  TYY/T75   DRILLING SUMMARY  HOLE DEPTH SAMPLER  DIA.(B) INTERVAL (B) SIZE TYPE TYPE  HOLLOW-STEM AUGERS HMR HAMMER  DRIVE-AND-WASH SHR SAFETY H  MUD-ROTARY SOIL-CORING HHR HYDRAUL  CASING ADVANCER DHR DOWN-HC  SPIN CASING WL WIRE-LIN  MONITORING EQUPN  MENT DETECTOR RANGE BACKGRO  PE TYPE/PENERGY READING TIME  MONITORING AC  MONITORING TIME  MONITORING FLAME INVESTIGATION DETECTOR PPM PARTS PI  SCINTILLATION DETECTOR RAD RADIATION  INVESTIGATION DERI | PARSONS  CLIENT (SACE)  T: PID  (AREA): \$ 12 II  THITTS  DRILLING SUMMARY  HOLE DEPTH SAMPLER HAMMER DIA(R) INTERVAL(R) SIZE TYPE TYPE WIFFALL  BOLLOW-STEM AUGERS HAR HAMMER DRIVE-AND-WASH SHR SAFETY HAMMER MUD-ROTARY SOIL-CORING HHR HYDRAULIC HAMMER CASING ADVANCER DHR DOWN-HOLE HAMMER SPIN CASING WL WIRE-LINE  MONITORING EQUPMENT SUMMARY  MENT DETECTOR RANGE BACKGROUND TYPE/ENERGY READING TIME DATE  MONITORING ACRONYMS  PHOTO - IONIZATION DETECTOR BGD BACKGROUND FLAME - IONIZATION DETECTOR CPM COUNTS PER MINUTE GEIGER MUELLER DETECTOR PPM PARTS PER MILLION SCINTILLATION DETECTOR RAD RADIATION METER  INVESTIGATION DERIVED WASTE  DATE  L AMOUNT: | PARSONS  CLIENT SACSE  BORIS  T: PID  (AREA): \$ 12LT  FINISH D  CONTRACT  DRILLING SUMMARY  HOLE DEPTH SAMPLER HAMMER INSPECTOR DIA(R) INTERVAL(R) SIZE TYPE TYPE WIFFALL CHECKER  DRILLING ACRONYMS  HOLLOW-STEM AUGERS HAR HAMMER SS DRIVE-AND-WASH SHR SAFETY HAMMER SI CASING ADVANCER DHR DOWN-HOLE HAMMER SI SPIN CASING WL WIRE-LINE ST 3S  MONITORING EQUPMENT SUMMARY  MENT DETECTOR RANGE BACKGROUND CALIE  PE TYPE/ENERGY READING TIME DATE TIME  MONITORING ACRONYMS  PHOTO-IONIZATION DETECTOR BGD BACKGROUND DGRT FLAME-IONIZATION DETECTOR CPM COUNTS PER MILLION MDL  SCINTILLATION DETECTOR RAD RADIATION METER  INVESTIGATION DERIVED WASTE  DATE  L AMOUNT: | T: PID  (AREA): \$ 12LT  FINISH DATE:  TY/1/75  DRILLING SUMMARY  HOLE DEPTH SAMPLER HAMMER INSPECTOR:  DIA.(8) INTERVAL(8) SIZE TYPE TYPE WIFALL CHECKED BY:  CHECK DATE:  BORING CONVERTED  DRILLING ACRONYMS  HOLLOW-STEM AUGERS HAR HAMMER SS SPLIT SPOX  DRIVE-AND-WASH SHR SAFETY HAMMER CS CONTINUO  MUD-ROTARY SOL-CORING HHR HYDRAULIC HAMMER SI SFT INTERT  CASING ADVANCER DHR DOWN-HOLE HAMMER NS NO SAMPLL  SPIN CASING WL WIRE-LINE ST SHELBY TU  35 JINCH SPLI  MONITORING EQUPMENT SUMMARY  MENT DETECTOR RANGE BACKGROUND CALIBRATION  PE TYPE/ENERGY READING TIME DATE TIME DATE  MONITORING ACRONYMS  PHOTO - IONIZATION DETECTOR BGD BACKGROUND DGRT DRAEGER  FLAME - IONIZATION DETECTOR CPM COUNTS PER MINUTE PPB PARTS PER  GEIGER MULELER DETECTOR PRAD RADIATION METER  INVESTIGATION DERIVED WASTE  DATE  L AMOUNT: |  |  |  |

|                     | OVERBURDEN BORING REPORT  PARSONS CLIENT: UDACDE BORING NO.: SK 121 T - 2 |                                     |                                  |                        |         |     |             |  |                |                  |  |  |  |  |
|---------------------|---|-------------------------------------|----------------------------------|------------------------|---------|-----|-------------|--|----------------|------------------|--|--|--|--|
|                     | ODJETE.   |                                     |                                  |                        |         |     |             |  |                |                  |  |  |  |  |
| DE                  | D7  | I nut                               |                                  | ss v                   | sam     |     | Gr 1º       | DRILLER: Harry Lyon, INSPECTOR: JRDS SMIMM  DATE: 10/24/12   | IBMCA          | llistr_          |  |  |  |  |
| P<br>T<br>H<br>(FT) | BLOWS<br>PER<br>G<br>INCHES   | PENE-<br>TRATION<br>RANGE<br>(FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | NO.     | voc | RAD<br>SCRN | DESCRIPTION  | USCS.<br>CLASS | STRATUM<br>CLASS |  |  |  |  |
| 5                   | 10<br>5N/2 <sup>t</sup>   | (FEET)                              |                                  |                        | SH-1043 | SHH |             | with amount modifier and grain-size, density, stratification, wetness, etc.)  MN12+ Brown CLAY W rock at bother  Weathered Shalle  Pock fraymuts Refusal | CL             |                  |  |  |  |  |
| 20                  |   |                                     |                                  |                        |         |     |             |  |                |                  |  |  |  |  |

|                                 |          |  |                             | <u>OVE</u> R        | BURDI                          | EN BOF                | RING RE                         | PORT   | •                                     |   |  |
|---------------------------------|----------|--|-----------------------------|---------------------|--------------------------------|-----------------------|---------------------------------|--|---------------------------------------|---|--|
|                                 |          | PAF  | <b>1</b> 501                | <b>VS</b>           |                                | CLIENT:               | USACOE                          | BORIN  | NG NO.:                               | SB121E-3                                |  |
| PROJECT                         | Γ:       |  | PID                         | •                   | ſ                              |                       |                                 | START D  |                                       | 10/24/02                                |  |
| SWMU#                           | (AREA)   | : -  | 1211                        | <del></del>         |                                |                       |                                 | FINISH D   | ATE:                                  | t                                       |  |
| SOP-NO.                         | :        | ī  | 74117                       |                     |                                |                       |                                 | CONTRAC  | CTOR:                                 | Lyon Drillay                            |  |
|                                 |          |  |                             |                     | JMMARY:                        |                       |                                 | DRILLER:   |                                       | tume / Rich                             |  |
| DRILLING                        | HOLE     | . DEPT   | Ή                           | SAM                 | PLER                           | . Н                   | AMMER                           | INSPECTO   | DŖ:                                   | Ben I Jenn                              |  |
| METHOD                          | DIA.(ft) | INTERV   | AL (ft)                     | SIZE                | TYPE                           | TYPE                  | WT/FALL                         | CHECKEL  | BY:                                   |   |  |
| HSA                             | 41/21    | 0-2  | 2'                          | 3"                  | <b>.</b> SS                    | ·                     |                                 | CHECK D  | DATE:                                 |   |  |
|                                 |          |  |                             |                     |                                |                       | ٠.                              | BORING C   | ONVERTED 7                            | TOMW? Y N                               |  |
| HSA<br>DW<br>MRSLC<br>CA<br>SPC |          | HOLLOW-ST<br>DRIVE-AND<br>MUD-ROTAR<br>CASING AD<br>SPIN CASIN | WASH<br>CY SOIL-C<br>VANCER | f*                  | HMR<br>SHR<br>HHR<br>DHR<br>WL | SAFETY H.<br>HYDRAULI | C HAMMER<br>E HAMMER            | NS<br>ST   | •                                     | JS SAMPLING<br>VAL SAMPLING<br>NG<br>BE |  |
|                                 | <u></u>  | ·····  |                             | MO                  | NITORIN                        | G EOIIPM              | ENT SUMMA                       | RY   | · · · · · · · · · · · · · · · · · · · |   |  |
| INSTRU                          | IMENT    | DETEC  | TOR                         | RANGE               | THEORIN                        | BACKGRO               |                                 |  | RATION                                | WEATHER                                 |  |
| TY                              |          | TYPE/EN  |                             | KANGE               | READING                        | TIME                  | DATE                            | TIME   | DATE                                  | (TEMP., WIND, ETC.)                     |  |
| 111                             |          | TITEEN   | ZIO I                       |                     | ICADINO                        | IIME                  | DATE                            |  | 2.11                                  | (azada, mad, bro.)                      |  |
|                                 |          |  |                             |                     | · .                            | <u> </u>              |                                 | <del>                                     </del> |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       |                                 | <u> </u>   |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       |                                 |  |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       |                                 |  |                                       |   |  |
|                                 | ·        |  |                             |                     |                                |                       |                                 |  |                                       |   |  |
|                                 |          |  |                             |                     | MONIT                          | ORING A               | CRONYMS                         |  |                                       | <u> </u>                                |  |
| PID<br>FID<br>GMD<br>SCT        |          | PHOTO - ION<br>FLAME - ION<br>GEIGER MU<br>SCINTILLAT          | NIZATION<br>JELLER D        | DETECTOR<br>ETECTOR | BGD<br>CPM<br>PPM<br>RAD       | BACKGRO<br>COUNTS P   | UND<br>ER MINUTE :<br>R MILLION | DGRT<br>PPB<br>MDL                               | DRAEGER PARTS PER METHOD D            |   |  |
|                                 |          |  |                             | INV                 | /ESTIGAT                       | ION DERI              | VED WASTE                       |  |                                       |   |  |
|                                 | DATE     | : I  |                             |                     |                                | Ι                     |                                 | <del></del>                                      |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       |                                 |  |                                       |   |  |
|                                 | L AMO    |  |                             |                     |                                |                       |                                 | _  |                                       |   |  |
| DRUM                            | 1 #, LOC | CATION:  |                             |                     |                                |                       |                                 |  |                                       |   |  |
| CC                              | OMMEN    | NTS:   |                             |                     |                                |                       | SAMPLES                         | ΓAKEN:   |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       | SAMPLES                         | 121E   | -1047                                 |   |  |
|                                 |          |  |                             |                     |                                |                       | DUPLICATES                      |  |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       | MS/MSD                          |  |                                       |   |  |
|                                 |          |  |                             |                     |                                |                       | MRD                             |  |                                       |   |  |

|                  | OVERBURDEN BORING REPORT  PARSONS  CLIENT: WACKE  BORING NO.: 38  21   7-33.  |                           |                                       |                        |           |               |             |                  |               |                      |          |  |                                |               |                  |
|------------------|---|---------------------------|---------------------------------------|------------------------|-----------|---------------|-------------|------------------|---------------|----------------------|----------|--|--------------------------------|---------------|------------------|
|                  | COMMENTS:  COMMENTS:  COMMENTS:  COMMENTS:  CLIENT: USACUE  BORING NO.: 38  Z  T - 33.  DRILLER: Hary you  INSPECTOR: J NOS SYNUMA / 8 PC |                           |                                       |                        |           |               |             |                  |               |                      |          |  |                                |               |                  |
| COMI             | MENTS:  | er.                       |                                       |                        |           |               |             |                  |               |                      |          |  | Harylya<br>Jkossmu<br>10/24/02 |               | listr            |
| D                | S   | AMPLING                   | <b>3</b>                              |                        | SAM       | PLE           |             |                  |               |                      |          | ·  | 10/                            | T.            |                  |
| E<br>P<br>T<br>H | BLOWS<br>PER<br>6   | PENE-<br>TRATION<br>RANGE | RECOV-<br>ERY<br>RANGE                | DEPTH<br>INT<br>(FEET) | NO.       | voc           | RAD<br>SCRN |                  | (As per Purme |                      | ESCR     | APLE LIPTION                               | Minor Comments                 | USCS<br>CLASS | STRATUM<br>CLASS |
| (FT)             | INCHES  | (FEET)                    | (FEET)                                | (FEET)                 |           | <u> </u>      | SCRN        |                  | with am       | ount modifiers and g | rain-si: | AJOR COMPONENT, ze, density, stratificatio | n, wetness, etc.)              |               |                  |
| _<br>Z –         | 9<br>30<br>50/2*  | -                         | 1 .                                   | •                      | (401-512/ | <i>حج</i> اہا |             | <del>-</del>     |               | isal, No             |          | wheel factored                             | shale .                        | CL            | -<br>-<br>-      |
| _                |   |                           |                                       |                        |           |               | _           |                  | our par       | wsice, no            | Pu       | ecolog.                                    |                                |               | _<br>_<br>_      |
| 5                |   |                           | , , , , , , , , , , , , , , , , , , , |                        |           |               | _           | <del>-</del><br> |               |                      |          |  |                                |               | -<br>-<br>-      |
|                  |   |                           |                                       |                        |           |               |             | _                |               |                      |          |  |                                |               | -<br>-<br>-      |
| _                |   |                           |                                       |                        |           |               |             | _<br>_<br>_      |               |                      |          |  |                                |               |                  |
|                  |   |                           |                                       |                        |           |               | _           | _                |               |                      |          |  |                                |               | -<br>-<br>-      |
| 10               |   |                           |                                       |                        |           |               |             | _                |               |                      |          |  |                                |               | _                |
|                  |   |                           |                                       |                        |           |               |             | <u>-</u>         |               |                      |          |  |                                |               | _                |
|                  |   |                           |                                       |                        |           |               | _           | _<br>_<br>_      |               |                      |          |  |                                |               |                  |
| 15_              |   |                           |                                       |                        |           |               | _           | <del>-</del>     |               |                      |          |  |                                |               | . <del>-</del> - |
|                  |   |                           |                                       |                        |           |               |             | _                |               |                      |          |  |                                |               |                  |
|                  |   |                           |                                       |                        |           |               | _           |                  |               |                      |          |  |                                |               | _                |
|                  |   |                           |                                       |                        |           |               | _           | _                |               |                      |          |  |                                |               | _<br>_           |
| 20               |   |                           |                                       |                        |           |               |             |                  |               |                      |          |  |                                |               |                  |

PAGE 1 OF Z

|              | OVERBURDEN BORING REPORT  PARSONS  CLIENT: WA COE  BORING NO.: %   ZIJ-4 |                          |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
|--------------|--|--------------------------|--|--|------------|-----------|---------------------------------------|--|-----------------------|-------------------------|--|--|--|--|--|
|              |  | PA                       | RSO  | NS                                     |            | CLIENT:   | USA COE                               | BORI   | NG NO.:               | 81215-4                 |  |  |  |  |  |
| PROJECT      | Γ:   |                          |  | CO.                                    |            |           |                                       | START D  |                       | 16/24/02                |  |  |  |  |  |
| SWMU#        | (AREA)   | :                        | A  | mo 12                                  | IL         |           |                                       | FINISH E   | PATE:                 | <u> </u>                |  |  |  |  |  |
| SOP NO.      | <u> </u>   | <del></del>              | 741  | 175                                    |            |           |                                       | CONTRA   | CTOR:                 | Lyun Drilling           |  |  |  |  |  |
|              |  |                          | DRII   | LING S                                 | JMMARY     | ,         |                                       | DRILLER  | : 1                   | Harry Lyon              |  |  |  |  |  |
| DRILLING     | HOLE   | DEP                      | пн   | SAM                                    | IPLER      | , I       | IAMMER                                | INSPECT  | OR:                   | 1 Rossmunn & McAllister |  |  |  |  |  |
| METHOD       | DIA.(ft)   | INTERV                   |  | SIZE                                   | ТҮРЕ       | ТҮРЕ      | WT/FALL                               | CHECKE   | D'BY:                 | - /                     |  |  |  |  |  |
| HSA_         | 4*   | 0-2                      | <u>.3"                                    </u> | 3°                                     | SS         |           | ·                                     | CHECK I  | DATE:                 |                         |  |  |  |  |  |
|              |  |                          | ·  | <u> </u>                               |            |           | <u> </u>                              | BORING (   | CONVERTED             | TOMW? Y N               |  |  |  |  |  |
|              | ŕ  |                          |  |  | DRII       | LLING ACE | RONYMS                                |  |                       |                         |  |  |  |  |  |
| HSA          |  | HOLLOW-ST                |  | ERS                                    |            | SS        | SPLIT SPOO                            |  |                       |                         |  |  |  |  |  |
| DW<br>MRSLC  |  | DRIVE-AND<br>MUD-ROTAI   |  | CORING                                 | SHR<br>HHR |           | AMMER<br>C HAMMER                     | CS CONTINUOUS SAMPLING 51 5 FT INTERVAL SAMPLING |                       |                         |  |  |  |  |  |
| CA           |  | CASING AD                |  | , o, u,                                | DHR        |           | LE HAMMER                             | .NS  | NO SAMPLI             |                         |  |  |  |  |  |
| SPC          |  | SPIN CASIN               | G  |  | WL         | WIRE-LINE |                                       | ST   | SHELBY TU             | JBE<br>,                |  |  |  |  |  |
|              |  |                          |  |  |            | •         |                                       | 3S   | 3 INCH SPL            | IT SPOON                |  |  |  |  |  |
|              | MONITORING EQUPMENT SUMMARY  |                          |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
| INSTRU       | INSTRUMENT DETECTOR RANGE BACKGROUND CALIBRATION WEATHER                 |                          |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
| ТҮР          |  | TYPE/EN                  |  |  | READING    | TIME      | DATE                                  | ТІМЕ   | DATE                  | (TEMP., WIND, ETC.)     |  |  |  |  |  |
|              | <u> </u>   | TITEL                    | LKG I  |  | KEADING    | TIME      | DATE                                  | TIME   | DATE                  | (TENT., WIND, ETC.)     |  |  |  |  |  |
|              |  |                          |  |  |            | -         |                                       |  |                       |                         |  |  |  |  |  |
| ··· · ·- ·-· | <del></del>  |                          |  | ,                                      |            |           |                                       |  |                       |                         |  |  |  |  |  |
|              |  |                          |  |  |            |           |                                       |  | -                     |                         |  |  |  |  |  |
|              |  |                          |  |  |            | <u>.</u>  |                                       |  | 1                     |                         |  |  |  |  |  |
|              |  |                          |  |  |            |           |                                       |  | ļ                     |                         |  |  |  |  |  |
|              |  |                          |  |  |            |           | <u> </u>                              |  | <u> </u>              |                         |  |  |  |  |  |
|              |  |                          |  |  | MONIT      | FORING A  | CRONYMS                               |  |                       |                         |  |  |  |  |  |
| PID          |  | PHOTO - ION              |  |  | BGD        |           |                                       | DGRT   | DRAEGER               |                         |  |  |  |  |  |
| FID<br>GMD   |  | FLAME - ION<br>GEIGER MU |  |  | CPM<br>PPM |           | ER MINUTE<br>R MILLION                | PPB<br>MDL                                       | PARTS PER<br>METHOD D | DETECTION LIMIT         |  |  |  |  |  |
| SCT          |  | SCINTILLAT               |  |  | RAD        |           |                                       |  |                       |                         |  |  |  |  |  |
|              | <del></del>  |                          |  | INV                                    | ESTIGAT    | ION DERI  | VED WASTE                             | <del></del>                                      | <del></del>           |                         |  |  |  |  |  |
|              | ~  | ,                        |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
|              | DATE   | ,                        |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
|              | L AMOU   | 1                        |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
| DRUM         | #, LOC   | ATION:                   |  |  |            |           |                                       |  |                       |                         |  |  |  |  |  |
|              | MMEN   | <del></del>              | <u>.</u>                                       | ······································ |            |           | SAMPLES                               | TAKEN:   | 121I-                 | 1050                    |  |  |  |  |  |
| tati         | illi di  | Hed Uhn                  | red A  | sphatt 1                               | Nar        |           | SAMPLES Valgoctics/Rest/netus/eganide |  |                       |                         |  |  |  |  |  |
|              | The same   | piles                    | <b>"</b> "                                     | sphact 1                               |            |           | DUPLICATES TPH TOC                    |  |                       |                         |  |  |  |  |  |
| l Rr         | roing 1  | <i></i>                  | :  |  |            |           | MS/MSD                                |  |                       |                         |  |  |  |  |  |
|              |  |                          |  |  |            |           | 1,455                                 |  |                       |                         |  |  |  |  |  |

|                  | PARSONS CLIENT: WACDE BORING NO.: %12(I-4) |                 |                    |              |            |             |      |          |                                       |                        |              |           |  |               |                  |
|------------------|--|-----------------|--------------------|--------------|------------|-------------|------|----------|---------------------------------------|------------------------|--------------|-----------|--|---------------|------------------|
|                  |  |                 | PARS               | ONS          | <b>5</b>   |             |      |          | CLIENT                                | : WA                   | COE          |           | BORING NO.: 531217-4   |               |                  |
| COMI             | MENTS:                                     |                 |                    |              |            |             |      |          | 4                                     |                        |              |           | DRILLER: HAN LYON INSPECTOR: TROSSMAN (2) DATE: 10/24/01                       | smcAllist     |                  |
| D<br>E<br>P<br>T | BLOWS                                      | AMPLIN          | G<br>RECOV-<br>ERY | DEPTH<br>INT | SAM<br>No. | IPLE<br>voc | RAD  |          | · · · · · · · · · · · · · · · · · · · | <del></del>            |              |           | APLE RIPTION   | USCS<br>CLASS | STRATUM<br>CLASS |
| H<br>(FT)        | 6<br>INCHES                                | RANGE<br>(FEET) | RANGE<br>(FEET)    | (FEET)       | 10.        | , vac       | SCRN |          | (As per Bu<br>with                    | ırmeister:<br>amount m | odifiers and | grain-si: | IAJOR COMPONENT, Minor Components ize, density, stratification, wetness, etc.) | CLASS         | CLASS            |
|                  | 5  | C <sup>il</sup> | 3/4                |              | ٥          |             |      | L        | moist Bi                              | vun (                  | CLAY         | W         | Weathed Shale Rugmonts   |               | _                |
| -                | 50/4*                                      | qi              |                    |              | USD/- I/SD | 1223        | -    | $\vdash$ |                                       |                        |              |           |  | CL            | _                |
| ν <u>-</u>       |  |                 |                    |              | 121E       |             | _    |          |                                       |                        | - 4          |           |  |               | _                |
|                  | 50/31                                      |                 |                    |              |            | 200         |      | LM       | heory                                 | . Ker                  | Rusal        |           |  |               |                  |
| -                | -  |                 |                    |              |            | "           | -    | -        | U                                     |                        |              |           |  |               | _                |
|                  |  |                 |                    |              |            |             | _    |          |                                       |                        |              |           |  |               |                  |
| 5                |  |                 |                    | -            |            |             |      | -        |                                       |                        |              |           |  |               | -                |
| -                |  |                 |                    |              |            |             | _    | Ŀ        |                                       |                        |              |           |  |               | _                |
| -                |  |                 |                    |              |            |             | _    | _        |                                       |                        |              |           |  |               | _                |
|                  |  |                 |                    |              |            |             |      | -        |                                       |                        |              |           |  |               | -                |
|                  |  |                 |                    |              |            |             |      | Ē        |                                       |                        |              |           |  |               | _                |
| _                |  |                 |                    |              |            |             | –    | ŀ        |                                       |                        |              |           |  |               | _                |
| _                |  |                 |                    |              |            |             |      |          |                                       |                        |              |           |  |               |                  |
| 10               |  |                 |                    |              |            |             |      | L        |                                       |                        |              |           |  |               | _                |
| 10               |  |                 |                    |              |            |             | -    | -        |                                       |                        |              |           |  |               | -                |
| _                |  |                 |                    | !<br>}       |            |             | _    |          |                                       |                        |              |           |  |               |                  |
|                  |  |                 |                    |              |            |             |      | F        |                                       |                        |              |           |  |               | -                |
| _                |  |                 |                    |              |            |             | _    | L        |                                       |                        |              |           |  |               |                  |
| _                |  |                 | ]                  |              |            |             | _    |          |                                       |                        |              |           |  |               | _                |
|                  |  |                 |                    |              |            |             |      | -        | •                                     |                        |              |           |  |               | _                |
| -                |  |                 |                    |              |            |             | -    |          |                                       |                        |              |           |  |               |                  |
| 15_              |  |                 |                    |              |            |             | _    | H        |                                       |                        |              |           |  |               | _                |
|                  |  |                 |                    |              |            |             |      | -        |                                       |                        |              |           |  |               | _                |
|                  |  |                 |                    |              |            |             |      | F        |                                       |                        |              |           |  |               |                  |
| -                |  |                 |                    |              |            |             | -    | -        |                                       |                        |              |           |  |               | _                |
| _                |  |                 |                    |              |            |             | _    |          |                                       |                        |              |           | •  |               | _                |
|                  |  |                 |                    |              |            |             |      | -        |                                       |                        |              |           |  |               |                  |
| -                |  |                 |                    |              |            |             | -    | $\vdash$ |                                       |                        |              |           |  |               | -                |
| 20_              |  |                 |                    |              |            |             | _    | F        |                                       |                        |              |           |  |               |                  |

PAGE 1 OF Z

|             |                                       |                        |          | OVER         | BURD                                  | EN BO     | RING RE                | PORT        | I            |                                       |
|-------------|---------------------------------------|------------------------|----------|--------------|---------------------------------------|-----------|------------------------|-------------|--------------|---------------------------------------|
|             |                                       | PA                     | RSOI     | NS           |                                       | CLIENT:   | LOA-COE                | BORI        | NG NO.:      | SB121I-6                              |
| PROJEC      | Γ:                                    |                        | 25       | [D           |                                       | •         |                        | START I     |              | 10/24/02                              |
| SWMU-#      | (AREA)                                | ·:                     | 12       | II           |                                       |           |                        | FINISH I    | DATE:        | (1                                    |
| SOP NO.     | :                                     | ·                      | 7411     |              |                                       |           |                        | CONTRA      | CTOR:        | Lyun Drilly                           |
|             |                                       |                        | 7        |              | JMMARY                                |           |                        | DRILLER     | E            | Hamszym                               |
| DRILLING    | HOLE                                  | DEP                    | тн       | SAM          | IPLER                                 | I         | HAMMER                 | INSPECT     | OR:          | 1 Rossmum B McAllist                  |
| METHOD      | DIA.(ft)                              | INTERV                 | AL (ft)  | SIZE         | ТҮРЕ                                  | ТҮРЕ      | WT/FALL                | СНЕСКЕ      | D BY:        |                                       |
| HSA         | 4 <sup>11</sup>                       | 0-3                    | >        | 3"           | ى                                     |           |                        | CHECK       | DATE:        |                                       |
|             |                                       |                        |          |              |                                       |           |                        | BORING      | CONVERTED    | TO MW? Y N                            |
|             |                                       |                        |          |              | DRII                                  | LLING ACI | RONYMS                 |             |              |                                       |
| HSA         |                                       | HOLLOW-S               |          | ERS          | HMR                                   |           |                        | SS          | SPLIT SPOO   |                                       |
| DW          |                                       | DRIVE-AND              |          | CORING       | SHR                                   | •         |                        | CS          |              | US SAMPLING                           |
| MRSLC<br>CA |                                       | MUD-ROTAL<br>CASING AD |          | UKING        | HHR<br>DHR                            |           | IC HAMMER<br>LE HAMMER | 5I<br>NS    | 5 FT INTERV  | VAL SAMPLING<br>NG                    |
| SPC         |                                       | SPIN CASIN             |          |              | WL                                    |           |                        | ST .        | SHELBY TU    |                                       |
|             |                                       |                        |          |              |                                       |           |                        | 3S          | 3 INCH SPLI  |                                       |
|             | <del></del>                           |                        |          | MO           | NITORIN                               | G EOUPM   | IENT SUMMA             | RY          |              |                                       |
| INSTRU      | MENT                                  | DETEC                  | CTOR     | RANGE        | CAMI                                  | BACKGRO   |                        |             | BRATION      | WEATHER                               |
| ТҮ          |                                       | TYPE/EN                |          |              | READING                               | TIME      | DATE                   | TIME        | DATE         | 1                                     |
| 11          |                                       | 1 TPE/EF               | I DAL    |              | KEADING                               | TIME      | DATE                   | TIME        | DATE         | (TEMP., WIND, ETC.)                   |
|             |                                       |                        |          |              |                                       |           |                        |             |              |                                       |
|             | <del></del>                           | ļ                      |          |              |                                       |           |                        |             | <del> </del> |                                       |
|             | · · · · · · · · · · · · · · · · · · · |                        |          |              |                                       |           |                        |             |              |                                       |
|             |                                       |                        |          |              |                                       |           |                        |             |              |                                       |
|             |                                       |                        |          |              |                                       |           |                        |             |              |                                       |
|             |                                       | 1                      |          |              | MONI                                  | TORING A  | CRONYMS                |             | 1            | <u> </u>                              |
| PID         |                                       | РНОТО - 101            | NIZATION | DETECTOR     | BGD                                   | BACKGRO   | UND                    | DGRT        | DRAEGER 1    | TUBES                                 |
| FID         |                                       | FLAME - IO             | NIZATION | DETECTOR     | СРМ                                   |           | PER MINUTE             | PPB         | PARTS PER    |                                       |
| GMD         |                                       | GEIGER MU              |          |              | PPM                                   |           | R MILLION              | MDL         | METHOD D     | PETECTION LIMIT                       |
| SCT         |                                       | SCINTILLAT             | HON DET  | CIOK         | RAD                                   | RADIATIO  | N METER                |             |              |                                       |
|             |                                       |                        |          | INV          | ESTIGAT                               | ION DERI  | VED WASTE              |             | <del>_</del> |                                       |
|             | DATE                                  |                        |          |              | · · · · · · · · · · · · · · · · · · · |           |                        |             |              |                                       |
| SOI         | L AMO                                 | UNT :                  |          | <del></del>  |                                       |           |                        |             |              |                                       |
|             | iction of                             |                        |          | <del></del>  | · · · · · · · · · · · · · · · · · · · |           |                        |             |              |                                       |
| DRUM        | 1 #, LOC                              | ATION:                 |          |              |                                       |           |                        |             |              |                                       |
| CC          | MMEN                                  | TS:                    |          | <del> </del> | -                                     |           | SAMPLES                | TAKEN:      |              |                                       |
|             |                                       |                        |          |              |                                       |           | SAMPLES                | 121         | I-1053       | 3                                     |
| ]           |                                       |                        |          |              |                                       |           | DUPLICATES             | <u></u>     |              |                                       |
|             |                                       |                        |          |              |                                       |           |                        | <del></del> |              |                                       |
| 1           |                                       |                        |          |              |                                       |           | MS/MSD                 |             |              | · · · · · · · · · · · · · · · · · · · |

|                               | OVERBURDEN BURING REPURI     |                                   |                                  |                        |             |      |             |  |               |                  |  |  |
|-------------------------------|------------------------------|-----------------------------------|----------------------------------|------------------------|-------------|------|-------------|--|---------------|------------------|--|--|
|                               |                              |                                   | PARS                             | ONS                    | 3           |      |             | CLIENT: WA COE BORING NO.: SEE SB.   | 21エーと         | 5                |  |  |
| COMI                          | MENTS:                       |                                   |                                  |                        |             |      | -           | DRILLER: Harry 2 you<br>INSPECTOR: J ROSSYMUMU<br>DATE: 10/24/02   | ) BMC         | Allister         |  |  |
| D<br>E<br>P<br>T<br>H<br>(FT) | BLOWS<br>PER<br>6<br>INCHES  | AMPLIN PENE- TRATION RANGE (FEET) | RECOV-<br>ERY<br>RANGE<br>(FEET) | DEPTH<br>INT<br>(FEET) | SAM<br>NO.  | VOC  | rad<br>scrn | SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | USCS<br>CLASS | STRATUM<br>CLASS |  |  |
| _<br>2-                       | 3<br>11<br>11<br>12<br>7     | 2                                 | 1/2                              |                        | 12 IT- 1053 | 1340 |             | _ MM & Boun CLAY W/ weathours shale frags.  Tock ash (five-white) no recovery. Refusal   | CL            | -<br>-<br>-      |  |  |
| 5                             | 17<br><i>5</i> 0/ <i>i</i> ° | 1                                 | 8,4                              |                        |             |      | _           |  |               | -                |  |  |
|                               |                              |                                   |                                  |                        |             |      | <del></del> | <del>-</del><br>-<br><br>-   |               | -<br>-<br>-      |  |  |
|                               |                              |                                   |                                  |                        |             | -    |             |  |               | -                |  |  |
|                               |                              |                                   |                                  |                        |             |      |             | <del>-</del><br><br>   |               | <br><br>         |  |  |
| . —                           |                              |                                   |                                  |                        |             |      | _           | <br><br>-  |               | -<br>-<br>-      |  |  |
| 15                            |                              |                                   |                                  |                        |             |      |             |  |               | -<br>-           |  |  |
|                               |                              |                                   |                                  |                        |             |      | _           |  |               | -                |  |  |
| 20                            |                              |                                   |                                  |                        |             |      |             |  |               |                  |  |  |

### APPENDIX C

### ANALYTICAL RESULTS

| C-1A | Guidelines for Sample and Sample Duplicate Merging               |
|------|--|
| C-1B | SEAD-121C Surface Soil - Quality Control of Field Duplicates     |
| C-1C | SEAD-121C Ditch Soil - Quality Control of Field Duplicates       |
| C-1D | SEAD-121C Groundwater - Quality Control of Field Duplicates      |
| C-1E | SEAD-121C Surface Water - Quality Control of Field Duplicates    |
| C-1F | Building 360 Groundwater - Quality Control of Field Duplicates   |
| C-1G | SEAD-121I Surface Soil - Quality Control of Field Duplicates     |
| C-1H | SEAD-121I Ditch Soil - Quality Control of Field Duplicates       |
| C-1I | SEAD-121I Surface Water - Quality Control of Field Duplicates    |
| C-1J | SEAD-121C: Surface Soil – Sample-Duplicate Merger                |
| C-1K | SEAD-121C: Ditch Soil - Sample-Duplicate Merger                  |
| C-1L | SEAD-121C: Groundwater - Sample-Duplicate Merger                 |
| C-1M | Building 360 (SEAD-27): Groundwater - Sample-Duplicate Merger    |
| C-1N | SEAD-121C: Surface Water - Sample-Duplicate Merger               |
| C-10 | SEAD-121I: Surface Soil and Ditch Soil - Sample-Duplicate Merger |
| C-1P | SEAD-121I: Surface Water - Sample-Duplicate Merger               |
| C-2  | SEAD-121C Surface Soil Sample Results                            |
| C-3  | SEAD-121C Ditch Soil Sample Results                              |
| C-4  | SEAD-121C Subsurface Soil Sample Results                         |
| C-5A | SEAD-121C EBS Groundwater Sample Results                         |
| C-5B | SEAD-121C RI Groundwater Sample Results                          |
| C-6  | Building 360 (SEAD-27) Groundwater Sample Results                |
| C-7  | SEAD-121C Surface Water Sample Results                           |
| C-8  | SEAD-121I Surface and Ditch Soil Sample Results                  |
| C-9  | SEAD-121I Surface Water Sample Results                           |
|      |  |

### Table C-1A SAMPLE AND DUPLICATE MERGING OF QUALIFIERS SEAD-121C AND SEAD-121I RI REPORT

### **Seneca Army Depot Activity**

| A         | В         | Averaged  |
|-----------|-----------|-----------|
| Qualifier | Qualifier | Qualifier |
|           |           |           |
| "NULL"    | "NULL"    | "NULL"    |
| "NULL"    | J         | J         |
| "NULL"    | NJ        | J         |
| "NULL"    | UJ        | J         |
| "NULL"    | U         | J         |
| "NULL"    | R         | "NULL"    |
|           |           | •         |
| J         | J         | J         |
| J         | NJ        | J         |
| J         | UJ        | J         |
| J         | U         | J         |
| J         | R         | J         |
|           |           |           |
| NJ        | NJ        | NJ        |
| NJ        | UJ        | J         |
| NJ        | U         | J         |
| NJ        | R         | NJ        |
|           |           |           |
| UJ        | UJ        | UJ        |
| UJ        | U         | UJ        |
| UJ        | R         | UJ        |
|           |           |           |
| U         | U         | U         |
| U         | R         | U         |
|           |           |           |
| R         | R         | R         |

### List of Validated Qualifers

For organics:

"NULL" Detected concentration value

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

### For inorganics:

"NULL" Detected concentration value.

- J The associated value is an estimated quantity.
- U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- UJ The material was analyzed for, but was not detected.

  The associated value is an estimate and may be inaccurate or imprecise.
- R The data was unusable. (Note: Analyte may or may not be present.).

Table C-1B
Quality Control of Field Duplicates
Surface Soil at SEAD-121C
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

|  | I              | S            | B121C-1      | Т        | S              | B121C-4        |      | SI             | BDRMO-16       |          | SI               | BDRMO-6                | S                | SDRMO-7        |          |
|--|----------------|--------------|--------------|----------|----------------|----------------|------|----------------|----------------|----------|------------------|------------------------|------------------|----------------|----------|
| Parameter  | Units          | EB231        | EB014        | *RPD     | EB020          | EB229          | *RPD | DRMO-1074      |                | RPD      |                  | DRMO-1050 *RPD         | DRMO-1002        |                | *RPD     |
|  | Cinto          | 20201        | EB011        | 10.2     | 22020          | 2022)          | 10.2 | Diano io,      | D10.10 1000    | 1012     | 210.10 10.10     | Bidilo 1000   Id B     | 210.10 1002      | B10.10 1005    | 10.2     |
| Volatile Organic Compounds 1.1.1-Trichloroethane   | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| 1.1.2.2-Tetrachloroethane                          | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| 1,1,2-Trichloroethane                              | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| 1,1-Dichloroethane                                 | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| 1,1-Dichloroethene                                 | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| 1,2-Dichloroethane                                 | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 UJ 4%              | 3.1 UJ           | 2.9 U          | 7%       |
| 1,2-Dichloroethene (total)                         | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.0 0          | 2.8 U          | 7 70     | 2.0 03           | 2.7 UJ 470             | 3.1 03           | 2.9 0          | 7 70     |
| 1,2-Dichloropropane                                | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
|  | UG/KG          | 12 U         | 12 J         |          | 10 J           | 11 UJ          | 10%  | 2.6 UJ         | 2.8 UJ         | 7%       | 2.6 UJ           | 4.6 U 56%              | 3.1 UJ           | 2.9 R          | NA       |
| Acetone<br>Benzene                                 | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          | 10%  | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Bromodichloromethane                               | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Bromoform  | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 UJ         | 2.8 UJ         | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Carbon disulfide                                   | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Carbon disulfide Carbon tetrachloride              | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 UJ 4%<br>2.7 UJ 4% | 3.1 UJ<br>3.1 UJ | 2.9 U          | 7%       |
| Chlorobenzene                                      | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ<br>3.1 UJ | 2.9 U          | 7%       |
| Chlorodibromomethane                               | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
|  | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Chloroethane<br>Chloroform                         | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 4 J            | 020/ | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           |                        | 3.1 UJ           | 2.9 U          |          |
| Cis-1,2-Dichloroethene                             | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 03          | 4 J            | 93%  | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%<br>2.7 U 4%   | 3.1 UJ<br>3.1 UJ | 2.9 U          | 7%<br>7% |
|  | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      |                |                | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           |                |          |
| Cis-1,3-Dichloropropene                            | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          |          |                  |                        | 3.1 UJ           | 2.9 U          | 7%       |
| Ethyl benzene                                      |                | 12 U         | 12 U         |          | 11 03          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 0.66 J           |                        |                  | 2.9 U          | 7%       |
| Meta/Para Xylene                                   | UG/KG          | 12 11        | 12 11        |          | 11 777         | 11 111         |      | 2.6 U          | 2.8 U          | 7%       | 4.1 J            | 2.7 U 41%              | 3.1 UJ           | 2.9 U          | 7%       |
| Methyl bromide                                     | UG/KG<br>UG/KG | 12 U<br>12 U | 12 U         |          | 11 UJ<br>11 UJ | 11 UJ<br>11 UJ |      | 2.6 U<br>2.6 U | 2.8 U<br>2.8 U | 7%<br>7% | 2.6 UJ<br>2.6 UJ | 2.7 UJ 4%<br>2.7 UJ 4% | 3.1 UJ<br>3.1 UJ | 2.9 U<br>2.9 U | 7%<br>7% |
| Methyl butyl ketone<br>Methyl chloride             | UG/KG<br>UG/KG | 12 U         | 12 U<br>12 U |          | 11 UJ          | 11 UJ          |      | 2.6 UJ         | 2.8 UJ         | 7%       | 2.6 UJ           | 2.7 UJ 4%              | 3.1 UJ           | 2.9 U          | 7%       |
|  | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 UJ 4%              | 3.1 UJ           | 2.9 UJ         | 7%       |
| Methyl ethyl ketone Methyl isobutyl ketone         | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%<br>2.7 U 4%   | 3.1 UJ<br>3.1 UJ | 2.9 UJ         | 7%       |
| Methylene chloride                                 | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 1.7 U          | 58%      |
| Ortho Xylene                                       | UG/KG          | 12 0         | 12 0         |          | 11 03          | 11 03          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| -  | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 UJ         | 2.8 UJ         | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Styrene<br>Tetrachloroethene                       | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 UJ         | 2.8 UJ         | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Toluene  | UG/KG          | 2 J          | 5 J          | 86%      | 12 J           | 10 J           | 18%  | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
|  | UG/KG          | 12 U         | 12 U         | 80%      | 11 UJ          | 11 UJ          | 1070 | 2.0 0          | 2.8 U          | 7 70     | 2.0 03           | 2.7 0 470              | 3.1 03           | 2.9 0          | 7 70     |
| Total Xylenes                                      | UG/KG<br>UG/KG | 12 0         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2611           | 2011           | 70/      | 2.6 UJ           | 2.7 U 4%               | 2 1 111          | 2.9 U          | 70/      |
| Trans-1,2-Dichloroethene Trans-1,3-Dichloropropene | UG/KG<br>UG/KG | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U<br>2.6 U | 2.8 U<br>2.8 U | 7%<br>7% | 2.6 UJ           | 2.7 U 4%<br>2.7 U 4%   | 3.1 UJ<br>3.1 UJ | 2.9 U          | 7%<br>7% |
| Trichloroethene                                    | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Vinyl chloride                                     | UG/KG          | 12 U         | 12 U         |          | 11 UJ          | 11 UJ          |      | 2.6 U          | 2.8 U          | 7%       | 2.6 UJ           | 2.7 U 4%               | 3.1 UJ           | 2.9 U          | 7%       |
| Semivolatile Organic Compour                       |                | 12 0         | 12 0         |          | 11 03          | 11 03          |      | 2.0            | 2.6            | 7 70     | 2.0 03           | 2.7 0 470              | 3.1 03           | 2.7            | 7.70     |
| 1.2.4-Trichlorobenzene                             | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 1,2-Dichlorobenzene                                | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 1,3-Dichlorobenzene                                | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 1,4-Dichlorobenzene                                | UG/KG<br>UG/KG | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 2,4,5-Trichlorophenol                              | UG/KG<br>UG/KG | 190 U        | 180 U        | 5%       | 170 U          | 170 U          | 1%   | 900 U          | 900 U          |          | 870 U            | 880 U 1%               | 960 U            | 950 U          | 1%       |
| 2,4,6-Trichlorophenol                              | UG/KG<br>UG/KG | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          | 1%       |
| 2,4-Dichlorophenol                                 | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 2,4-Dichlorophenol                                 | UG/KG<br>UG/KG | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
|  | UG/KG<br>UG/KG | 190 U        | 180 U        |          | 170 U          | 170 U          |      | 900 U          | 900 UJ         |          | 870 R            |                        | 960 U            | 950 U          |          |
| 2,4-Dinitrophenol<br>2,4-Dinitrotoluene            | UG/KG<br>UG/KG | 78 U         | 73 U         | 5%<br>7% | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 870 R<br>340 U   | 880 UJ NA<br>350 U 3%  | 380 U            | 950 U<br>380 U | 1%       |
|  |                |              |              |          |                |                |      |                |                |          |                  |                        |                  |                |          |
| 2,6-Dinitrotoluene                                 | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |
| 2-Chloronaphthalene                                | UG/KG          | 78 U         | 73 U         | 7%       | 72 U           | 71 U           | 1%   | 360 U          | 360 U          |          | 340 U            | 350 U 3%               | 380 U            | 380 U          |          |

Table C-1B
Quality Control of Field Duplicates
Surface Soil at SEAD-121C
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

|                             |       |        | SB121C-1 |      | S     | B121C-4 |      | SI        | BDRMO-16 |     | S      | BDRMO-6 |      | S       | SDRMO-7   |      |
|-----------------------------|-------|--------|----------|------|-------|---------|------|-----------|----------|-----|--------|---------|------|---------|-----------|------|
| Parameter                   | Units | EB231  | EB014    | *RPD | EB020 | EB229   | *RPD | DRMO-1074 |          | RPD |        |         | *RPD |         | DRMO-1003 | *RPD |
| 2-Chlorophenol              | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 2-Methylnaphthalene         | UG/KG | 78 U   | 4.3 J    | 179% | 72 U  | 71 U    | 1%   | 200 J     | 210 J    | 5%  | 340 U  | 350 U   | 3%   | 140 J   | 110 J     | 24%  |
| 2-Methylphenol              | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 2-Nitroaniline              | UG/KG | 190 U  | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 UJ | 880 U   | 1%   | 960 U   | 950 U     | 1%   |
| 2-Nitrophenol               | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 3 or 4-Methylphenol         | UG/KG |        |          | .,,  |       |         |      | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 3.3'-Dichlorobenzidine      | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 UJ   |     | 340 UJ | 350 UJ  | 3%   | 380 UJ  | 380 UJ    |      |
| 3-Nitroaniline              | UG/KG | 190 U  | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 U  | 880 U   | 1%   | 960 U   | 950 U     | 1%   |
| 4,6-Dinitro-2-methylphenol  | UG/KG | 190 U  | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 UJ | 880 UJ  | 1%   | 960 U   | 950 U     | 1%   |
| 4-Bromophenyl phenyl ether  | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 4-Chloro-3-methylphenol     | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 4-Chloroaniline             | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 4-Chlorophenyl phenyl ether | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| 4-Methylphenol              | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   |           |          |     |        |         |      |         |           |      |
| 4-Nitroaniline              | UG/KG | 190 U  | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 U  | 880 U   | 1%   | 960 U   | 950 U     | 1%   |
| 4-Nitrophenol               | UG/KG | 190 U  | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 UJ | 880 U   | 1%   | 960 U   | 950 U     | 1%   |
| Acenaphthene                | UG/KG | 78 U   | 6.8 J    | 168% | 72 U  | 71 U    | 1%   | 160 J     | 170 J    | 6%  | 340 U  | 350 U   | 3%   | 310 J   | 190 J     | 48%  |
| Acenaphthylene              | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 1100      | 750      | 38% | 340 U  | 350 U   | 3%   | 1000    | 810       | 21%  |
| Anthracene                  | UG/KG | 78 U   | 15 J     | 135% | 72 U  | 71 U    | 1%   | 1100      | 950      | 15% | 340 U  | 350 U   | 3%   | 1600    | 850       | 61%  |
| Benzo(a)anthracene          | UG/KG | 78 U   | 76       | 3%   | 3.9 J | 7 J     | 57%  | 5500 J    | 2900 J   | 62% | 340 U  | 350 UJ  | 3%   | 6700 J  | 3900 J    | 53%  |
| Benzo(a)pyrene              | UG/KG | 78 U   | 57 J     | 31%  | 72 U  | 71 U    | 1%   | 4800 J    | 2700 J   | 56% | 340 UJ | 350 UJ  | 3%   | 7600 J  | 5000 J    | 41%  |
| Benzo(b)fluoranthene        | UG/KG | 78 U   | 95       | 20%  | 13 J  | 71 U    | 138% | 6600 J    | 3700 J   | 56% | 50 J   | 350 UJ  | 150% | 11000 J | 6600 J    | 50%  |
| Benzo(ghi)perylene          | UG/KG | 78 U   | 42 J     | 60%  | 72 U  | 71 U    | 1%   | 1700 J    | 740 J    | 79% | 110 J  | 57 J    | 63%  | 3800 J  | 2500 J    | 41%  |
| Benzo(k)fluoranthene        | UG/KG | 78 U   | 67 J     | 15%  | 72 U  | 71 U    | 1%   | 3000 J    | 1700 J   | 55% | 340 UJ | 350 UJ  | 3%   | 4900 J  | 3100 J    | 45%  |
| Bis(2-Chloroethoxy)methane  | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Bis(2-Chloroethyl)ether     | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Bis(2-Chloroisopropyl)ether | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Bis(2-Ethylhexyl)phthalate  | UG/KG | 13 J   | 73 U     | 140% | 9.3 J | 13 J    | 33%  | 97 J      | 74 J     | 27% | 340 UJ | 350 UJ  | 3%   | 200 J   | 97 J      | 69%  |
| Butylbenzylphthalate        | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 UJ   |     | 340 UJ | 350 UJ  | 3%   | 380 UJ  | 380 UJ    |      |
| Carbazole                   | UG/KG | 78 U   | 17 J     | 128% | 72 U  | 71 U    | 1%   | 170 J     | 130 J    | 27% | 340 U  | 350 U   | 3%   | 910     | 550       | 49%  |
| Chrysene                    | UG/KG | 78 U   | 90       | 14%  | 8.8 J | 12 J    | 31%  | 5000 J    | 2700 J   | 60% | 340 UJ | 350 UJ  | 3%   | 6800 J  | 4300 J    | 45%  |
| Di-n-butylphthalate         | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 3.7 J   | 180% | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 73 J      | 136% |
| Di-n-octylphthalate         | UG/KG | 9.9 J  | 73 U     | 152% | 72 U  | 71 U    | 1%   | 360 U     | 360 UJ   |     | 340 UJ | 350 UJ  | 3%   | 380 UJ  | 380 UJ    |      |
| Dibenz(a,h)anthracene       | UG/KG | 78 U   | 21 J     | 115% | 72 U  | 71 U    | 1%   | 250 J     | 100 J    | 86% | 340 UJ | 350 UJ  | 3%   | 570 J   | 370 J     | 43%  |
| Dibenzofuran                | UG/KG | 78 U   | 5.1 J    | 175% | 72 U  | 71 U    | 1%   | 170 J     | 190 J    | 11% | 340 U  | 350 U   | 3%   | 330 J   | 160 J     | 69%  |
| Diethyl phthalate           | UG/KG | 5.8 J  | 73 U     | 171% | 8.1 J | 10 J    | 21%  | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Dimethylphthalate           | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Fluoranthene                | UG/KG | 78 U   | 180      | 79%  | 7.4 J | 10 J    | 30%  | 8200 J    | 5100 J   | 47% | 53 J   | 38 J    | 33%  | 15000   | 8800      | 52%  |
| Fluorene                    | UG/KG | 78 U   | 8 J      | 163% | 72 U  | 71 U    | 1%   | 650       | 690      | 6%  | 340 U  | 350 U   | 3%   | 1000    | 560       | 56%  |
| Hexachlorobenzene           | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Hexachlorobutadiene         | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 UJ  | 380 UJ    |      |
| Hexachlorocyclopentadiene   | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 UJ | 350 UJ  | 3%   | 380 U   | 380 U     |      |
| Hexachloroethane            | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| Indeno(1,2,3-cd)pyrene      | UG/KG | 78 U   | 41 J     | 62%  | 72 U  | 71 U    | 1%   | 760       | 330 J    | 79% | 60 J   |         | 141% | 1100 J  | 840 J     | 27%  |
| Isophorone                  | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 UJ  | 380 UJ    |      |
| N-Nitrosodiphenylamine      | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |
| N-Nitrosodipropylamine      | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 UJ | 350 U   | 3%   | 380 U   | 380 U     |      |
| Naphthalene                 | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 100 J     | 82 J     | 20% | 340 U  | 350 U   | 3%   | 97 J    | 74 J      | 27%  |
| Nitrobenzene                | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 UJ  | 380 UJ    |      |
| Pentachlorophenol           | UG/KG | 190 UJ | 180 U    | 5%   | 170 U | 170 U   |      | 900 U     | 900 U    |     | 870 U  | 880 U   | 1%   | 960 U   | 950 U     | 1%   |
| Phenanthrene                | UG/KG | 78 U   | 96       | 21%  | 8.8 J | 7.6 J   | 15%  | 4400 J    | 4000 J   | 10% | 340 U  | 350 U   | 3%   | 13000   | 7600      | 52%  |
| Phenol                      | UG/KG | 78 U   | 73 U     | 7%   | 72 U  | 71 U    | 1%   | 360 U     | 360 U    |     | 340 U  | 350 U   | 3%   | 380 U   | 380 U     |      |

Table C-1B
Quality Control of Field Duplicates
Surface Soil at SEAD-121C
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

|                    | ı        |        | SB121C-1 | Т    |          | SB121C-4 |      | c                 | BDRMO-16          |      |         | BDRMO-6                 |                   | SDRMO-7           |            |
|--------------------|----------|--------|----------|------|----------|----------|------|-------------------|-------------------|------|---------|-------------------------|-------------------|-------------------|------------|
| Parameter          | Units    | EB231  | EB014    | *RPD | EB020    | EB229    | *RPD | DRMO-1074         |                   | RPD  |         | DRMO-1050 *RPD          | DRMO-1002         | DRMO-1003         | *RPD       |
|                    |          |        |          |      |          |          |      |                   |                   |      |         |                         |                   |                   |            |
| Pyrene             | UG/KG    | 78 U   | 170      | 74%  | 8.3 J    | 14 J     | 51%  | 12000 J           | 5300 J            | 77%  | 130 J   | 78 J 50%                | 24000 J           | 14000 J           | 53%        |
| Pesticides/PCBs    |          |        |          |      |          |          |      |                   |                   |      |         |                         |                   |                   |            |
| 4,4'-DDD           | UG/KG    | 3.9 U  | 3.7 U    | 5%   | 3.6 U    | 3.5 U    | 3%   | 1.8 UJ            | 6 J               | 108% | 1.8 R   | 1.8 UJ NA               | 2 UJ              | 1.9 UJ            | 5%         |
| 4,4'-DDE           | UG/KG    | 3.9 U  | 29       | 153% | 3.8      | 4.5      | 17%  | 1.8 UJ            | 41 R              | NA   | 6.1 J   | 6.3 J 3%                | 2 UJ              | 1.9 UJ            | 5%         |
| 4,4'-DDT           | UG/KG    | 3.9 U  | 35       | 160% | 1.9 J    | 2.3 J    | 19%  | 19 J              | 21 J              | 10%  | 1.8 UJ  | 1.8 UJ                  | 2 UJ              | 1.9 UJ            | 5%         |
| Aldrin             | UG/KG    | 2 U    | 1.8 U    | 11%  | 1.8 U    | 1.8 U    |      | 9.9 J             | 19 NJ             | 63%  | 1.8 UJ  | 1.8 UJ                  | 2 U               | 1.9 U             | 5%         |
| Alpha-BHC          | UG/KG    | 2 U    | 2 R      | NA   | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 UJ  | 1.8 UJ                  | 2 UJ              | 1.9 UJ            | 5%         |
| Alpha-Chlordane    | UG/KG    | 2 U    | 1.8 U    | 11%  | 1.8 U    | 1.8 U    |      | 63 J              | 71 R              | NA   | 6.1 J   | 4.7 J 26%               | 2 UJ              | 1.9 UJ            | 5%         |
| Beta-BHC           | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 U   | 1.8 UJ                  | 2 UJ              | 1.9 UJ            | 5%         |
| Chlordane          | UG/KG    |        |          |      | <u>H</u> |          |      | 18 U              | 18 U              |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Delta-BHC          | UG/KG    | 2 U    | 0.95 J   | 71%  | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 UJ  | 1.8 UJ                  | 2 UJ              | 1.9 UJ            | 5%         |
| Dieldrin           | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 41 J              | 32 R              | NA   | 1.8 UJ  | 1.8 UJ                  | 2 UJ              | 1.9 UJ            | 5%         |
| Endosulfan I       | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 65                | 69 J              | 6%   | 6.1     | 5.4 12%                 | 190 J             | 180 J             | 5%         |
| Endosulfan II      | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 1.8 U             | 1.8 U             |      | 1.8 U   | 1.8 U                   | 2 U               | 1.9 U             | 5%         |
| Endosulfan sulfate | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 1.8 U             | 1.8 U             |      | 1.8 U   | 1.8 U                   | 2 U               | 1.9 U             | 5%         |
| Endrin             | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 17 J              | 26 J              | 42%  | 1.8 UJ  | 1.8 U                   | 2 U               | 1.9 UJ            | 5%         |
| Endrin aldehyde    | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 1.8 U             | 1.8 U             |      | 1.8 U   | 1.8 U                   | 2 U               | 1.9 UJ            | 5%         |
| Endrin ketone      | UG/KG    | 3.9 U  | 3.7 UJ   | 5%   | 3.6 U    | 3.5 U    | 3%   | 7.5 J             | 10 R              | NA   | 1.8 U   | 1.8 U                   | 2 U               | 1.9 U             | 5%         |
| Gamma-BHC/Lindane  | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 UJ  | 1.8 UJ                  | 2 U               | 1.9 U             | 5%         |
| Gamma-Chlordane    | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 U   | 1.8 UJ                  | 2 U               | 1.9 UJ            | 5%         |
| Heptachlor         | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 1.8 UJ            | 1.8 UJ            |      | 1.8 U   | 1.8 UJ                  | 2 U               | 1.9 U             | 5%         |
| Heptachlor epoxide | UG/KG    | 2 U    | 1.8 UJ   | 11%  | 1.8 U    | 1.8 U    |      | 20 R              | 1.8 UJ            | NA   | 1.8 U   | 1.8 UJ                  | 2 U               | 1.9 UJ            | 5%         |
| Methoxychlor       | UG/KG    | 20 U   | 18 UJ    | 11%  | 18 U     | 18 U     |      | 1.8 U             | 1.8 U             |      | 1.8 UJ  | 1.8 U                   | 2 U               | 1.9 UJ            | 5%         |
| Toxaphene          | UG/KG    | 200 U  | 180 UJ   | 11%  | 180 U    | 180 U    |      | 18 U              | 18 U              |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1016       | UG/KG    | 39 U   | 37 UJ    | 5%   | 36 U     | 35 U     | 3%   | 18 UJ             | 18 UJ             |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1221       | UG/KG    | 79 U   | 74 UJ    | 7%   | 73 U     | 72 U     | 1%   | 18 U              | 18 U              |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1232       | UG/KG    | 39 U   | 37 UJ    | 5%   | 36 U     | 35 U     | 3%   | 18 UJ             | 18 UJ             |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1242       | UG/KG    | 39 U   | 37 UJ    | 5%   | 36 U     | 35 U     | 3%   | 18 UJ             | 18 UJ             |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1248       | UG/KG    | 39 U   | 37 UJ    | 5%   | 36 U     | 35 U     | 3%   | 18 U              | 18 U              |      | 18 U    | 18 U                    | 20 U              | 19 U              | 5%         |
| Aroclor-1254       | UG/KG    | 39 U   | 37 UJ    | 5%   | 36 U     | 35 U     | 3%   | 18 UJ             | 18 UJ             |      | 18 U    | 18 U                    | 20 UJ             | 19 UJ             | 5%         |
| Aroclor-1260       | UG/KG    | 39 U   | 30 J     | 26%  | 36 U     | 35 U     | 3%   | 22 J              | 35 J              | 46%  | 18 U    | 18 U                    | 20 UJ             | 19 UJ             | 5%         |
| Metals & Cyanide   | 1,10,710 | 10000  | 1 44500  |      | 11100    | 10000    | 10-1 | 2100              | 0=10              | 40   |         |                         |                   | 0.00              |            |
| Aluminum           | MG/KG    | 12800  | 14500    | 12%  | 14400    | 13000    | 10%  | 3100              | 3760              | 19%  | 8030    | 11100 32%               | 7420              | 8280              | 11%        |
| Antimony           | MG/KG    | 1.1 J  | 19.3 J   | 178% | 1.7 J    | 0.81 J   | 71%  | 0.98 U            | 0.99              | 1%   | 1.5     | 0.96 U 44%              | 3.2 J             | 1.4 J             | 78%        |
| Arsenic            | MG/KG    | 5.5    | 6.1      | 10%  | 5        | 3.7      | 30%  | 4.8               | 5.5               | 14%  | 3.7     | 4.7 24%                 | 6.2               | 5.4               | 14%        |
| Barium             | MG/KG    | 64.9   | 1600     | 184% | 86.6     | 69.6     | 22%  | 42                | 45.6              | 8%   | 37.9 J  | 66.7 J 55%              | 80.9 J            | 84.5 J            | 4%         |
| Beryllium          | MG/KG    | 0.52   | 0.4      | 26%  | 0.57     | 0.49     | 15%  | 0.26 J            | 0.32 J            | 21%  | 0.44 J  | 0.6 31%                 | 0.5               | 0.53              | 6%         |
| Cadmium            | MG/KG    | 0.07 U | 2.7      | 190% | 0.07 U   | 0.05 U   | 33%  | 0.56              | 0.49 J            | 13%  | 0.2 J   | 0.13 U 42%              | 0.57              | 0.44              | 26%        |
| Claum              | MG/KG    | 2580   | 31300    | 170% | 17200    | 25500    | 39%  | 199000            | 157000            | 24%  | 36500 J | 41400 J 13%             | 63600 J           | 61200 J           | 4%         |
| Chromium           | MG/KG    | 20.9   | 32.9     | 45%  | 27.8     | 22.6     | 21%  | 13                | 13.8              | 6%   | 38.8    | 38.6 1%                 | 17.6 J            | 18.8 J            | 7%<br>N/A  |
| Cobalt             | MG/KG    | 12.8   | 16.5     | 25%  | 17.6     | 12.5     | 34%  | 5.9               | 6.1               | 3%   | 9.5     | 14.2 40%                | 8.6 R             | 8.7 R             | NA<br>100/ |
| Copper             | MG/KG    | 19.7 J | 7690     | 199% | 39.1 J   | 33 J     | 17%  | 28.8              | 34.3              | 17%  | 34.6 J  | 39.6 J 13%              | 39.8 J            | 32.8 J            | 19%        |
| Cyanide            | MG/KG    | 0.63 U | 0.59 U   | 7%   | 0.56 U   | 0.61 U   | 9%   | 0.54 11           | 0.55 11           | 20/  | 0.52    | 0.52 11 20/             | 0.59 17           | 0.57 11           | 20/        |
| Cyanide, Amenable  | MG/KG    |        |          |      |          |          | 1    | 0.54 U<br>0.542 U | 0.55 U<br>0.545 U | 2%   | 0.52 U  | 0.53 U 2%<br>0.535 U 2% | 0.58 U<br>0.582 U | 0.57 U<br>0.575 U | 2%         |
| Cyanide, Total     | MG/KG    | 25700  | 41100    | 160/ | 22000    | 25000    | 210/ |                   |                   | 1%   | 0.525 U |                         |                   |                   | 1%         |
| Iron               | MG/KG    | 25700  | 41100    | 46%  | 32000    | 25900    | 21%  | 8710              | 10500             | 19%  | 18300   | 24200 28%               | 18500             | 18700             | 1%         |
| Lead               | MG/KG    | 11.8 J | 5280     | 199% | 27.1     | 23.5 J   | 14%  | 89.3              | 94.5              | 6%   | 66.9    | 56.3 17%                | 117               | 93.8              | 22%        |
| Magnesium          | MG/KG    | 4590   | 6820     | 39%  | 6980     | 5630     | 21%  | 17900             | 13000             | 32%  | 5080    | 6940 31%                | 12700             | 6180              | 69%        |
| Manganese          | MG/KG    | 598    | 612      | 2%   | 413      | 359      | 14%  | 425               | 390               | 9%   | 348     | 376 8%                  | 480               | 553               | 14%        |
| Mercury            | MG/KG    | 0.06 U | 0.05 U   | 18%  | 0.04 U   | 0.04 U   | 220/ | 0.07              | 0.07              | 120/ | 0.04    | 0.03 29%                | 0.07              | 0.06              | 15%        |
| Nickel             | MG/KG    | 40.5   | 54.2 J   | 29%  | 61.8     | 49.3     | 23%  | 19.4 J            | 22.1 J            | 13%  | 31.8 J  | 44.4 J 33%              | 22.4 J            | 23.5 J            | 5%         |
| Potassium          | MG/KG    | 1600   | 1840     | 14%  | 1980     | 1450     | 31%  | 934 J             | 882 J             | 6%   | 1220 J  | 1770 J 37%              | 862 J             | 712 J             | 19%        |

Table C-1B
Quality Control of Field Duplicates
Surface Soil at SEAD-121C
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

|                              |       |        | SB121C-1 |      |        | SB12 | 1C-4   |      | SI        | BDRMO-16  |     | S         | BDRMO-6   |      | S         | SDRMO-7   |      |
|------------------------------|-------|--------|----------|------|--------|------|--------|------|-----------|-----------|-----|-----------|-----------|------|-----------|-----------|------|
| Parameter                    | Units | EB231  | EB014    | *RPD | EB020  | I    | EB229  | *RPD | DRMO-1074 | DRMO-1080 | RPD | DRMO-1043 | DRMO-1050 | *RPD | DRMO-1002 | DRMO-1003 | *RPD |
| Selenium                     | MG/KG | 1.1 U  | 0.92 UJ  | 18%  | 1 U    | J    | 0.8 U  | 22%  | 0.46 U    | 0.45 U    | 2%  | 0.44 U    | 0.45 U    | 2%   | 0.49 U    | 0.47 U    | 4%   |
| Silver                       | MG/KG | 0.48 U | 0.41 U   | 16%  | 0.46 U | J    | 0.36 U | 24%  | 0.29 U    | 0.29 U    |     | 0.28 U    | 0.29 U    | 4%   | 0.31 U    | 0.3 U     | 3%   |
| Sodium                       | MG/KG | 139 U  | 606      | 125% | 132 U  | J    | 110    | 18%  | 276       | 232       | 17% | 223       | 277       | 22%  | 191       | 194       | 2%   |
| Thallium                     | MG/KG | 1.4 UJ | 1.2 U    | 15%  | 1.4 J  |      | 1.1 UJ | 24%  | 0.34 U    | 0.33 U    | 3%  | 0.33 U    | 0.33 U    |      | 0.36 U    | 0.35 U    | 3%   |
| Vanadium                     | MG/KG | 20.8   | 19.5 J   | 6%   | 21     |      | 17     | 21%  | 11 J      | 10.7 J    | 3%  | 12.9      | 17.9      | 32%  | 15.3 J    | 14.4 J    | 6%   |
| Zinc                         | MG/KG | 80.3   | 1280     | 176% | 153    |      | 196    | 25%  | 130 J     | 135 J     | 4%  | 123       | 196       | 46%  | 107 J     | 96.8 J    | 10%  |
| Other                        |       |        | _        |      |        |      |        |      |           |           |     |           |           |      | u=        |           |      |
| Total Organic Carbon         | MG/KG |        |          |      |        |      |        |      | 5200      | 5300      | 2%  | 3300      | 8500      | 88%  | 5800      | 6000      | 3%   |
| Total Petroleum Hydrocarbons | MG/KG |        |          |      |        |      |        |      | 2800 J    | 6200 J    | 76% | 42 UJ     | 43 UJ     | 2%   | 190       | 46 U      | 122% |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

NJ = reported value is estimated and tentatively identified based on mass spec

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

|                              |        |           | IZ.   | DDRMO-8     |              |
|------------------------------|--------|-----------|-------|-------------|--------------|
| <br> Parameter               | Units  | DRMO-40   |       | DRMO-4008   | *RPD         |
|                              | 011105 | 214.10 10 | 00    | 210.10 .000 | 10.2         |
| Volatile Organic Compounds   | HC/RC  |           | T T T | 11 111      | 500/         |
| 1,1,1-Trichloroethane        | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,1,2,2-Tetrachloroethane    | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,1,2-Trichloroethane        | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,1-Dichloroethane           | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,1-Dichloroethene           | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,2-Dichloroethane           | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| 1,2-Dichloropropane          | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Acetone                      | UG/KG  | 21        |       | 72 J        | 110%         |
| Benzene                      | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Bromodichloromethane         | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Bromoform                    | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Carbon disulfide             | UG/KG  | 6.6       |       | 6.7 J       | 2%           |
| Carbon tetrachloride         | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Chlorobenzene                | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Chlorodibromomethane         | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Chloroethane                 | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Chloroform                   | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Cis-1,2-Dichloroethene       | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Cis-1,3-Dichloropropene      | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Ethyl benzene                | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Meta/Para Xylene             | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methyl bromide               | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methyl butyl ketone          | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methyl chloride              | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methyl ethyl ketone          | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methyl isobutyl ketone       | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Methylene chloride           | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Ortho Xylene                 | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Styrene                      | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Tetrachloroethene            | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Toluene                      | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Trans-1,2-Dichloroethene     | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Trans-1,3-Dichloropropene    | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Trichloroethene              | UG/KG  | 6.6       |       | 11 UJ       | 50%          |
| Vinyl chloride               | UG/KG  | 6.6       | UJ    | 11 UJ       | 50%          |
| Semivolatile Organic Compour |        | (50       | TTT   | 1100 111    | <b>710</b> / |
| 1,2,4-Trichlorobenzene       | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 1,2-Dichlorobenzene          | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 1,3-Dichlorobenzene          | UG/KG  | 650       | _     | 1100 UJ     | 51%          |
| 1,4-Dichlorobenzene          | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 2,4,5-Trichlorophenol        | UG/KG  | 1600      |       | 2600 UJ     | 48%          |
| 2,4,6-Trichlorophenol        | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 2,4-Dichlorophenol           | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 2,4-Dimethylphenol           | UG/KG  | 650       |       | 1100 UJ     | 51%          |
| 2,4-Dinitrophenol            | UG/KG  | 1600      | UJ    | 2600 UJ     | 48%          |

|                             |       | SI       | DDRMO-8 |           |      |
|-----------------------------|-------|----------|---------|-----------|------|
| Parameter                   | Units | DRMO-400 |         | DRMO-4008 | *RPD |
| 2,4-Dinitrotoluene          | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| 2,6-Dinitrotoluene          | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 2-Chloronaphthalene         | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 2-Chlorophenol              | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 2-Methylnaphthalene         | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| 2-Methylphenol              | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 2-Nitroaniline              | UG/KG |          | UJ      | 2600 UJ   | 48%  |
| 2-Nitrophenol               | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 3 or 4-Methylphenol         | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| 3,3'-Dichlorobenzidine      | UG/KG | 650 U    | IJ      | 1100 UJ   | 51%  |
| 3-Nitroaniline              | UG/KG |          | UJ      | 2600 UJ   | 48%  |
| 4,6-Dinitro-2-methylphenol  | UG/KG | 1600 U   | IJ      | 2600 UJ   | 48%  |
| 4-Bromophenyl phenyl ether  | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| 4-Chloro-3-methylphenol     | UG/KG | 650 U    | IJ      | 1100 UJ   | 51%  |
| 4-Chloroaniline             | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| 4-Chlorophenyl phenyl ether | UG/KG | 650 U    | IJ      | 1100 UJ   | 51%  |
| 4-Nitroaniline              | UG/KG |          | UJ      | 2600 UJ   | 48%  |
| 4-Nitrophenol               | UG/KG |          | UJ      | 2600 UJ   | 48%  |
| Acenaphthene                | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Acenaphthylene              | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Anthracene                  | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Benzo(a)anthracene          | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Benzo(a)pyrene              | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Benzo(b)fluoranthene        | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Benzo(ghi)perylene          | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Benzo(k)fluoranthene        | UG/KG |          | UJ      | 1100 UJ   | 51%  |
| Bis(2-Chloroethoxy)methane  | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Bis(2-Chloroethyl)ether     | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Bis(2-Chloroisopropyl)ether | UG/KG | 650 U    | IJ      | 1100 UJ   | 51%  |
| Bis(2-Ethylhexyl)phthalate  | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Butylbenzylphthalate        | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Carbazole                   | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Chrysene                    | UG/KG | 650 U    | IJ      | 1100 UJ   | 51%  |
| Di-n-butylphthalate         | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Di-n-octylphthalate         | UG/KG | 650 U    |         | 1100 UJ   | 51%  |
| Dibenz(a,h)anthracene       | UG/KG | 650 U    |         | 1100 UJ   | 51%  |
| Dibenzofuran                | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Diethyl phthalate           | UG/KG | 650 U    | UJ      | 1100 UJ   | 51%  |
| Dimethylphthalate           | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Fluoranthene                | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Fluorene                    | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Hexachlorobenzene           | UG/KG | 650 U    |         | 1100 UJ   | 51%  |
| Hexachlorobutadiene         | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Hexachlorocyclopentadiene   | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Hexachloroethane            | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Indeno(1,2,3-cd)pyrene      | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |
| Isophorone                  | UG/KG | 650 U    | _       | 1100 UJ   | 51%  |

|                        |       | SDDRMO-8  |            |           |      |  |  |  |  |  |
|------------------------|-------|-----------|------------|-----------|------|--|--|--|--|--|
| Parameter              | Units | DRMO-400: |            | DRMO-4008 | *RPD |  |  |  |  |  |
| N-Nitrosodiphenylamine | UG/KG | 650 L     | _          | 1100 UJ   | 51%  |  |  |  |  |  |
| N-Nitrosodipropylamine | UG/KG |           | J <b>J</b> | 1100 UJ   | 51%  |  |  |  |  |  |
| Naphthalene            | UG/KG | 650 L     | _          | 1100 UJ   | 51%  |  |  |  |  |  |
| Nitrobenzene           | UG/KG | 650 L     |            | 1100 UJ   | 51%  |  |  |  |  |  |
| Pentachlorophenol      | UG/KG | 1600 U    |            | 2600 UJ   | 48%  |  |  |  |  |  |
| Phenanthrene           | UG/KG | 650 L     |            | 1100 UJ   | 51%  |  |  |  |  |  |
| Phenol                 | UG/KG | 650 L     |            | 1100 UJ   | 51%  |  |  |  |  |  |
| Pyrene                 | UG/KG | 650 L     |            | 1100 UJ   | 51%  |  |  |  |  |  |
| Pesticides/PCBs        |       |           |            |           |      |  |  |  |  |  |
| 4,4'-DDD               | UG/KG | 0.4 L     | JJ         | 0.65 UJ   | 48%  |  |  |  |  |  |
| 4,4'-DDE               | UG/KG | 0.4 L     | _          | 0.65 UJ   | 48%  |  |  |  |  |  |
| 4,4'-DDT               | UG/KG | 0.4 L     | _          | 0.65 UJ   | 48%  |  |  |  |  |  |
| Aldrin                 | UG/KG | 0.2 L     | _          | 0.32 UJ   | 46%  |  |  |  |  |  |
| Alpha-BHC              | UG/KG | 2.4 L     | _          | 3.9 UJ    | 48%  |  |  |  |  |  |
| Alpha-Chlordane        | UG/KG | 0.6 L     | _          | 0.97 UJ   | 47%  |  |  |  |  |  |
| Beta-BHC               | UG/KG | 0.2 L     |            | 0.32 UJ   | 46%  |  |  |  |  |  |
| Chlordane              | UG/KG | 3.8 L     |            | 6.1 UJ    | 46%  |  |  |  |  |  |
| Delta-BHC              | UG/KG | 0.4 L     | _          | 0.65 UJ   | 48%  |  |  |  |  |  |
| Dieldrin               | UG/KG |           | J <b>J</b> | 0.32 UJ   | 46%  |  |  |  |  |  |
| Endosulfan I           | UG/KG | 1 U       | _          | 1.6 UJ    | 46%  |  |  |  |  |  |
| Endosulfan II          | UG/KG | 0.6 L     | _          | 0.97 UJ   | 47%  |  |  |  |  |  |
| Endosulfan sulfate     | UG/KG | 1.2 U     | _          | 1.9 UJ    | 45%  |  |  |  |  |  |
| Endrin                 | UG/KG | 1.6 L     |            | 2.6 UJ    | 48%  |  |  |  |  |  |
| Endrin aldehyde        | UG/KG | 1.6 U     |            | 2.6 UJ    | 48%  |  |  |  |  |  |
| Endrin ketone          | UG/KG | 0.2 L     |            | 0.32 UJ   | 46%  |  |  |  |  |  |
| Gamma-BHC/Lindane      | UG/KG | 0.2 L     |            | 0.32 UJ   | 46%  |  |  |  |  |  |
| Gamma-Chlordane        | UG/KG | 0.6 L     |            | 0.97 UJ   | 47%  |  |  |  |  |  |
| Heptachlor             | UG/KG |           | J <b>J</b> | 3.2 UJ    | 46%  |  |  |  |  |  |
| Heptachlor epoxide     | UG/KG | 0.6 L     | J <b>J</b> | 0.97 UJ   | 47%  |  |  |  |  |  |
| Methoxychlor           | UG/KG | 0.2 L     | J <b>J</b> | 0.32 UJ   | 46%  |  |  |  |  |  |
| Toxaphene              | UG/KG | 6.4 L     | J <b>J</b> | 10 UJ     | 44%  |  |  |  |  |  |
| Aroclor-1016           | UG/KG | 10 U      | J <b>J</b> | 17 UJ     | 52%  |  |  |  |  |  |
| Aroclor-1221           | UG/KG | 2.6 U     | J <b>J</b> | 4.2 UJ    | 47%  |  |  |  |  |  |
| Aroclor-1232           | UG/KG | 16 U      | J <b>J</b> | 26 UJ     | 48%  |  |  |  |  |  |
| Aroclor-1242           | UG/KG | 4.3 U     |            | 7 UJ      | 48%  |  |  |  |  |  |
| Aroclor-1248           | UG/KG | 11 U      |            | 18 UJ     | 48%  |  |  |  |  |  |
| Aroclor-1254           | UG/KG | 21 U      | J <b>J</b> | 34 UJ     | 47%  |  |  |  |  |  |
| Aroclor-1260           | UG/KG | 3.9 L     | J <b>J</b> | 6.4 UJ    | 49%  |  |  |  |  |  |
| Metals & Cyanide       |       | '         |            | '         |      |  |  |  |  |  |
| Aluminum               | MG/KG | 10100     |            | 14700 J   | 37%  |  |  |  |  |  |
| Antimony               | MG/KG | 1.8 U     | JJ         | 2.9 UJ    | 47%  |  |  |  |  |  |
| Arsenic                | MG/KG | 2.1       |            | 5.9 J     | 95%  |  |  |  |  |  |
| Barium                 | MG/KG | 72.2 J    |            | 122 J     | 51%  |  |  |  |  |  |
| Beryllium              | MG/KG | 0.63      |            | 1 J       | 45%  |  |  |  |  |  |
| Cadmium                | MG/KG | 0.24 U    | J          | 0.39 UJ   | 48%  |  |  |  |  |  |
| Calcium                | MG/KG | 24000     |            | 34500 J   | 36%  |  |  |  |  |  |
| Chromium               | MG/KG | 22.6      |            | 32.7 J    | 37%  |  |  |  |  |  |

### Table C-1C

### Quality Control of Field Duplicates Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report

### **Seneca Army Depot Activity**

|                              |       | SDDRMO-8 |    |         |    |      |  |  |
|------------------------------|-------|----------|----|---------|----|------|--|--|
| Parameter                    | Units | DRMO-40  | 05 | DRMO-40 | 08 | *RPD |  |  |
| Cobalt                       | MG/KG | 11.4     |    | 20.2    | J  | 56%  |  |  |
| Copper                       | MG/KG | 34       |    | 50.6    | J  | 39%  |  |  |
| Cyanide, Amenable            | MG/KG | 1.1      | U  | 1.59    | UJ | 36%  |  |  |
| Cyanide, Total               | MG/KG | 1.1      | U  | 1.59    | UJ | 36%  |  |  |
| Iron                         | MG/KG | 20500    |    | 34100   | J  | 50%  |  |  |
| Lead                         | MG/KG | 58.3     |    | 85.2    | J  | 37%  |  |  |
| Magnesium                    | MG/KG | 5150     |    | 7310    | J  | 35%  |  |  |
| Manganese                    | MG/KG | 471      |    | 885     | J  | 61%  |  |  |
| Mercury                      | MG/KG | 0.11     |    | 0.18    | J  | 48%  |  |  |
| Nickel                       | MG/KG | 30.9     |    | 45.3    | J  | 38%  |  |  |
| Potassium                    | MG/KG | 905      |    | 1270    | J  | 34%  |  |  |
| Selenium                     | MG/KG | 0.82     | U  | 1.4     | UJ | 52%  |  |  |
| Silver                       | MG/KG | 0.65     |    | 1       | J  | 42%  |  |  |
| Sodium                       | MG/KG | 388      |    | 656     | J  | 51%  |  |  |
| Thallium                     | MG/KG | 0.61     | U  | 1       | UJ | 48%  |  |  |
| Vanadium                     | MG/KG | 17.8     |    | 27.3    | J  | 42%  |  |  |
| Zinc                         | MG/KG | 135      | J  | 195     | J  | 36%  |  |  |
| Other                        |       |          |    |         |    |      |  |  |
| Total Organic Carbon         | MG/KG | 7100     | J  | 7100    | J  |      |  |  |
| Total Petroleum Hydrocarbons | MG/KG | 80       | UJ | 130     | UJ | 48%  |  |  |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

### Table C-1D Quality Control of Field Duplicates Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report

|                               |       |           | W121C-4   |      | M     | W121C-1 |      |
|-------------------------------|-------|-----------|-----------|------|-------|---------|------|
| Parameter                     | Units | 121C-2002 | 121C-2004 | *RPD | EB023 | EB153   | *RPD |
| Volatile Organic Compounds    | •     |           |           |      |       |         | •    |
| 1,1,1-Trichloroethane         | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,1,2,2-Tetrachloroethane     | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,1,2-Trichloroethane         | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,1-Dichloroethane            | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,1-Dichloroethene            | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,2-Dibromo-3-chloropropane   | UG/L  |           |           |      | 1 U   | 1 U     |      |
| 1,2-Dibromoethane             | UG/L  |           |           |      | 1 U   | 1 U     |      |
| 1,2-Dichlorobenzene           | UG/L  |           |           |      | 1 U   | 1 U     |      |
| 1,2-Dichloroethane            | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,2-Dichloropropane           | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| 1,3-Dichlorobenzene           | UG/L  |           |           |      | 1 U   | 1 U     |      |
| 1,4-Dichlorobenzene           | UG/L  |           |           |      | 1 U   | 1 U     |      |
| Acetone                       | UG/L  | 5 UJ      | 5 UJ      |      | 52    | 61      | 16%  |
| Benzene                       | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Bromochloromethane            | UG/L  |           |           |      | 1 U   | 1 U     |      |
| Bromodichloromethane          | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Bromoform                     | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Carbon disulfide              | UG/L  | 5 UJ      | 5 UJ      |      | 2     | 2       |      |
| Carbon tetrachloride          | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Chlorobenzene                 | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Chlorodibromomethane          | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Chloroethane                  | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Chloroform                    | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Cis-1,2-Dichloroethene        | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Cis-1,3-Dichloropropene       | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Ethyl benzene                 | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Meta/Para Xylene              | UG/L  | 5 U       | 5 U       |      |       |         |      |
| Methyl bromide                | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Methyl butyl ketone           | UG/L  | 5 U       | 5 U       |      | 5 U   | 5 U     |      |
| Methyl chloride               | UG/L  | 5 UJ      | 5 UJ      |      | 1 U   | 1 U     |      |
| Methyl ethyl ketone           | UG/L  | 5 UJ      | 5 UJ      |      | 5 U   | 5 U     |      |
| Methyl isobutyl ketone        | UG/L  | 5 U       | 5 U       |      | 5 U   | 5 U     |      |
| Methylene chloride            | UG/L  | 5 U       | 5 U       |      | 2 U   | 2 U     |      |
| Ortho Xylene                  | UG/L  | 5 U       | 5 U       |      |       |         |      |
| Styrene                       | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Tetrachloroethene             | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Toluene                       | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Total Xylenes                 | UG/L  |           |           |      | 1 U   | 1 U     |      |
| Trans-1,2-Dichloroethene      | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Trans-1,3-Dichloropropene     | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Trichloroethene               | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Vinyl chloride                | UG/L  | 5 U       | 5 U       |      | 1 U   | 1 U     |      |
| Semivolatile Organic Compound |       |           |           |      |       |         |      |
| 1,2,4-Trichlorobenzene        | UG/L  | 1.2 U     | 1.3 UJ    | 8%   |       | 1.1 U   | NA   |
| 1,2-Dichlorobenzene           | UG/L  | 1 U       | 1.1 UJ    | 10%  |       | 1.1 U   | NA   |
| 1,3-Dichlorobenzene           | UG/L  | 1.2 U     | 1.3 UJ    | 8%   |       | 1.1 U   | NA   |
| 1,4-Dichlorobenzene           | UG/L  | 1 U       | 1.1 UJ    | 10%  |       | 1.1 U   | NA   |

### Table C-1D Quality Control of Field Duplicates Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report

|                             |       | N         | fW121C-1              | 1    |       |         |      |
|-----------------------------|-------|-----------|-----------------------|------|-------|---------|------|
| Parameter                   | Units | 121C-2002 | IW121C-4<br>121C-2004 | *RPD | EB023 | EB153   | *RPD |
| 2,4,5-Trichlorophenol       | UG/L  | 1 U       | 1.1 U                 | 10%  |       | 2.7 U   | NA   |
| 2,4,6-Trichlorophenol       | UG/L  | 1 U       | 1.1 U                 | 10%  |       | 1.1 U   | NA   |
| 2,4-Dichlorophenol          | UG/L  | 1.4 U     | 1.4 U                 |      |       | 1.1 U   | NA   |
| 2,4-Dimethylphenol          | UG/L  | 2.4 U     | 2.4 U                 |      |       | 1.1 U   | NA   |
| 2,4-Dinitrophenol           | UG/L  |           |                       |      |       | 2.7 U   | NA   |
| 2,4-Dinitrotoluene          | UG/L  | 1.1 U     | 1.2 UJ                | 9%   |       | 1.1 U   | NA   |
| 2,6-Dinitrotoluene          | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| 2-Chloronaphthalene         | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| 2-Chlorophenol              | UG/L  | 1.1 U     | 1.2 U                 | 9%   |       | 1.1 U   | NA   |
| 2-Methylnaphthalene         | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| 2-Methylphenol              | UG/L  | 1 U       | 1.1 U                 | 10%  |       | 1.1 U   | NA   |
| 2-Nitroaniline              | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 2.7 U   | NA   |
| 2-Nitrophenol               | UG/L  | 1.1 U     | 1.2 U                 | 9%   |       | 1.1 U   | NA   |
| 3 or 4-Methylphenol         | UG/L  | 1.9 U     | 1.9 U                 |      |       |         |      |
| 3,3'-Dichlorobenzidine      | UG/L  | 1 UJ      | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| 3-Nitroaniline              | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 2.7 U   | NA   |
| 4,6-Dinitro-2-methylphenol  | UG/L  | 1.2 U     | 1.3 U                 | 8%   |       | 2.7 U   | NA   |
| 4-Bromophenyl phenyl ether  | UG/L  | 1.4 U     | 1.4 UJ                |      |       | 1.1 U   | NA   |
| 4-Chloro-3-methylphenol     | UG/L  | 1.1 U     | 1.2 U                 | 9%   |       | 1.1 U   | NA   |
| 4-Chloroaniline             | UG/L  | 1.2 UJ    | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| 4-Chlorophenyl phenyl ether | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| 4-Methylphenol              | UG/L  |           |                       |      |       | 1.1 U   | NA   |
| 4-Nitroaniline              | UG/L  | 2.5 U     | 2.5 UJ                |      |       | 2.7 U   | NA   |
| 4-Nitrophenol               | UG/L  | 1.1 U     | 1.2 U                 | 9%   |       | 2.7 U   | NA   |
| Acenaphthene                | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Acenaphthylene              | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| Anthracene                  | UG/L  | 1.4 U     | 1.4 UJ                |      |       | 1.1 U   | NA   |
| Benzo(a)anthracene          | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Benzo(a)pyrene              | UG/L  | 1.6 U     | 1.6 UJ                |      |       | 1.1 U   | NA   |
| Benzo(b)fluoranthene        | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Benzo(ghi)perylene          | UG/L  | 1.4 UJ    | 1.4 UJ                |      |       | 1.1 U   | NA   |
| Benzo(k)fluoranthene        | UG/L  | 2.7 U     | 2.7 UJ                |      |       | 1.1 U   | NA   |
| Bis(2-Chloroethoxy)methane  | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Bis(2-Chloroethyl)ether     | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.1 U   | NA   |
| Bis(2-Chloroisopropyl)ether | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Bis(2-Ethylhexyl)phthalate  | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 0.23 J  | NA   |
| Butylbenzylphthalate        | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 0.12 J  | NA   |
| Carbazole                   | UG/L  | 0.43 U    | 0.44 UJ               | 2%   |       | 1.1 U   | NA   |
| Chrysene                    | UG/L  | 1.7 U     | 1.7 UJ                |      |       | 1.1 U   | NA   |
| Di-n-butylphthalate         | UG/L  | 1.2 U     | 1.3 UJ                | 8%   |       | 1.7     | NA   |
| Di-n-octylphthalate         | UG/L  | 1.6 U     | 1.6 UJ                |      |       | 1.1 U   | NA   |
| Dibenz(a,h)anthracene       | UG/L  | 1.6 UJ    | 1.6 UJ                |      |       | 1.1 UJ  | NA   |
| Dibenzofuran                | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Diethyl phthalate           | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 0.057 J | NA   |
| Dimethylphthalate           | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Fluoranthene                | UG/L  | 1 U       | 1.1 UJ                | 10%  |       | 1.1 U   | NA   |
| Fluorene                    | UG/L  | 1.1 U     | 1.2 UJ                | 9%   |       | 1.1 U   | NA   |
| Hexachlorobenzene           | UG/L  | 1.1 U     | 1.2 UJ                | 9%   |       | 1.1 U   | NA   |

### Table C-1D Quality Control of Field Duplicates Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report

|                           |         |           | I <b>y Depot Activ</b><br>IW121C-4 |      | MW121C-1 |         |       |  |
|---------------------------|---------|-----------|------------------------------------|------|----------|---------|-------|--|
| <br> Parameter            | Units   | 121C-2002 | 121C-2004                          | *RPD | EB023    | EB153   | *RPD  |  |
| Hexachlorobutadiene       | UG/L    | 1.6 U     | 1.6 UJ                             |      |          | 0.061 J | NA    |  |
| Hexachlorocyclopentadiene | UG/L    | 4 U       | 4 UJ                               |      |          | 1.1 UJ  | NA    |  |
| Hexachloroethane          | UG/L    | 1.1 U     | 1.2 UJ                             | 9%   |          | 1.1 U   | NA    |  |
| Indeno(1,2,3-cd)pyrene    | UG/L    | 1.7 U     | 1.7 UJ                             |      |          | 1.1 U   | NA    |  |
| Isophorone                | UG/L    | 1 U       | 1.1 UJ                             | 10%  |          | 1.1 U   | NA    |  |
| N-Nitrosodiphenylamine    | UG/L    | 2.1 U     | 2.1 UJ                             |      |          | 1.1 U   | NA    |  |
| N-Nitrosodipropylamine    | UG/L    | 1 U       | 1.1 UJ                             | 10%  |          | 1.1 U   | NA    |  |
| Naphthalene               | UG/L    | 1.2 U     | 1.3 UJ                             | 8%   |          | 1.1 U   | NA    |  |
| Nitrobenzene              | UG/L    | 1 U       | 1.1 UJ                             | 10%  |          | 1.1 U   | NA    |  |
| Pentachlorophenol         | UG/L    | 2 U       | 2 U                                |      |          | 2.7 U   | NA    |  |
| Phenanthrene              | UG/L    | 1 U       | 1.1 UJ                             | 10%  |          | 1.1 U   | NA    |  |
| Phenol                    | UG/L    | 1 U       | 1.1 U                              | 10%  |          | 1.1 U   | NA    |  |
| Pyrene                    | UG/L    | 1 U       | 1.1 UJ                             | 10%  |          | 1.1 U   | NA    |  |
| Pesticides/PCBs           | 1 0 0 1 | - 10      |                                    |      | l l      |         |       |  |
| 4,4'-DDD                  | UG/L    | 0.01 R    | 0.01 R                             | NA   | 0.9      | 0.11 U  | 156%  |  |
| 4,4'-DDE                  | UG/L    | 0.005 UJ  | 0.005 UJ                           |      | 0.27 J   | 0.093 J | 98%   |  |
| 4,4'-DDT                  | UG/L    | 0.01 R    | 0.01 R                             | NA   | 0.29 J   | 0.28    | 4%    |  |
| Aldrin                    | UG/L    | 0.02 U    | 0.02 U                             |      | 0.057 U  | 0.057 U |       |  |
| Alpha-BHC                 | UG/L    | 0.01 U    | 0.01 U                             |      | 0.057 U  | 0.036 J | 45%   |  |
| Alpha-Chlordane           | UG/L    | 0.02 U    | 0.02 U                             |      | 0.096    | 0.068   | 34%   |  |
| Beta-BHC                  | UG/L    | 0.01 U    | 0.01 U                             |      | 0.56 J   | 0.096 J | 141%  |  |
| Chlordane                 | UG/L    | 0.14 U    | 0.14 U                             |      | 0.000    | 0.030   | 1.170 |  |
| Delta-BHC                 | UG/L    | 0.004 UJ  | 0.004 UJ                           |      | 0.23 J   | 0.094   | 84%   |  |
| Dieldrin                  | UG/L    | 0.009 U   | 0.009 U                            |      | 0.11 U   | 0.052 J | 72%   |  |
| Endosulfan I              | UG/L    | 0.02 UJ   | 0.02 UJ                            |      | 0.11 J   | 0.08 J  | 32%   |  |
| Endosulfan II             | UG/L    | 0.01 UJ   | 0.01 UJ                            |      | 0.28 J   | 0.11 U  | 87%   |  |
| Endosulfan sulfate        | UG/L    | 0.02 U    | 0.02 U                             |      | 0.28 J   | 0.14 J  | 67%   |  |
| Endrin                    | UG/L    | 0.02 UJ   | 0.02 UJ                            |      | 0.11 U   | 0.11 U  |       |  |
| Endrin aldehyde           | UG/L    | 0.02 UJ   | 0.02 UJ                            |      | 0.22 J   | 0.073 J | 100%  |  |
| Endrin ketone             | UG/L    | 0.009 U   | 0.009 U                            |      | 0.11 U   | 0.11 U  |       |  |
| Gamma-BHC/Lindane         | UG/L    | 0.009 U   | 0.009 U                            |      | 0.057 U  | 0.057 U |       |  |
| Gamma-Chlordane           | UG/L    | 0.01 U    | 0.01 U                             |      | 0.47     | 0.086 J | 138%  |  |
| Heptachlor                | UG/L    | 0.007 U   | 0.007 U                            |      | 0.23 J   | 0.058 J | 119%  |  |
| Heptachlor epoxide        | UG/L    | 0.009 UJ  | 0.009 UJ                           |      | 0.057 U  | 0.072 J | 23%   |  |
| Methoxychlor              | UG/L    | 0.008 UJ  | 0.008 UJ                           |      | 0.57     | 0.057 U | 164%  |  |
| Toxaphene                 | UG/L    | 0.12 U    | 0.12 U                             |      | 5.7 U    | 5.7 U   |       |  |
| Aroclor-1016              | UG/L    | 0.24 U    | 0.24 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Aroclor-1221              | UG/L    | 0.08 U    | 0.08 U                             |      | 2.3 U    | 2.3 U   |       |  |
| Aroclor-1232              | UG/L    | 0.09 U    | 0.09 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Aroclor-1242              | UG/L    | 0.08 U    | 0.08 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Aroclor-1248              | UG/L    | 0.12 U    | 0.12 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Aroclor-1254              | UG/L    | 0.05 U    | 0.05 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Aroclor-1260              | UG/L    | 0.01 U    | 0.01 U                             |      | 1.1 U    | 1.1 U   |       |  |
| Metals & Cyanide          |         |           |                                    |      |          |         |       |  |
| Aluminum                  | UG/L    | 146 J     | 1030                               | 150% | 133      | 738 J   | 139%  |  |
| Antimony                  | UG/L    | 7.5 U     | 10.9 J                             | 37%  | 5.1 U    | 5.1 U   |       |  |
| Arsenic                   | UG/L    | 4.5 U     | 4.5 U                              |      | 3.7 U    | 3.8     | 3%    |  |
| Barium                    | UG/L    | 29.6      | 32.4                               | 9%   | 39.5     | 38      | 4%    |  |

### Table C-1D Quality Control of Field Duplicates

### Groundwater at SEAD-121C

### SEAD-121C and SEAD-121I RI Report

### **Seneca Army Depot Activity**

|                              |       |           | MW121C-4 | ļ   |      |          | M | W121C-1 |   |      |
|------------------------------|-------|-----------|----------|-----|------|----------|---|---------|---|------|
| Parameter                    | Units | 121C-2002 | 2 121C-2 | 004 | *RPD | EB023    | 3 | EB15    | 3 | *RPD |
| Beryllium                    | UG/L  | 0.9 U     | 0.9      | U   |      | 0.1      | U | 0.1     | U |      |
| Cadmium                      | UG/L  | 0.8 U     | 0.8      | U   |      | 0.39     |   | 0.3     | U | 26%  |
| Calcium                      | UG/L  | 420000    | 513000   |     | 20%  | 172000 J | J | 163000  |   | 5%   |
| Chromium                     | UG/L  | 1.4 U     | 5.8      |     | 122% | 1.2      |   | 2.4     |   | 67%  |
| Cobalt                       | UG/L  | 2.3 U     | 4.8      | J   | 70%  | 1.4      | U | 1.6     |   | 13%  |
| Copper                       | UG/L  | 2 U       | 2        | U   |      | 1.2      | U | 2       |   | 50%  |
| Cyanide                      | UG/L  |           |          |     |      | 5 1      | U | 5       | U |      |
| Cyanide, Amenable            | MG/L  | 0.01 U    | 0.01     | U   |      |          |   |         |   |      |
| Cyanide, Total               | MG/L  | 0.01 U    | 0.01     | U   |      |          |   |         |   |      |
| Iron                         | UG/L  | 34.9 U    | 1720     |     | 192% | 346      |   | 1430    |   | 122% |
| Lead                         | UG/L  | 5.6       | 4.8      |     | 15%  | 1.8      | U | 1.8     | U |      |
| Magnesium                    | UG/L  | 73600     | 88000    |     | 18%  | 23800    |   | 24100   |   | 1%   |
| Manganese                    | UG/L  | 328       | 244      |     | 29%  | 1590     |   | 1140    |   | 33%  |
| Mercury                      | UG/L  | 0.2 U     | 0.2      | U   |      | 0.1      | U | 0.1     | U |      |
| Nickel                       | UG/L  | 2 U       | 3.2      | J   | 46%  | 2.8      |   | 4.2     |   | 40%  |
| Potassium                    | UG/L  | 9430      | 6320     |     | 39%  | 7610     |   | 10900   |   | 36%  |
| Selenium                     | UG/L  | 3 U       | 5        | U   | 50%  | 3.7      | J | 5.6     | J | 41%  |
| Silver                       | UG/L  | 3.7 U     | 3.7      | U   |      | 1.3      | U | 1.3     | U |      |
| Sodium                       | UG/L  | 60100     | 56700    |     | 6%   | 8920     |   | 11200   |   | 23%  |
| Thallium                     | UG/L  | 4.2 U     | 4.2      | U   |      | 6.7      | U | 6.7     | U |      |
| Vanadium                     | UG/L  | 2.5 U     | 2.5      | U   |      | 1.5      | U | 2.4     | 9 | 46%  |
| Zinc                         | UG/L  | 9.2 J     | 24       |     | 89%  | 2.4      |   | 9.3     |   | 118% |
| Other                        |       |           |          |     |      |          |   |         |   | -    |
| Total Petroleum Hydrocarbons | MG/L  | 0.041 U   | 0.04     | U   | 2%   |          |   |         |   |      |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

|                                |              | my Depot A |            | VDRMO-8 |     |       |
|--------------------------------|--------------|------------|------------|---------|-----|-------|
| <br>  Parameter                | Units        | DRMO-300   |            | DRMO-3  | 005 | *RPD  |
|                                | Cints        | DRWO-300   | 00         | DIGNO-3 | 003 | I KID |
| Volatile Organic Compounds     |              |            |            |         |     |       |
| 1,1,1-Trichloroethane          | UG/L         | 0.75 U     |            | 0.75    |     |       |
| 1,1,2,2-Tetrachloroethane      | UG/L         | 0.7 U      |            | 0.7     |     |       |
| 1,1,2-Trichloroethane          | UG/L         | 0.62 L     |            | 0.62    |     |       |
| 1,1-Dichloroethane             | UG/L         | 0.66 L     | J          | 0.66    | U   |       |
| 1,1-Dichloroethene             | UG/L         | 0.69 U     | J          | 0.69    |     |       |
| 1,2-Dichloroethane             | UG/L         | 0.56 L     | J          | 0.56    | U   |       |
| 1,2-Dichloropropane            | UG/L         | 0.73 L     | J          | 0.73    | U   |       |
| Acetone                        | UG/L         | 3.5 U      | JJ         | 3.5     | UJ  |       |
| Benzene                        | UG/L         | 0.71 U     | J          | 0.71    | U   |       |
| Bromodichloromethane           | UG/L         | 0.73 L     | J          | 0.73    | U   |       |
| Bromoform                      | UG/L         | 0.49 U     | J          | 0.49    | U   |       |
| Carbon disulfide               | UG/L         | 0.72 U     | J          | 0.72    | U   |       |
| Carbon tetrachloride           | UG/L         | 0.47 U     | J          | 0.47    | U   |       |
| Chlorobenzene                  | UG/L         | 0.78 L     | J          | 0.78    |     |       |
| Chlorodibromomethane           | UG/L         | 0.66 L     |            | 0.66    |     |       |
| Chloroethane                   | UG/L         | 2.4 U      |            | 2.4     |     |       |
| Chloroform                     | UG/L         | 0.61 U     |            | 0.61    |     |       |
| Cis-1,2-Dichloroethene         | UG/L         | 0.62 L     |            | 0.62    | U   |       |
| Cis-1,3-Dichloropropene        | UG/L         | 0.66 L     |            | 0.66    |     |       |
| Ethyl benzene                  | UG/L         | 0.76 L     |            | 0.76    |     | +     |
| Meta/Para Xylene               | UG/L         | 1.5 U      |            | 1.5     |     | +     |
| Methyl bromide                 | UG/L         | 0.38 U     |            | 0.38    |     |       |
| Methyl butyl ketone            | UG/L         | 0.38 C     |            | 0.38    |     |       |
| Methyl chloride                | UG/L         | 0.51 U     |            | 0.51    |     |       |
| Methyl ethyl ketone            | UG/L<br>UG/L | 2.3 U      |            | 2.3     | U   |       |
| Methyl isobutyl ketone         | UG/L<br>UG/L |            | J <b>J</b> | 0.81    | UJ  |       |
| Methylene chloride             | UG/L<br>UG/L | 1.8 U      |            | 1.8     |     |       |
|                                |              |            |            |         | U   |       |
| Ortho Xylene                   | UG/L         | 0.72 U     |            | 0.72    | U   |       |
| Styrene                        | UG/L         | 0.92 U     |            | 0.92    |     |       |
| Tetrachloroethene              | UG/L         | 0.7 L      |            | 0.7     |     |       |
| Toluene                        | UG/L         | 0.71 U     |            | 0.71    |     |       |
| Trans-1,2-Dichloroethene       | UG/L         | 0.81 U     |            | 0.81    |     |       |
| Trans-1,3-Dichloropropene      | UG/L         | 0.66 U     |            | 0.66    |     |       |
| Trichloroethene                | UG/L         | 0.72 U     |            | 0.72    |     |       |
| Vinyl chloride                 | UG/L         | 0.79 L     | J          | 0.79    | U   |       |
| Semivolatile Organic Compounds |              | 1          | _          |         |     |       |
| 1,2,4-Trichlorobenzene         | UG/L         | 10 U       |            | 10      |     |       |
| 1,2-Dichlorobenzene            | UG/L         | 10 L       |            | 10      |     |       |
| 1,3-Dichlorobenzene            | UG/L         | 10 U       |            | 10      |     |       |
| 1,4-Dichlorobenzene            | UG/L         | 10 U       |            | 10      |     |       |
| 2,4,5-Trichlorophenol          | UG/L         | 10 U       |            | 10      |     |       |
| 2,4,6-Trichlorophenol          | UG/L         | 10 U       |            | 10      |     |       |
| 2,4-Dichlorophenol             | UG/L         | 10 U       | J          | 10      | U   |       |
| 2,4-Dimethylphenol             | UG/L         | 10 U       | J          | 10      | U   |       |

|                             |              | SW        | VDRMO-8   |       |
|-----------------------------|--------------|-----------|-----------|-------|
| <br> Parameter              | Units        | DRMO-3008 | DRMO-3005 | *RPD  |
| 2,4-Dinitrophenol           | UG/L         | 10 U      | 10 U      | I KED |
| 2,4-Dinitrotoluene          | UG/L         | 10 U      | 10 U      |       |
| 2,6-Dinitrotoluene          | UG/L<br>UG/L | 10 U      | 10 U      |       |
| 2-Chloronaphthalene         | UG/L<br>UG/L | 10 U      | 10 U      |       |
| 2-Chlorophenol              | UG/L         | 10 U      | 10 U      |       |
| 2-Methylnaphthalene         | UG/L         | 10 U      | 10 U      |       |
| 2-Methylphenol              | UG/L         | 10 U      | 10 U      |       |
| 2-Nitroaniline              | UG/L         | 10 U      | 10 U      |       |
| 2-Nitrophenol               | UG/L         | 10 U      | 10 U      |       |
| 3 or 4-Methylphenol         | UG/L         | 10 U      | 10 U      |       |
| 3,3'-Dichlorobenzidine      | UG/L         | 10 U      | 10 U      |       |
| 3-Nitroaniline              | UG/L         | 10 U      | 10 U      |       |
| 4,6-Dinitro-2-methylphenol  | UG/L         | 10 U      | 10 U      |       |
| 4-Bromophenyl phenyl ether  | UG/L         | 10 U      | 10 U      |       |
| 4-Chloro-3-methylphenol     | UG/L<br>UG/L | 10 U      | 10 U      |       |
| 4-Chloroaniline             | UG/L<br>UG/L | 10 U      | 10 U      |       |
| 4-Chlorophenyl phenyl ether | UG/L<br>UG/L | 10 U      | 10 U      |       |
| 4-Nitroaniline              | UG/L         | 10 U      | 10 U      |       |
| 4-Nitrophenol               | UG/L         | 10 U      | 10 U      |       |
| Acenaphthene                | UG/L         | 10 U      | 10 U      |       |
| Acenaphthylene              | UG/L         | 10 U      | 10 U      |       |
| Anthracene                  | UG/L         | 10 U      | 10 U      |       |
| Benzo(a)anthracene          | UG/L         | 10 U      | 10 U      |       |
| Benzo(a)pyrene              | UG/L         | 10 U      | 10 U      |       |
| Benzo(b)fluoranthene        | UG/L         | 10 U      | 10 U      |       |
| Benzo(ghi)perylene          | UG/L         | 10 U      | 10 U      |       |
| Benzo(k)fluoranthene        | UG/L         | 10 U      | 10 U      |       |
| Bis(2-Chloroethoxy)methane  | UG/L         | 10 U      | 10 U      |       |
| Bis(2-Chloroethyl)ether     | UG/L         | 10 UJ     | 10 UJ     |       |
| Bis(2-Chloroisopropyl)ether | UG/L         | 10 U      | 10 U      |       |
| Bis(2-Ethylhexyl)phthalate  | UG/L         | 10 U      | 10 U      |       |
| Butylbenzylphthalate        | UG/L         | 10 U      | 10 U      |       |
| Carbazole                   | UG/L         | 10 U      | 10 U      |       |
| Chrysene                    | UG/L         | 10 U      | 10 U      |       |
| Di-n-butylphthalate         | UG/L         | 10 U      | 10 U      |       |
| Di-n-octylphthalate         | UG/L         | 10 U      | 10 U      |       |
| Dibenz(a,h)anthracene       | UG/L         | 10 U      | 10 U      |       |
| Dibenzofuran                | UG/L         | 10 U      | 10 U      |       |
| Diethyl phthalate           | UG/L         | 10 U      | 10 U      |       |
| Dimethylphthalate           | UG/L         | 10 U      | 10 U      |       |
| Fluoranthene                | UG/L         | 10 U      | 10 U      |       |
| Fluorene                    | UG/L         | 10 U      | 10 U      |       |
| Hexachlorobenzene           | UG/L         | 10 U      | 10 U      |       |
| Hexachlorobutadiene         | UG/L         | 10 U      | 10 U      |       |
| Hexachlorocyclopentadiene   | UG/L         | 10 UJ     | 10 UJ     |       |
| 110Ademotocyclopentadiene   | UU/L         | 10 03     | 10 03     |       |

|                        |       | my Depot |    |         |     | *RPD  |  |  |  |  |  |  |
|------------------------|-------|----------|----|---------|-----|-------|--|--|--|--|--|--|
| Domonioton             | T.T   | DDMO 2   |    | VDRMO-8 | 005 | T*DDD |  |  |  |  |  |  |
| Parameter              | Units | DRMO-3   |    | DRMO-3  |     | T*KPD |  |  |  |  |  |  |
| Hexachloroethane       | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Indeno(1,2,3-cd)pyrene | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Isophorone             | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| N-Nitrosodiphenylamine | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| N-Nitrosodipropylamine | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Naphthalene            | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Nitrobenzene           | UG/L  |          | U  | 10      |     |       |  |  |  |  |  |  |
| Pentachlorophenol      | UG/L  |          | U  | 10      |     |       |  |  |  |  |  |  |
| Phenanthrene           | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Phenol                 | UG/L  | 10       |    | 10      |     |       |  |  |  |  |  |  |
| Pyrene                 | UG/L  | 10       | U  | 10      | U   |       |  |  |  |  |  |  |
| Pesticides/PCBs        |       | 9.04     |    |         |     |       |  |  |  |  |  |  |
| 4,4'-DDD               | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| 4,4'-DDE               | UG/L  | 0.005    |    | 0.005   |     |       |  |  |  |  |  |  |
| 4,4'-DDT               | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| Aldrin                 | UG/L  | 0.02     |    | 0.02    |     |       |  |  |  |  |  |  |
| Alpha-BHC              | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| Alpha-Chlordane        | UG/L  | 0.02     |    | 0.02    |     |       |  |  |  |  |  |  |
| Beta-BHC               | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| Chlordane              | UG/L  | 0.13     |    | 0.13    |     |       |  |  |  |  |  |  |
| Delta-BHC              | UG/L  | 0.004    |    | 0.004   |     |       |  |  |  |  |  |  |
| Dieldrin               | UG/L  | 0.009    |    | 0.009   |     |       |  |  |  |  |  |  |
| Endosulfan I           | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| Endosulfan II          | UG/L  |          | UJ | 0.01    |     |       |  |  |  |  |  |  |
| Endosulfan sulfate     | UG/L  | 0.02     |    | 0.02    |     |       |  |  |  |  |  |  |
| Endrin                 | UG/L  | 0.02     |    | 0.02    |     |       |  |  |  |  |  |  |
| Endrin aldehyde        | UG/L  | 0.02     | U  | 0.02    | U   |       |  |  |  |  |  |  |
| Endrin ketone          | UG/L  | 0.009    |    | 0.009   |     |       |  |  |  |  |  |  |
| Gamma-BHC/Lindane      | UG/L  | 0.009    |    | 0.009   |     |       |  |  |  |  |  |  |
| Gamma-Chlordane        | UG/L  | 0.01     |    | 0.01    |     |       |  |  |  |  |  |  |
| Heptachlor             | UG/L  | 0.007    |    | 0.007   |     |       |  |  |  |  |  |  |
| Heptachlor epoxide     | UG/L  | 0.008    |    | 0.008   | U   |       |  |  |  |  |  |  |
| Methoxychlor           | UG/L  | 0.008    |    | 0.008   |     |       |  |  |  |  |  |  |
| Toxaphene              | UG/L  | 0.12     | U  | 0.12    | U   |       |  |  |  |  |  |  |
| Aroclor-1016           | UG/L  | 0.24     | UJ | 0.24    | UJ  |       |  |  |  |  |  |  |
| Aroclor-1221           | UG/L  | 0.08     | U  | 0.08    | U   |       |  |  |  |  |  |  |
| Aroclor-1232           | UG/L  | 0.09     | UJ | 0.09    | UJ  |       |  |  |  |  |  |  |
| Aroclor-1242           | UG/L  | 0.08     |    | 0.08    | UJ  |       |  |  |  |  |  |  |
| Aroclor-1248           | UG/L  | 0.12     |    | 0.12    | U   |       |  |  |  |  |  |  |
| Aroclor-1254           | UG/L  | 0.05     | U  | 0.05    | U   |       |  |  |  |  |  |  |
| Aroclor-1260           | UG/L  |          | UJ | 0.01    |     |       |  |  |  |  |  |  |
| Metals & Cyanide       |       |          |    | -       |     |       |  |  |  |  |  |  |
| Aluminum               | UG/L  | 23.9     |    | 23.4    |     | 2%    |  |  |  |  |  |  |
| Antimony               | UG/L  | 4.7      | U  | 4.7     | U   |       |  |  |  |  |  |  |
| Arsenic                | UG/L  | 2.8      | U  | 2.8     | U   |       |  |  |  |  |  |  |

|                              |       | SWDRMO-8 |     |        |     |      |  |  |
|------------------------------|-------|----------|-----|--------|-----|------|--|--|
| Parameter                    | Units | DRMO-3   | 008 | DRMO-3 | 005 | *RPD |  |  |
| Barium                       | UG/L  | 43.7     |     | 47.4   |     | 8%   |  |  |
| Beryllium                    | UG/L  | 0.14     |     | 0.12   |     | 15%  |  |  |
| Cadmium                      | UG/L  | 0.4      | U   | 0.4    | U   |      |  |  |
| Calcium                      | UG/L  | 67700    |     | 72200  |     | 6%   |  |  |
| Chromium                     | UG/L  | 0.6      | U   | 0.6    | U   |      |  |  |
| Cobalt                       | UG/L  | 0.6      |     | 0.6    |     |      |  |  |
| Copper                       | UG/L  | 1.8      |     | 2.1    |     | 15%  |  |  |
| Cyanide, Amenable            | MG/L  | 0.01     | U   | 0.01   | U   |      |  |  |
| Cyanide, Total               | MG/L  | 0.01     | U   | 0.01   | U   |      |  |  |
| Iron                         | UG/L  | 19       | J   | 34.2   | J   | 57%  |  |  |
| Lead                         | UG/L  | 3.7      |     | 5.1    | J   | 32%  |  |  |
| Magnesium                    | UG/L  | 11600    |     | 12300  |     | 6%   |  |  |
| Manganese                    | UG/L  | 11.6     |     | 26.1   |     | 77%  |  |  |
| Mercury                      | UG/L  | 0.2      | U   | 0.2    | U   |      |  |  |
| Nickel                       | UG/L  | 1.8      | U   | 1.8    | U   |      |  |  |
| Potassium                    | UG/L  | 3450     | J   | 3660   | J   | 6%   |  |  |
| Selenium                     | UG/L  | 3        | U   | 3      | U   |      |  |  |
| Silver                       | UG/L  | 1        | U   | 1      | U   |      |  |  |
| Sodium                       | UG/L  | 102000   | J   | 108000 | J   | 6%   |  |  |
| Thallium                     | UG/L  | 5.4      | U   | 5.4    | U   |      |  |  |
| Vanadium                     | UG/L  | 0.7      | U   | 0.7    | U   |      |  |  |
| Zinc                         | UG/L  | 13.9     |     | 16.8   |     | 19%  |  |  |
| Other                        | ·     |          |     |        |     |      |  |  |
| Total Petroleum Hydrocarbons | MG/L  | 1        | U   | 1      | U   |      |  |  |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

### Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Volatile Organic Compounds   | Location ID                 |       |        |     | MW-1   |     |      |        |     | MW-1    |    |      |
|--|-----------------------------|-------|--------|-----|--------|-----|------|--------|-----|---------|----|------|
| Volatile Organic Compounds   | _                           |       |        |     |        |     |      |        |     |         |    |      |
| 1.1.1-Trichloroethane  | Parameter                   | Units | DRMO-2 | 005 | DRMO-2 | 800 | *RPD | DRMO-2 | 013 | 121C-20 | 19 | *RPD |
| 1.1.2.2-Tetrachloroethane  | Volatile Organic Compounds  |       |        |     |        |     |      |        |     |         |    |      |
| 1.1.2-Trichloroethane  | 1,1,1-Trichloroethane       | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  | T    |
| 1.1-Dichloroethane   | 1,1,2,2-Tetrachloroethane   | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| II-Dichloroethene  | 1,1,2-Trichloroethane       | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| 1,2-Dibromo-s-chloropropane  | 1,1-Dichloroethane          | UG/L  | 5      | UJ  | 4.4    | J   | 13%  | 4.3    |     | 4.3     |    |      |
| 1.2-Dibromoethane  | 1,1-Dichloroethene          | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| 1.2-Dichlorobenzene  | 1,2-Dibromo-3-chloropropane | UG/L  |        |     |        |     |      |        |     |         |    |      |
| 1.2-Dichloropethane  | 1,2-Dibromoethane           | UG/L  |        |     |        |     |      |        |     |         |    |      |
| 1.2-Dichloropropane  | 1,2-Dichlorobenzene         | UG/L  |        |     |        |     |      |        |     |         |    |      |
| 1,3-Dichlorobenzene  | 1,2-Dichloroethane          | UG/L  | 5      | U   |        |     |      | 0.3    | U   | 0.3     | U  |      |
| 1.4-Dichlorobenzene  | 1,2-Dichloropropane         | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.5     | J  | 22%  |
| Acetone  | 1,3-Dichlorobenzene         | UG/L  |        |     |        |     |      |        |     |         |    |      |
| Benzene   UG/L   S   U   S   U     0.3   U   0.3   U     Bromochloromethane   UG/L   S   U     | 1,4-Dichlorobenzene         | UG/L  |        |     |        |     |      |        |     |         |    |      |
| Bromochloromethane   | Acetone                     | UG/L  | 5      | R   | 5      | R   | NA   | 5.8    | R   | 8.4     | J  | NA   |
| Bromodichloromethane   | Benzene                     | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| Bromoform  | Bromochloromethane          | UG/L  |        |     |        |     |      |        |     |         |    |      |
| Carbon disulfide         UG/L         5         UJ         5         UJ          0.3         U           Carbon tetrachloride         UG/L         5         U         5         U          0.4         U  | Bromodichloromethane        | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Carbon tetrachloride   | Bromoform                   | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| Chlorodibromomethane   | Carbon disulfide            | UG/L  | 5      | UJ  | 5      | UJ  |      | 0.3    | U   | 0.3     | U  |      |
| Chlorodibromomethane         UG/L         5         U         5         U          0.4         U         0.4         U          Chlorocethane         UG/L         5         UJ         5         UJ          0.4         U         0.2         S         U         0.5         U         0.0         U  | Carbon tetrachloride        | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Chloroethane         UG/L         5         UJ         5         UJ          0.4         U         0.4         U          Ch.4         U         0.4         U         0.4         U          Ch.4         U         0.4         U         0.2         29%           Cis-1,3-Dichloropropene         UG/L         5         U         5         U          0.3         U         0.3         U          0.0         U   | Chlorobenzene               | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Chloroform   | Chlorodibromomethane        | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Chloroform   | Chloroethane                | UG/L  | 5      | UJ  | 5      | UJ  |      | 0.4    | U   | 0.4     | U  |      |
| Cis-1,3-Dichloropropene         UG/L         5         U         5         U          0.3         U         0.3         U            Ethyl benzene         UG/L         5         U         5         U          0.4         U         0.4         U            Metaly Bromide         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl bromide         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl butyl ketone         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl etholride         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl ethyl ketone         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl ethyl ketone         UG/L         5         U   | Chloroform                  | UG/L  |        |     | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Cis-1,3-Dichloropropene         UG/L         5         U         5         U          0.3         U         0.3         U            Ethyl benzene         UG/L         5         U         5         U          0.4         U         0.4         U            Metaly Bromide         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl bromide         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl butyl ketone         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl etholride         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl ethyl ketone         UG/L         5         U         5         U          0.4         U         0.4         U            Methyl ethyl ketone         UG/L         5         U   | Cis-1,2-Dichloroethene      | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.4     | J  | 29%  |
| Meta/Para Xylene         UG/L         5 U         5 U         5 U          0.8 U         0.8 U          Methyl bromide         UG/L         5 UJ         5 UJ          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U          0.4 U         0.4 U          0.8 U          0.8 U          0.4 U <th< td=""><td>Cis-1,3-Dichloropropene</td><td>UG/L</td><td></td><td></td><td></td><td></td><td></td><td>0.3</td><td>U</td><td>0.3</td><td>U</td><td></td></th<> | Cis-1,3-Dichloropropene     | UG/L  |        |     |        |     |      | 0.3    | U   | 0.3     | U  |      |
| Meta/Para Xylene         UG/L         5 U         5 U         5 U          0.8 U         0.8 U          Methyl bromide         UG/L         5 UJ         5 UJ          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U          0.4 U         0.4 U          0.8 U          0.8 U          0.4 U <th< td=""><td>1 1</td><td>UG/L</td><td>5</td><td>U</td><td>5</td><td>U</td><td></td><td>0.4</td><td>U</td><td>0.4</td><td>U</td><td></td></th<>                 | 1 1                         | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Methyl butyl ketone         UG/L         5 U         5 U         5 U          2.8 U         2.8 U            Methyl chloride         UG/L         5 U         5 U         5 U          0.4 U         0.4 U            Methyl ethyl ketone         UG/L         5 UJ         5 UJ          3.6 R         3.6 R         NA           Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U           1.0         1.0         1.0         1.0         1.0         1.0  |                             | UG/L  | 5      | U   |        |     |      | 0.8    | U   | 0.8     | U  |      |
| Methyl butyl ketone         UG/L         5 U         5 U         5 U         5 U         2.8 U         2.8 U            Methyl chloride         UG/L         5 U         5 U         5 U          0.4 U         0.4 U            Methyl ethyl ketone         UG/L         5 UJ         5 UJ          3.6 R         3.6 R         NA           Methyl isobutyl ketone         UG/L         5 U         5 U         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 U         5 U         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U          Methyl isobutyl ketone         1.0 I   | Methyl bromide              | UG/L  | 5      | UJ  | 5      | UJ  |      | 0.4    | U   | 0.4     | U  |      |
| Methyl chloride         UG/L         5 U         5 U          0.4 U         0.4 U          Methyl chloride         UG/L         5 UJ         5 UJ          3.6 R         3.6 R         NA           Methyl ethyl ketone         UG/L         5 UJ         5 UJ          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 UJ         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 UJ         5 U          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 UJ         5 UJ          2.5 U         2.5 U            Methyl isobutyl ketone         UG/L         5 UJ         5 UJ          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U         0.4 U          0.5 U          0.5 U         0.5 U          0.5 U          0.5 U          0.5 U          0.5 U          0.5 U          0.5 U          0.4 U         0.4 U  |                             | UG/L  |        |     |        |     |      | 2.8    | U   | 2.8     | U  | T    |
| Methyl ethyl ketone         UG/L         5 UJ         5 UJ          3.6 R         3.6 R         NA           Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U            Methylene chloride         UG/L         5 UJ         5 UJ          1 J         1 J         1 J            Ortho Xylene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U          Styrene         UG/L         5 U         5 U          0.3 U         0.3 U          Styrene         UG/L         5 UJ         5 UJ          0.4 U         0.4 U         0.4 U           0.5 U          0.5 U           0.5 U          0.5 U           0.5 U          0.5 U          0.5 U          0.5 U          0.5 U          0.4 U         0.4 U           0.4 U         0.4 U           0.4 U         0.4 U           0.4 U         0.4 U   |                             | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Methyl isobutyl ketone         UG/L         5 U         5 U          2.5 U         2.5 U            Methylene chloride         UG/L         5 UJ         5 UJ          1 J         1 J         1 J            Ortho Xylene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U          0.5 U          0.5 U          0.5 U         0.5 U          0.4 U         0.4 U           0.4 U         0.4 U           0.4 U         0.4 U           0.4 U           0.4 U         0.   |                             | UG/L  | 5      | UJ  |        |     |      | 3.6    | R   | 3.6     | R  | NA   |
| Methylene chloride         UG/L         5 UJ         5 UJ          1 J         1 J         1 J          Ortho Xylene         UG/L         5 U         5 U         5 U          0.4 U         0.4 U         0.4 U          0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.6 U         0.5 U          0.7 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.5 U         0.5 U          0.6 U         0.7 U         0.7 U          0.7 U  |                             | UG/L  | 5      | U   | 5      | U   |      | 2.5    | U   | 2.5     | U  |      |
| Ortho Xylene         UG/L         5 U         5 U          0.4 U         0.4 U   |                             |       | 5      | UJ  |        |     |      |        |     | 1       | J  |      |
| Tetrachloroethene         UG/L         5 UJ         5 UJ          0.5 U         0.5 U            Toluene         UG/L         5 U         5 U          0.4 U         0.4 U            Total Xylenes         UG/L         5 U         5 U          0.4 U         0.4 U            Trans-1,2-Dichloroethene         UG/L         5 U         5 U          0.3 U         0.3 U            Trichloroethene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U            Vinyl chloride         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds         1,2,4-Trichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ         1 UJ         1 U         1 U         1 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ         1 UJ         1 U         1 U          1.2 U            1,4-Dichlorobenze  | -                           | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Toluene         UG/L         5 U         5 U         5 U          0.4 U         0.4 U         0.4 U            Total Xylenes         UG/L         5 U         5 U          0.4 U         0.4 U             Trans-1,2-Dichloroethene         UG/L         5 U         5 U          0.3 U         0.3 U            Trichloroethene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U            Vinyl chloride         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds         1,2,4-Trichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            1,3-Dichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            2,4,5-Tric   | Styrene                     | UG/L  | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| Total Xylenes         UG/L         UG/L         5 U         5 U          0.4 U         0.4 U            Trans-1,2-Dichloroptopene         UG/L         5 U         5 U          0.3 U         0.3 U            Trichloroptopene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U            Trichloroptopene         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds         1,2,4-Trichloroptopenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ         1 UJ         1 U         1 U         1 U            1,3-Dichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            2,4,5-Trichlorophenol         UG/L         1 R         1 R         NA         1 U         1 U  | Tetrachloroethene           | UG/L  | 5      | UJ  | 5      | UJ  |      | 0.5    | U   | 0.5     | U  |      |
| Trans-1,2-Dichloroethene         UG/L         5 U         5 U          0.4 U         0.4 U           Trans-1,3-Dichloropropene         UG/L         5 U         5 U          0.3 U         0.3 U           0.3 U         0.3 U            0.4 U         0.4 U         0.4 U             0.4 U         0.4 U         0.4 U             0.4 U         0.4 U         0.4 U             0.4 U         0.4 U         0.4 U             0.4 U         0.4 U         0.4 U </td <td>Toluene</td> <td>UG/L</td> <td>5</td> <td>U</td> <td>5</td> <td>U</td> <td></td> <td>0.4</td> <td>U</td> <td>0.4</td> <td>U</td> <td></td>  | Toluene                     | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Trans-1,2-Dichloroethene         UG/L         5 U         5 U         5 U          0.4 U         0.4 U         0.4 U          Trans-1,3-Dichloropropene         UG/L         5 U         5 U          0.3 U         0.3 U          0.3 U          0.3 U          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U         0.4 U          0.4 U         0.4 U         0.4 U         0.4 U         0.4 U          0.4 U         0.4  | Total Xylenes               | UG/L  |        |     |        |     |      |        |     |         |    |      |
| Trichloroethene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U          Vinyl chloride         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds           1,2,4-Trichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U         1 U            1,3-Dichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            2,4,5-Trichlorophenol         UG/L         1 R         1 R         NA         1 U         1 U   |                             | UG/L  | 5      | U   | 5      | U   |      | 0.4    | U   | 0.4     | U  |      |
| Trichloroethene         UG/L         5 U         5 U          0.4 U         0.4 U         0.4 U          Vinyl chloride         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds           1,2,4-Trichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U         1 U            1,3-Dichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            2,4,5-Trichlorophenol         UG/L         1 R         1 R         NA         1 U         1 U   |                             |       | 5      | U   | 5      | U   |      | 0.3    | U   | 0.3     | U  |      |
| Vinyl chloride         UG/L         2.2 J         2.4 J         9%         1.4         1.3         7%           Semivolatile Organic Compounds           1,2,4-Trichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,2-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U         1 U            1,3-Dichlorobenzene         UG/L         1.2 UJ         1.2 UJ          1.2 U         1.2 U            1,4-Dichlorobenzene         UG/L         1 UJ         1 UJ          1 U         1 U            2,4,5-Trichlorophenol         UG/L         1 R         1 R         NA         1 U         1 U  |                             |       |        |     |        |     |      |        |     |         | _  |      |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  | Vinyl chloride              | UG/L  | 2.2    | J   | 2.4    | J   | 9%   | 1.4    |     | 1.3     |    | 7%   |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |                             |       |        |     |        |     |      |        |     | •       |    |      |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |                             |       | 1.2    | UJ  | 1.2    | UJ  |      | 1.2    | U   | 1.2     | U  |      |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  | 1,2-Dichlorobenzene         |       | 1      | UJ  | 1      | UJ  |      |        |     | 1       | U  |      |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | 1,3-Dichlorobenzene         |       |        |     |        |     |      | 1.2    | U   |         | _  |      |
| 2,4,5-Trichlorophenol UG/L 1 R 1 R NA 1 U 1 U  | · ·                         |       |        |     |        |     |      |        |     |         |    | T    |
|  |                             |       |        |     |        |     | NA   |        |     |         | _  | T    |
|  | 2,4,6-Trichlorophenol       | UG/L  |        |     |        |     | +    |        |     |         | _  |      |
| 2,4-Dichlorophenol   |                             |       |        |     |        |     | NA   |        | _   |         |    |      |
| 2,4-Dimethylphenol UG/L 2.4 R 2.3 R NA 2.3 U 2.3 U   |                             |       |        |     |        |     |      |        |     |         |    |      |

### Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Location ID                 |       |        |            | MW-1      |      |           | MW-1      |      |
|-----------------------------|-------|--------|------------|-----------|------|-----------|-----------|------|
| Sample Date                 |       |        |            | 4/4/2003  |      |           | 5/9/2003  |      |
| Parameter                   | Units | DRMO-2 | 005        | DRMO-2008 | *RPD | DRMO-2013 | 121C-2019 | *RPD |
| 2,4-Dinitrophenol           | UG/L  |        |            |           |      | 2 UJ      | 2 UJ      |      |
| 2,4-Dinitrotoluene          | UG/L  | 1.1    | UJ         | 1.1 UJ    |      | 1.1 U     | 1.1 U     |      |
| 2,6-Dinitrotoluene          | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| 2-Chloronaphthalene         | UG/L  | 1.2    | UJ         | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| 2-Chlorophenol              | UG/L  | 1.1    | R          | 1.1 R     | NA   | 1.1 U     | 1.1 U     |      |
| 2-Methylnaphthalene         | UG/L  | 1.2    | UJ         | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| 2-Methylphenol              | UG/L  | 1      | R          | 1 R       | NA   | 1 U       | 1 U       |      |
| 2-Nitroaniline              | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| 2-Nitrophenol               | UG/L  | 1.1    | R          | 1.1 R     | NA   | 1.1 U     | 1.1 U     |      |
| 3 or 4-Methylphenol         | UG/L  |        |            |           |      |           |           |      |
| 3,3'-Dichlorobenzidine      | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| 3-Nitroaniline              | UG/L  | 1.2    | UJ         | 1.2 UJ    |      | 1.2 UJ    | 1.2 UJ    |      |
| 4,6-Dinitro-2-methylphenol  | UG/L  | 1.2    | R          | 1.2 R     | NA   | 1.2 UJ    | 1.2 UJ    |      |
| 4-Bromophenyl phenyl ether  | UG/L  | 1.4    | UJ         | 1.3 UJ    | 7%   | 1.3 U     | 1.3 U     |      |
| 4-Chloro-3-methylphenol     | UG/L  | 1.1    | R          | 1.1 R     | NA   | 1.1 U     | 1.1 U     |      |
| 4-Chloroaniline             | UG/L  | 1.2    | R          | 1.2 R     | NA   | 1.2 UJ    | 1.2 UJ    |      |
| 4-Chlorophenyl phenyl ether | UG/L  | 1.2    | UJ         | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| 4-Methylphenol              | UG/L  | 1.9    | R          | 1.8 R     | NA   | 1.8 U     | 1.8 U     |      |
| 4-Nitroaniline              | UG/L  | 2.5    | UJ         | 2.4 UJ    | 4%   | 2.4 UJ    | 2.4 UJ    |      |
| 4-Nitrophenol               | UG/L  | 1.1    | R          | 1.1 R     | NA   | 1.1 U     | 1.1 U     |      |
| Acenaphthene                | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Acenaphthylene              | UG/L  | 1.2    | UJ         | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| Anthracene                  | UG/L  | 1.4    | UJ         | 1.3 UJ    | 7%   | 1.3 U     | 1.3 U     |      |
| Benzo(a)anthracene          | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Benzo(a)pyrene              | UG/L  | 1.6    | UJ         | 1.5 UJ    | 6%   | 1.5 U     | 1.5 U     |      |
| Benzo(b)fluoranthene        | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Benzo(ghi)perylene          | UG/L  | 1.4    | UJ         | 1.3 UJ    | 7%   | 1.3 UJ    | 1.3 UJ    |      |
| Benzo(k)fluoranthene        | UG/L  | 2.7    | UJ         | 2.7 UJ    |      | 2.6 U     | 2.7 U     | 4%   |
| Bis(2-Chloroethoxy)methane  | UG/L  | 1      | U          | 1 U       |      | 1 U       | 1 U       |      |
| Bis(2-Chloroethyl)ether     | UG/L  | 1.2    | U          | 1.2 U     |      | 1.2 U     | 1.2 U     |      |
| Bis(2-Chloroisopropyl)ether | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Bis(2-Ethylhexyl)phthalate  | UG/L  | 1      | U          | 1 U       |      | 1 U       | 1 U       |      |
| Butylbenzylphthalate        | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Carbazole                   | UG/L  | 0.43   | UJ         | 0.42 UJ   | 2%   | 0.42 U    | 0.42 U    |      |
| Chrysene                    | UG/L  | 1.7    | UJ         | 1.6 UJ    | 6%   | 1.6 U     | 1.6 U     |      |
| Di-n-butylphthalate         | UG/L  |        | UJ         | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| Di-n-octylphthalate         | UG/L  |        | UJ         | 1.5 UJ    | 6%   | 1.5 U     | 1.5 U     |      |
| Dibenz(a,h)anthracene       | UG/L  | 1.6    | UJ         | 1.5 UJ    | 6%   | 1.5 UJ    | 1.5 UJ    |      |
| Dibenzofuran                | UG/L  |        | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Diethyl phthalate           | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Dimethylphthalate           | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Fluoranthene                | UG/L  | 1      | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| Fluorene                    | UG/L  | 1.1    |            | 1.1 UJ    |      | 1.1 U     | 1.1 U     |      |
| Hexachlorobenzene           | UG/L  | 1.1    |            | 1.1 UJ    |      | 1.1 U     | 1.1 U     |      |
| Hexachlorobutadiene         | UG/L  | 1.6    |            | 1.5 UJ    | 6%   | 1.5 U     | 1.5 U     |      |
| Hexachlorocyclopentadiene   | UG/L  |        | UJ         | 3.9 UJ    | 3%   | 3.8 R     | 3.9 R     | NA   |
| Hexachloroethane            | UG/L  | 1.1    |            | 1.1 UJ    |      | 1.1 U     | 1.1 U     |      |
| Indeno(1,2,3-cd)pyrene      | UG/L  | 1.7    |            | 1.6 UJ    | 6%   | 1.6 UJ    | 1.6 UJ    |      |
| Isophorone                  | UG/L  |        | UJ         | 1 UJ      |      | 1 U       | 1 U       |      |
| N-Nitrosodiphenylamine      | UG/L  | 2.1    |            | 2 UJ      | 5%   | 2 U       | 2 U       |      |
| N-Nitrosodipropylamine      | UG/L  |        | UJ         | 1 UJ      |      | 1 UJ      | 1 UJ      |      |
| Naphthalene                 | UG/L  | 1.2    |            | 1.2 UJ    |      | 1.2 U     | 1.2 U     |      |
| 1 raphiliaione              | OU/L  | 1.2    | <i>U</i> 3 | 1.2 03    |      | 1.2       | 1.2 0     |      |

### Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

| Location ID        |         |         | MW-1     |          |     | MW-1    |          |     |         |     |      |
|--------------------|---------|---------|----------|----------|-----|---------|----------|-----|---------|-----|------|
| Sample Date        | ŀ       |         |          | 4/4/2003 |     |         | 5/9/2003 |     |         |     |      |
| Parameter          | Units   | DRMO-20 |          | DRMO-2   | 008 | *RPD    | DRMO-2   | 013 | 121C-20 | 119 | *RPD |
| Nitrobenzene       | UG/L    |         | UJ       |          | UJ  |         |          | U   |         | U   |      |
| Pentachlorophenol  | UG/L    | 2       |          | 1.9      | R   | NA      | 1.9      | -   | 1.9     | _   |      |
| Phenanthrene       | UG/L    |         | UJ       | 1.5      | UJ  |         | 1.5      | U   |         | U   |      |
| Phenol             | UG/L    | 1       |          | 1        | R   | NA      | 1        | U   | 1       | U   |      |
| Pyrene             | UG/L    |         | UJ       | 1        | UJ  |         | 1        | U   | -       | U   |      |
| Pesticides/PCBs    | CG/E    | 1       | <u> </u> | 1        | 03  |         | 1        | 0   | 1       | 0   |      |
| 4.4'-DDD           | UG/L    | 0.01    | U        | 0.01     | U   |         | 0.01     | UJ  | 0.01    | UJ  |      |
| 4.4'-DDE           | UG/L    | 0.005   |          | 0.005    | U   |         | 0.005    |     | 0.005   |     |      |
| 4,4'-DDT           | UG/L    | 0.01    |          | 0.01     | UJ  | T       | 0.01     | _   | 0.01    | _   |      |
| Aldrin             | UG/L    | 0.02    |          | 0.02     | U   |         | 0.02     |     | 0.02    |     |      |
| Alpha-BHC          | UG/L    | 0.01    |          | 0.01     | UJ  | <b></b> |          |     | 0.01    |     |      |
| Alpha-Chlordane    | UG/L    | 0.02    |          | 0.02     | U   |         | 0.02     |     | 0.02    |     |      |
| Beta-BHC           | UG/L    | 0.01    |          | 0.01     | U   |         | 0.01     |     | 0.01    |     |      |
| Chlordane          | UG/L    | 0.14    |          | 0.14     | _   |         | 0.01     |     | 0.01    |     |      |
| Delta-BHC          | UG/L    | 0.004   | _        | 0.004    | UJ  | <b></b> | 0.004    | ш   | 0.004   | III |      |
| Dieldrin           | UG/L    | 0.009   |          | 0.009    | U   |         |          | U   | 0.009   |     |      |
| Endosulfan I       | UG/L    | 0.00    |          | 0.00     | U   |         | 0.02     | _   | 0.00    | _   | 67%  |
| Endosulfan II      | UG/L    | 0.01    |          | 0.02     | _   |         | 0.01     |     | 0.01    | _   |      |
| Endosulfan sulfate | UG/L    | 0.02    |          | 0.01     | U   |         | 0.02     |     | 0.02    |     |      |
| Endrin Surface     | UG/L    | 0.02    |          | 0.02     | U   |         | 0.02     |     | 0.02    |     | T    |
| Endrin aldehyde    | UG/L    | 0.02    |          | 0.02     | U   |         | 0.02     |     | 0.02    |     |      |
| Endrin ketone      | UG/L    | 0.009   |          | 0.009    | U   |         | 0.009    |     | 0.009   |     | l    |
| Gamma-BHC/Lindane  | UG/L    | 0.009   |          | 0.009    | U   |         | 0.009    |     | 0.009   |     |      |
| Gamma-Chlordane    | UG/L    | 0.003   |          | 0.00     | UJ  |         | 0.00     |     | 0.00    |     |      |
| Heptachlor         | UG/L    | 0.007   |          | 0.007    | U   |         | 0.007    |     | 0.007   | _   |      |
| Heptachlor epoxide | UG/L    | 0.007   |          | 0.009    | U   |         | 0.009    | _   | 0.008   | _   | 12%  |
| Methoxychlor       | UG/L    | 0.008   |          | 0.009    |     |         | 0.009    | _   | 0.008   | _   | 1270 |
| Toxaphene          | UG/L    | 0.12    |          | 0.12     | U   |         | 0.12     |     | 0.12    |     |      |
| Aroclor-1016       | UG/L    | 0.24    |          | 0.25     | UJ  | 4%      | 0.25     |     | 0.24    |     | 4%   |
| Aroclor-1221       | UG/L    | 0.082   |          | 0.082    | U   |         | 0.083    |     | 0.081   |     | 2%   |
| Aroclor-1232       | UG/L    | 0.092   |          | 0.093    | _   | 1%      | 0.094    |     | 0.091   | _   | 3%   |
| Aroclor-1242       | UG/L    | 0.082   |          | 0.082    | UJ  |         | 0.083    |     | 0.081   |     | 2%   |
| Aroclor-1248       | UG/L    | 0.12    |          | 0.12     |     |         | 0.12     |     | 0.12    |     |      |
| Aroclor-1254       | UG/L    | 0.051   |          | 0.052    | _   | 2%      | 0.052    |     | 0.051   |     | 2%   |
| Aroclor-1260       | UG/L    | 0.01    |          | 0.01     |     |         | 0.01     |     | 0.01    |     |      |
| Metals & Cyanide   | 1 0 0/2 | 0.02    |          |          | _   |         |          | -   |         |     |      |
| Aluminum           | UG/L    | 150     | U        | 28.3     | J   | 137%    | 32       | U   | 32      | U   |      |
| Antimony           | UG/L    | 3.8     |          | 3.8      |     |         | 7.5      |     | 7.5     |     |      |
| Arsenic            | UG/L    | 4.5     |          | 4.5      |     |         | 7.1      |     | 4.5     |     | 45%  |
| Barium             | UG/L    | 135     |          | 147      |     | 9%      | 113      |     | 113     |     |      |
| Beryllium          | UG/L    | 0.1     | U        | 0.1      | U   |         | 0.9      | U   | 0.9     |     |      |
| Cadmium            | UG/L    | 0.8     |          | 0.8      |     |         | 0.8      |     | 0.8     |     |      |
| Calcium            | UG/L    | 88700   |          | 96900    | -   | 9%      | 84200    |     | 87100   |     | 3%   |
| Chromium           | UG/L    | 1.4     | U        | 1.4      | U   |         | 1.4      | U   | 1.4     |     |      |
| Cobalt             | UG/L    | 0.7     |          | 0.7      |     |         | 2.3      |     | 2.3     |     |      |
| Copper             | UG/L    | 3.6     |          | 3.6      |     |         |          | U   |         | U   |      |
| Cyanide            | UG/L    | 2.0     | -        | 1.0      | -   |         | _        |     | _       |     |      |
| Cyanide, Amenable  | MG/L    | 0.01    | U        | 0.01     | U   |         | 0.01     | U   | 0.01    | U   |      |
| Cyanide, Total     | MG/L    | 0.01    |          | 0.51     | _   |         | 0.01     |     | 0.51    |     |      |
| Iron               | UG/L    | 3780    |          | 3290     | J   | 14%     | 3810     |     | 3510    |     | 8%   |
| Lead               | UG/L    | 3       |          |          | U   |         |          | U   |         | U   |      |
| Magnesium          | UG/L    | 11400   |          | 12500    | -   | 9%      | 11000    | _   | 11400   |     | 4%   |

### Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report

### **Seneca Army Depot Activity**

| Location ID                  |       | MW-1     |     |        |     |      |        |  | MW-1     |    |      |
|------------------------------|-------|----------|-----|--------|-----|------|--------|--|----------|----|------|
| Sample Date                  |       | 4/4/2003 |     |        |     |      |        |  | 5/9/2003 |    |      |
| Parameter                    | Units | DRMO-2   | 005 | DRMO-2 | 800 | *RPD | DRMO-2 | 013  | 121C-20  | 19 | *RPD |
| Manganese                    | UG/L  | 1580     |     | 1710   |     | 8%   | 1140   |  | 1180     |    | 3%   |
| Mercury                      | UG/L  | 0.2      | U   | 0.2    | U   |      | 0.2    | U  | 0.2      | U  |      |
| Nickel                       | UG/L  | 3        | J   | 3.8    | J   | 24%  | 2      | U  | 2        | U  |      |
| Potassium                    | UG/L  | 9450     | J   | 10600  | J   | 11%  | 8820   |  | 9430     |    | 7%   |
| Selenium                     | UG/L  | 4.2      | J   | 3.3    | J   | 24%  | 1.3    | U  | 3.2      | J  | 84%  |
| Silver                       | UG/L  | 3.7      | U   | 3.7    | U   |      | 3.7    | U  | 3.7      | U  |      |
| Sodium                       | UG/L  | 40400    |     | 45300  |     | 11%  | 41100  |  | 44000    |    | 7%   |
| Thallium                     | UG/L  | 5.3      | U   | 5.3    | U   |      | 4.4    | J  | 4.2      | U  | 5%   |
| Vanadium                     | UG/L  | 1.4      | U   | 1.4    | U   |      | 2.5    | U  | 2.5      | U  |      |
| Zinc                         | UG/L  | 7.1      | J   | 7.1    | J   |      | 14.4   | J  | 17       | J  | 17%  |
| Other                        |       |          |     | •      | Ť   |      |        | , and the second | ·        |    |      |
| Total Petroleum Hydrocarbons | MG/L  | 1        | U   | 1      | U   |      | 1      | U  | 1        | U  |      |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = \underline{\mid \mathsf{SR-SDR} \mid \mathsf{X}\ 100} \qquad \qquad \mathsf{SR} = \mathsf{Sample}\ \mathsf{Result}\ \mathsf{of}\ \mathsf{a}\ \mathsf{particular}\ \mathsf{analyte}.$ 

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

Table C-1G
Quality Control of Field Duplicates
Surface Soil at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

|                            |       |           | SB121I-2  |      | ,<br>L    | SS121I-10 |      | S         | S121I-29  |      |
|----------------------------|-------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|------|
| Parameter                  | Units | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD | 121I-1025 | 121I-1030 | *RPD |
| Volatile Organic Compounds |       |           |           |      |           |           |      |           |           |      |
| 1,1,1-Trichloroethane      | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| 1,1,2,2-Tetrachloroethane  | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| 1,1,2-Trichloroethane      | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| 1,1-Dichloroethane         | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| 1,1-Dichloroethene         | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| 1,2-Dichloroethane         | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 UJ    | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| 1,2-Dichloropropane        | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Acetone                    | UG/KG | 110 U     | 33 UJ     | 108% | 4.5 J     | 2.2 U     | 69%  | 3.1 U     | 3.6 UJ    | 15%  |
| Benzene                    | UG/KG | 6.6 J     | 10 J      | 41%  | 2.5 U     | 2.2 U     | 13%  | 24        | 57 J      | 81%  |
| Bromodichloromethane       | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Bromoform                  | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Carbon disulfide           | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Carbon tetrachloride       | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 UJ    | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| Chlorobenzene              | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Chlorodibromomethane       | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Chloroethane               | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| Chloroform                 | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Cis-1,2-Dichloroethene     | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Cis-1,3-Dichloropropene    | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Ethyl benzene              | UG/KG | 2 J       | 3.5 J     | 55%  | 2.5 U     | 2.2 U     | 13%  | 4.4       | 9.5 J     | 73%  |
| Meta/Para Xylene           | UG/KG | 2.2 J     | 3.4 J     | 43%  | 2.5 U     | 2.2 U     | 13%  | 3.9       | 8.7 J     | 76%  |
| Methyl bromide             | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 UJ    | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| Methyl butyl ketone        | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 UJ    | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| Methyl chloride            | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Methyl ethyl ketone        | UG/KG | 55        | 27 J      | 68%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 67 J      | 182% |
| Methyl isobutyl ketone     | UG/KG | 3.1 U     | 2.8 U     | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Methylene chloride         | UG/KG | 3.1 U     | 2.7 J     | 14%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Ortho Xylene               | UG/KG | 1.1 J     | 2 J       | 58%  | 2.5 U     | 2.2 U     | 13%  | 2.1 J     | 5.1 J     | 83%  |
| Styrene                    | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Tetrachloroethene          | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 UJ    | 3.6 UJ    | 15%  |
| Toluene                    | UG/KG | 6.9       | 11 J      | 46%  | 2.5 U     | 2.2 U     | 13%  | 18        | 43 J      | 82%  |
| Trans-1,2-Dichloroethene   | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Trans-1,3-Dichloropropene  | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Trichloroethene            | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |
| Vinyl chloride             | UG/KG | 3.1 U     | 2.8 UJ    | 10%  | 2.5 U     | 2.2 U     | 13%  | 3.1 U     | 3.6 UJ    | 15%  |

### Table C-1G Quality Control of Field Duplicates Surface Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

|                               |       |           | SB121I-2  |      |           | SS121I-10 |      | S         | SS121I-29 |      |
|-------------------------------|-------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|------|
| Parameter                     | Units | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD | 121I-1025 | 121I-1030 | *RPD |
| Semivolatile Organic Compound | s     |           |           |      |           |           |      |           |           |      |
| 1,2,4-Trichlorobenzene        | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 1,2-Dichlorobenzene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 1,3-Dichlorobenzene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 1,4-Dichlorobenzene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2,4,5-Trichlorophenol         | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 U     |      | 5200 U    | 5700 U    | 9%   |
| 2,4,6-Trichlorophenol         | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2,4-Dichlorophenol            | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2,4-Dimethylphenol            | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2,4-Dinitrophenol             | UG/KG | 970 U     | 980 U     | 1%   | 910 UJ    | 910 UJ    |      | 5200 R    | 5700 UJ   | NA   |
| 2,4-Dinitrotoluene            | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2,6-Dinitrotoluene            | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2-Chloronaphthalene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2-Chlorophenol                | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2-Methylnaphthalene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2-Methylphenol                | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 2-Nitroaniline                | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 UJ    |      | 5200 UJ   | 5700 UJ   | 9%   |
| 2-Nitrophenol                 | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 3 or 4-Methylphenol           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 3,3'-Dichlorobenzidine        | UG/KG | 390 UJ    | 390 U     |      | 360 U     | 360 U     |      | 2100 UJ   | 2300 R    | NA   |
| 3-Nitroaniline                | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 U     |      | 5200 U    | 5700 UJ   | 9%   |
| 4,6-Dinitro-2-methylphenol    | UG/KG | 970 U     | 980 UJ    | 1%   | 910 UJ    | 910 UJ    |      | 5200 R    | 5700 UJ   | NA   |
| 4-Bromophenyl phenyl ether    | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 4-Chloro-3-methylphenol       | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 4-Chloroaniline               | UG/KG | 390 U     | 390 U     |      | 360 UJ    | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 4-Chlorophenyl phenyl ether   | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| 4-Methylphenol                | UG/KG |           |           |      |           |           |      |           |           |      |
| 4-Nitroaniline                | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 U     |      | 5200 U    | 5700 UJ   | 9%   |
| 4-Nitrophenol                 | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 U     |      | 5200 U    | 5700 U    | 9%   |
| Acenaphthene                  | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Acenaphthylene                | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Anthracene                    | UG/KG | 89 J      | 74 J      | 18%  | 360 U     | 360 U     |      | 330 J     | 2300 U    | 150% |
| Benzo(a)anthracene            | UG/KG | 350 J     | 350 J     |      | 48 J      | 47 J      | 2%   | 700 J     | 260 J     | 92%  |
| Benzo(a)pyrene                | UG/KG | 390 J     | 450 J     | 14%  | 66 J      | 60 J      | 10%  | 700 J     | 2300 R    | NA   |
| Benzo(b)fluoranthene          | UG/KG | 600 J     | 620 J     | 3%   | 53 J      | 51 J      | 4%   | 720 J     | 2300 R    | NA   |
| Benzo(ghi)perylene            | UG/KG | 220 J     | 140 J     | 44%  | 67 J      | 63 J      | 6%   | 430 J     | 2300 R    | NA   |

### Table C-1G Quality Control of Field Duplicates Surface Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

|                             |       | ,         | SB121I-2  |      | 5         | SS121I-10 |      | S         | SS121I-29 |      |
|-----------------------------|-------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|------|
| Parameter                   | Units | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD | 121I-1025 | 121I-1030 | *RPD |
| Benzo(k)fluoranthene        | UG/KG | 300 J     | 360 J     | 18%  | 360 U     | 360 U     |      | 720 J     | 2300 R    | NA   |
| Bis(2-Chloroethoxy)methane  | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Bis(2-Chloroethyl)ether     | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Bis(2-Chloroisopropyl)ether | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Bis(2-Ethylhexyl)phthalate  | UG/KG | 78 J      | 390 U     | 133% | 360 UJ    | 360 U     |      | 2100 U    | 260 J     | 156% |
| Butylbenzylphthalate        | UG/KG | 390 UJ    | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 R    | NA   |
| Carbazole                   | UG/KG | 56 J      | 67 J      | 18%  | 360 U     | 360 U     |      | 340 J     | 2300 UJ   | 148% |
| Chrysene                    | UG/KG | 380 J     | 400       | 5%   | 62 J      | 63 J      | 2%   | 790 J     | 2300 R    | NA   |
| Di-n-butylphthalate         | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Di-n-octylphthalate         | UG/KG | 390 UJ    | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 R    | NA   |
| Dibenz(a,h)anthracene       | UG/KG | 390 UJ    | 390 U     |      | 360 U     | 360 UJ    |      | 2100 UJ   | 2300 R    | NA   |
| Dibenzofuran                | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Diethyl phthalate           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 230 J     | 161% |
| Dimethylphthalate           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Fluoranthene                | UG/KG | 720       | 920       | 24%  | 100 J     | 78 J      | 25%  | 2500      | 490 J     | 134% |
| Fluorene                    | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Hexachlorobenzene           | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Hexachlorobutadiene         | UG/KG | 390 UJ    | 390 UJ    |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Hexachlorocyclopentadiene   | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 UJ   | 2300 U    | 9%   |
| Hexachloroethane            | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Indeno(1,2,3-cd)pyrene      | UG/KG | 63 J      | 79 J      | 23%  | 83 J      | 74 J      | 11%  | 2100 UJ   | 2300 R    | NA   |
| Isophorone                  | UG/KG | 390 UJ    | 390 UJ    |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| N-Nitrosodiphenylamine      | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| N-Nitrosodipropylamine      | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 UJ    |      | 2100 U    | 2300 UJ   | 9%   |
| Naphthalene                 | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Nitrobenzene                | UG/KG | 390 UJ    | 390 UJ    |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Pentachlorophenol           | UG/KG | 970 U     | 980 U     | 1%   | 910 U     | 910 U     |      | 5200 UJ   | 5700 U    | 9%   |
| Phenanthrene                | UG/KG | 450       | 440       | 2%   | 60 J      | 56 J      | 7%   | 2200      | 530 J     | 122% |
| Phenol                      | UG/KG | 390 U     | 390 U     |      | 360 U     | 360 U     |      | 2100 U    | 2300 U    | 9%   |
| Pyrene                      | UG/KG | 1200 J    | 660       | 58%  | 79 J      | 98 J      | 21%  | 2300      | 1600 J    | 36%  |
| Pesticides/PCBs             |       |           |           |      | Ti .      |           |      |           |           |      |
| 4,4'-DDD                    | UG/KG | 2 UJ      | 2 UJ      |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| 4,4'-DDE                    | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| 4,4'-DDT                    | UG/KG | 2 U       | 2 U       |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| Aldrin                      | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Alpha-BHC                   | UG/KG | 2 UJ      | 2 U       |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |

|                    |       |           | SB121I-2  |      |           | SS121I-10 |      | S         | S121I-29  |      |
|--------------------|-------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|------|
| Parameter          | Units | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD | 121I-1025 | 121I-1030 | *RPD |
| Alpha-Chlordane    | UG/KG | 2 U       | 2 U       |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| Beta-BHC           | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Chlordane          | UG/KG | 20 U      | 20 U      |      | 19 U      | 18 U      | 5%   | 22 U      | 23 U      | 4%   |
| Delta-BHC          | UG/KG | 2 UJ      | 2 UJ      |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| Dieldrin           | UG/KG | 2 UJ      | 2 UJ      |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| Endosulfan I       | UG/KG | 11 J      | 6.9 J     | 46%  | 3.7 J     | 4.2 J     | 13%  | 23        | 2.3 U     | 164% |
| Endosulfan II      | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Endosulfan sulfate | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Endrin             | UG/KG | 2 U       | 2 U       |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Endrin aldehyde    | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Endrin ketone      | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Gamma-BHC/Lindane  | UG/KG | 2 U       | 2 U       |      | 1.9 UJ    | 1.8 UJ    | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Gamma-Chlordane    | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Heptachlor         | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 U     | 2.3 U     | 4%   |
| Heptachlor epoxide | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 17 R      | 2.3 U     | NA   |
| Methoxychlor       | UG/KG | 2 U       | 2 U       |      | 1.9 U     | 1.8 U     | 5%   | 2.2 UJ    | 2.3 UJ    | 4%   |
| Toxaphene          | UG/KG | 20 U      | 20 U      |      | 19 U      | 18 U      | 5%   | 22 U      | 23 U      | 4%   |
| Aroclor-1016       | UG/KG | 20 U      | 20 U      |      | 19 UJ     | 19 UJ     |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1221       | UG/KG | 20 U      | 20 U      |      | 19 U      | 19 U      |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1232       | UG/KG | 20 U      | 20 U      |      | 19 UJ     | 19 UJ     |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1242       | UG/KG | 20 U      | 20 U      |      | 19 UJ     | 19 UJ     |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1248       | UG/KG | 20 U      | 20 U      |      | 19 U      | 19 U      |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1254       | UG/KG | 20 UJ     | 20 UJ     |      | 19 U      | 19 U      |      | 21 UJ     | 23 UJ     | 9%   |
| Aroclor-1260       | UG/KG | 20 UJ     | 20 UJ     |      | 19 U      | 19 U      |      | 21 UJ     | 23 UJ     | 9%   |
| Metals & Cyanide   |       |           |           |      |           |           |      |           |           |      |
| Aluminum           | MG/KG | 9700      | 9020      | 7%   | 6480      | 7510      | 15%  | 3730      | 2200      | 52%  |
| Antimony           | MG/KG | 1.8       | 8.6       | 131% | 3.4       | 2.5       | 31%  | 1.1 U     | 1.2 U     | 9%   |
| Arsenic            | MG/KG | 21.2 J    | 43 J      | 68%  | 5.2       | 5.2       |      | 349 R     | 239 R     | NA   |
| Barium             | MG/KG | 74.3 J    | 83.6 J    | 12%  | 116       | 119       | 3%   | 87.4 J    | 84.9 J    | 3%   |
| Beryllium          | MG/KG | 0.49      | 0.46      | 6%   | 0.38 J    | 0.43 J    | 12%  | 0.16 U    | 0.18 U    | 12%  |
| Cadmium            | MG/KG | 0.14 U    | 0.14 U    |      | 5         | 4.1       | 20%  | 0.15 U    | 0.16 U    | 6%   |
| Calcium            | MG/KG | 30900     | 27800     | 11%  | 166000    | 143000    | 15%  | 29900 J   | 46500 J   | 43%  |
| Chromium           | MG/KG | 25.9 J    | 50 J      | 64%  | 14.3      | 14.7      | 3%   | 516       | 362       | 35%  |
| Cobalt             | MG/KG | 23.9 J    | 40.6 J    | 52%  | 8.4       | 8.9       | 6%   | 237 J     | 174 J     | 31%  |
| Copper             | MG/KG | 37.5 R    | 66.1 R    | NA   | 24.5 J    | 22.6 J    | 8%   | 243       | 175       | 33%  |
| Cyanide, Amenable  | MG/KG | 0.59 U    | 0.6 U     | 2%   | 0.56 UJ   | 0.55 UJ   | 2%   | 0.63 U    | 0.68 U    | 8%   |

### Table C-1G

### **Quality Control of Field Duplicates**

### Surface Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

### **Seneca Army Depot Activity**

|                              |       |           | SB121I-2  |      | - 5       | SS121I-10 |      | SS121I-29 |           |      |
|------------------------------|-------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|------|
| Parameter                    | Units | 121I-1043 | 121I-1044 | *RPD | 121I-1006 | 121I-1031 | *RPD | 121I-1025 | 121I-1030 | *RPD |
| Cyanide, Total               | MG/KG | 0.592 U   | 0.595 U   | 1%   | 0.556 UJ  | 0.551 UJ  | 1%   | 1.26      | 2.73      | 74%  |
| Iron                         | MG/KG | 27100     | 31500     | 15%  | 17100     | 17600     | 3%   | 69400     | 47400     | 38%  |
| Lead                         | MG/KG | 31.3      | 42.1      | 29%  | 19        | 16.3      | 15%  | 47.8 J    | 45.9 J    | 4%   |
| Magnesium                    | MG/KG | 6110      | 4240      | 36%  | 13500     | 9040      | 40%  | 2770 J    | 6090 J    | 75%  |
| Manganese                    | MG/KG | 33200 J   | 57800 J   | 54%  | 786       | 822       | 4%   | 349000    | 272000    | 25%  |
| Mercury                      | MG/KG | 0.04      | 0.05      | 22%  | 0.03      | 0.03      |      | 0.02      | 0.02      |      |
| Nickel                       | MG/KG | 38.9 J    | 46.3 J    | 17%  | 26.7      | 26.9      | 1%   | 394 J     | 289 J     | 31%  |
| Potassium                    | MG/KG | 859 J     | 929 J     | 8%   | 786       | 1150      | 38%  | 656       | 612       | 7%   |
| Selenium                     | MG/KG | 5.1 J     | 17.9 J    | 111% | 0.87      | 0.8       | 8%   | 160 J     | 131 J     | 20%  |
| Silver                       | MG/KG | 1.9 J     | 4.2 J     | 75%  | 1.1 U     | 1.1 U     |      | 24.1 R    | 18.6 R    | NA   |
| Sodium                       | MG/KG | 118 U     | 115 U     | 3%   | 210       | 188       | 11%  | 126 U     | 135 U     | 7%   |
| Thallium                     | MG/KG | 3         | 14.4      | 131% | 1.1 U     | 1.1 U     |      | 173 J     | 152 J     | 13%  |
| Vanadium                     | MG/KG | 22.6 J    | 31.6 J    | 33%  | 11.6      | 13.2      | 13%  | 217 J     | 147 J     | 38%  |
| Zinc                         | MG/KG | 85.1 J    | 82 J      | 4%   | 84 J      | 67.9 J    | 21%  | 47.7 J    | 37.8 J    | 23%  |
| Other                        |       |           |           | •    |           |           | •    |           |           | •    |
| Total Organic Carbon         | MG/KG | 5600      | 6800      | 19%  | 5600      | 4500      | 22%  | 7300      | 4900      | 39%  |
| Total Petroleum Hydrocarbons | MG/KG | 47 U      | 48 U      | 2%   | 44 UJ     | 44 UJ     |      | 240       | 1600      | 148% |

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

### Table C-1H Quality Control of Field Duplicates Ditch Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

|                                       |                |           | SD121I-7           |      |
|---------------------------------------|----------------|-----------|--------------------|------|
| Parameter                             | Units          | 121I-4005 | 121I-4007          | *RPD |
| Volatile Organic Compounds            |                |           |                    |      |
| 1,1,1-Trichloroethane                 | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,1,2,2-Tetrachloroethane             | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,1,2-Trichloroethane                 | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,1-Dichloroethane                    | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,1-Dichloroethene                    | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,2-Dichloroethane                    | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| 1,2-Dichloropropane                   | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Acetone                               | UG/KG          | 25 J      | 10 J               | 86%  |
| Benzene                               | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Bromodichloromethane                  | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Bromoform                             | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Carbon disulfide                      | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Carbon tetrachloride                  | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Chlorobenzene                         | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Chlorodibromomethane                  | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Chloroethane                          | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Chloroform                            | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Cis-1,2-Dichloroethene                | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Cis-1,3-Dichloropropene               | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Ethyl benzene                         | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Meta/Para Xylene                      | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methyl bromide                        | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methyl butyl ketone                   | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methyl chloride                       | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methyl ethyl ketone                   | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methyl isobutyl ketone                | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Methylene chloride                    | UG/KG          | 2.5 U     | 1.9 U              | 27%  |
| Ortho Xylene                          | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Styrene                               | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Tetrachloroethene                     | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Toluene                               | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Trans-1,2-Dichloroethene              | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Trans-1,3-Dichloropropene             | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Trichloroethene                       | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Vinyl chloride                        | UG/KG          | 3.1 UJ    | 3.2 UJ             | 3%   |
| Semivolatile Organic Compound         |                | 3.1 UJ    | 3.2 <sub> UJ</sub> | 3%   |
| 1,2,4-Trichlorobenzene                | UG/KG          | 420 U     | 420 U              |      |
| 1,2-Dichlorobenzene                   | UG/KG          | 420 U     | 420 U              |      |
| 1,3-Dichlorobenzene                   | UG/KG          | 420 U     | 420 U              |      |
| 1,4-Dichlorobenzene                   | UG/KG          | 420 U     | 420 U              |      |
| 2,4,5-Trichlorophenol                 |                |           | 1100 U             |      |
| 2,4,5-1 richlorophenol                | UG/KG          | 1100 U    | 420 U              |      |
|                                       | UG/KG          | 420 U     |                    |      |
| 2,4-Dichlorophenol 2,4-Dimethylphenol | UG/KG          | 420 U     | 420 U              |      |
| 4,4-Dimeniyiphenoi                    | UG/KG<br>UG/KG | 420 U     | 420 U              |      |

### Table C-1H Quality Control of Field Duplicates Ditch Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

|                | SD121I-7  |  |   |  |  |  |
|----------------|---|--|---|--|--|--|
| Units          | 121I-4005   |  | 7 *RP   |  |  |  |
| UG/KG          | 420 U   | 420  | U   |  |  |  |
| UG/KG          | 420 U   | 420  | U   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                | .20 0   | 1.20   |   |  |  |  |
|                | 1100 U  | 1100   | []  |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 124   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 128   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 118   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 160   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 999   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  | 141   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
|                |   |  |   |  |  |  |
| UG/KG<br>UG/KG | 420 U<br>400 J  | 1300   |   |  |  |  |
|                | UG/KG | UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         420 U           UG/KG         1100 U           UG/KG         420 U           UG/KG         1100 U           UG/KG         1100 U           UG/KG         1100 U           UG/KG         1100 U           UG/KG         280 J           UG/KG         280 J           UG/KG         2200 J           UG/KG         420 J           UG/KG         420 J           UG/KG         420 U           UG/KG         420 U           UG | Units         121I-4005         121I-400           UG/KG         420 U         420 U           UG/KG         1100 U         1100 U           UG/KG         120 U         1100 U           UG/KG         120 U         120 U |  |  |  |

### Table C-1H Quality Control of Field Duplicates Ditch Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

| Seneca Army Depot Activity |          |           |          |         |  |  |  |  |  |
|----------------------------|----------|-----------|----------|---------|--|--|--|--|--|
|                            |          | 44-1      | SD121I-7 | ·- I ·  |  |  |  |  |  |
| Parameter                  | Units    | 121I-4005 | 121I-400 |         |  |  |  |  |  |
| Isophorone                 | UG/KG    | 420 J     | 420      |         |  |  |  |  |  |
| N-Nitrosodiphenylamine     | UG/KG    | 420 U     | 420      |         |  |  |  |  |  |
| N-Nitrosodipropylamine     | UG/KG    | 420 U     | 420      |         |  |  |  |  |  |
| Naphthalene                | UG/KG    | 420 U     | 490      | 15%     |  |  |  |  |  |
| Nitrobenzene               | UG/KG    | 420 J     | 420      |         |  |  |  |  |  |
| Pentachlorophenol          | UG/KG    | 1100 U    | 1100     |         |  |  |  |  |  |
| Phenanthrene               | UG/KG    | 2500      | 10000    | 120%    |  |  |  |  |  |
| Phenol                     | UG/KG    | 420 J     | 420      |         |  |  |  |  |  |
| Pyrene                     | UG/KG    | 6500 J    | 17000    | J 89%   |  |  |  |  |  |
| Pesticides/PCBs            |          |           |          |         |  |  |  |  |  |
| 4,4'-DDD                   | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| 4,4'-DDE                   | UG/KG    | 14 J      | 2.2      | UJ 146% |  |  |  |  |  |
| 4,4'-DDT                   | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Aldrin                     | UG/KG    | 2.2 U     | 2.2      |         |  |  |  |  |  |
| Alpha-BHC                  | UG/KG    | 2.2 U     | 2.2      |         |  |  |  |  |  |
| Alpha-Chlordane            | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Beta-BHC                   | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Chlordane                  | UG/KG    | 22 U      | 22       | U       |  |  |  |  |  |
| Delta-BHC                  | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Dieldrin                   | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Endosulfan I               | UG/KG    | 2.2 U     | 56       | R NA    |  |  |  |  |  |
| Endosulfan II              | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Endosulfan sulfate         | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Endrin                     | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Endrin aldehyde            | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Endrin ketone              | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Gamma-BHC/Lindane          | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Gamma-Chlordane            | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Heptachlor                 | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Heptachlor epoxide         | UG/KG    | 2.2 U     | 2.2      | U       |  |  |  |  |  |
| Methoxychlor               | UG/KG    | 2.2 UJ    | 2.2      | UJ      |  |  |  |  |  |
| Toxaphene                  | UG/KG    | 22 U      | 22       | U       |  |  |  |  |  |
| Aroclor-1016               | UG/KG    | 22 U      | 22       | U       |  |  |  |  |  |
| Aroclor-1221               | UG/KG    | 22 U      | 22       | U       |  |  |  |  |  |
| Aroclor-1232               | UG/KG    | 22 U      | 22       | U       |  |  |  |  |  |
| Aroclor-1242               | UG/KG    | 22 U      | 22       |         |  |  |  |  |  |
| Aroclor-1248               | UG/KG    | 22 U      | 22       |         |  |  |  |  |  |
| Aroclor-1254               | UG/KG    | 22 U      | 22       |         |  |  |  |  |  |
| Aroclor-1260               | UG/KG    | 22 U      | 17       |         |  |  |  |  |  |
| Metals & Cyanide           |          | 12        |          | 1       |  |  |  |  |  |
| Aluminum                   | MG/KG    | 6950      | 6170     | 12%     |  |  |  |  |  |
| Antimony                   | MG/KG    | 1.1 U     | 0.99     |         |  |  |  |  |  |
| Arsenic                    | MG/KG    | 7.8       | 6.9      | 12%     |  |  |  |  |  |
| Barium                     | MG/KG    | 72.2      | 58.9     | 20%     |  |  |  |  |  |
| Beryllium                  | MG/KG    | 0.48 J    | 0.43     |         |  |  |  |  |  |
| Cadmium                    | MG/KG    | 0.83      | 0.77     | 7%      |  |  |  |  |  |
| Calcium                    | MG/KG    | 145000    | 110000   | 27%     |  |  |  |  |  |
|                            | 1410/110 | 112000    | 110000   | 2770    |  |  |  |  |  |

### Table C-1H Quality Control of Field Duplicates Ditch Soil at SEAD-121I

### SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

|                              |       | -       |    | SD121I-7 |    |      |
|------------------------------|-------|---------|----|----------|----|------|
| Parameter                    | Units | 121I-40 | 05 | 121I-40  | 07 | *RPD |
| Chromium                     | MG/KG | 14.5    |    | 13.5     |    | 7%   |
| Cobalt                       | MG/KG | 11      |    | 10.5     |    | 5%   |
| Copper                       | MG/KG | 33.8    | J  | 34.7     | J  | 3%   |
| Cyanide, Amenable            | MG/KG | 0.64    | U  | 0.65     | U  | 2%   |
| Cyanide, Total               | MG/KG | 0.644   | U  | 0.648    | U  | 1%   |
| Iron                         | MG/KG | 15200   | J  | 13900    | J  | 9%   |
| Lead                         | MG/KG | 71.2    | J  | 77.4     | J  | 8%   |
| Magnesium                    | MG/KG | 11700   | J  | 9890     | J  | 17%  |
| Manganese                    | MG/KG | 588     | J  | 541      | J  | 8%   |
| Mercury                      | MG/KG | 0.12    | UJ | 0.11     | UJ | 9%   |
| Nickel                       | MG/KG | 27.9    | J  | 26.9     | J  | 4%   |
| Potassium                    | MG/KG | 1340    | J  | 1230     | J  | 9%   |
| Selenium                     | MG/KG | 0.53    | U  | 0.46     | U  | 14%  |
| Silver                       | MG/KG | 0.34    | U  | 0.3      | U  | 13%  |
| Sodium                       | MG/KG | 288     |    | 211      |    | 31%  |
| Thallium                     | MG/KG | 0.71    | J  | 0.34     | U  | 70%  |
| Vanadium                     | MG/KG | 20.2    | J  | 18.4     | J  | 9%   |
| Zinc                         | MG/KG | 124     | J  | 125      | J  | 1%   |
| Other                        |       |         |    |          |    |      |
| Total Organic Carbon         | MG/KG | 5300    |    | 4500     |    | 16%  |
| Total Petroleum Hydrocarbons | MG/KG | 1000    | J  | 630      | J  | 45%  |

### NOTES:

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

NJ = reported value is estimated and tentatively identified based on Mass Spec

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

<sup>\*</sup>Formula for Relative Percent Difference (RPD)

|                              |              |           |        | SW121I-7 |      |    |
|------------------------------|--------------|-----------|--------|----------|------|----|
| Parameter                    | Units        | 121I-3007 |        | 121I-30  | *RPD |    |
| Volatile Organic Compounds   |              |           | •      |          |      |    |
| 1,1,1-Trichloroethane        | UG/L         | 5         | U      | 5        | U    |    |
| 1,1,2,2-Tetrachloroethane    | UG/L         | 5         | U      |          | U    |    |
| 1,1,2-Trichloroethane        | UG/L         | 5         | U      | 5        | U    |    |
| 1,1-Dichloroethane           | UG/L         | 5         | U      | 5        | U    |    |
| 1,1-Dichloroethene           | UG/L         | 5         | U      | 5        | U    |    |
| 1,2-Dichloroethane           | UG/L         | 5         | U      | 5        | U    |    |
| 1,2-Dichloropropane          | UG/L         | 5         | U      | 5        | U    |    |
| Acetone                      | UG/L         | 5         | UJ     | 5        | UJ   |    |
| Benzene                      | UG/L         | 5         | U      | 5        | U    |    |
| Bromodichloromethane         | UG/L         | 5         | U      | 5        | U    |    |
| Bromoform                    | UG/L         | 5         | U      | 5        | U    |    |
| Carbon disulfide             | UG/L         | 5         | U      | 5        | U    |    |
| Carbon tetrachloride         | UG/L         | 5         | U      | 5        | U    |    |
| Chlorobenzene                | UG/L         | 5         | U      | 5        | U    |    |
| Chlorodibromomethane         | UG/L         | 5         | UJ     |          | UJ   |    |
| Chloroethane                 | UG/L         | 5         | UJ     | 5        | UJ   |    |
| Chloroform                   | UG/L         | 5         | U      | 5        | U    |    |
| Cis-1,2-Dichloroethene       | UG/L         | 5         | U      | 5        | U    |    |
| Cis-1,3-Dichloropropene      | UG/L         | 5         | U      | 5        | U    |    |
| Ethyl benzene                | UG/L         | 5         | U      | 5        | U    |    |
| Meta/Para Xylene             | UG/L         | 5         | U      | 5        | U    |    |
| Methyl bromide               | UG/L         | 5         | U      | 5        | U    |    |
| <u> </u>                     |              |           |        |          | U    |    |
| Methyl butyl ketone          | UG/L<br>UG/L | 5         | U<br>U | 5        | U    |    |
| Methyl chloride              |              | 5         |        |          |      |    |
| Methyl ethyl ketone          | UG/L         | 5         | UJ     |          | UJ   |    |
| Methyl isobutyl ketone       | UG/L         | 5         | U      | 5        | U    |    |
| Methylene chloride           | UG/L         | 5         | U      |          | U    |    |
| Ortho Xylene                 | UG/L         | 5         | U      | 5        | U    |    |
| Styrene                      | UG/L         | 5         | U      | 5        | U    |    |
| Tetrachloroethene            | UG/L         | 5         | U      | 5        | U    |    |
| Toluene                      | UG/L         | 5         | U      | 5        | U    |    |
| Trans-1,2-Dichloroethene     | UG/L         | 5         | U      |          | U    |    |
| Trans-1,3-Dichloropropene    | UG/L         |           | UJ     |          | UJ   |    |
| Trichloroethene              | UG/L         |           | U      |          | U    |    |
| Vinyl chloride               | UG/L         | 5         | UJ     | 5        | UJ   |    |
| Semivolatile Organic Compoun |              | 1.0       |        | 10       | ***  |    |
| 1,2,4-Trichlorobenzene       | UG/L         | 10        |        |          | UJ   |    |
| 1,2-Dichlorobenzene          | UG/L         | 10        |        | 10       |      |    |
| 1,3-Dichlorobenzene          | UG/L         | 10        |        | 10       |      |    |
| 1,4-Dichlorobenzene          | UG/L         | 10        |        | 10       |      |    |
| 2,4,5-Trichlorophenol        | UG/L         | 10        |        | 10       |      | NA |
| 2,4,6-Trichlorophenol        | UG/L         | 10        |        | 10       |      | NA |
| 2,4-Dichlorophenol           | UG/L         | 10        |        | 10       |      | NA |
| 2,4-Dimethylphenol           | UG/L         | 10        | U      | 10       | R    | NA |

|  | neca Army    | - Серос П | CUIVIC |          |     |      |
|--|--------------|-----------|--------|----------|-----|------|
| D .                                      | L            | 1211 20   | 07     | SW121I-7 | 0.5 | *DDD |
| Parameter                                | Units        | 121I-30   |        | 121I-30  |     | *RPD |
| 2,4-Dinitrophenol                        | UG/L         |           | UJ     | 10       |     | NA   |
| 2,4-Dinitrotoluene                       | UG/L         | 10        |        | 10       |     |      |
| 2,6-Dinitrotoluene                       | UG/L         | 10        |        | 10       |     |      |
| 2-Chloronaphthalene                      | UG/L         | 10        |        | 10       |     |      |
| 2-Chlorophenol                           | UG/L         |           |        | 10       |     | NA   |
| 2-Methylnaphthalene                      | UG/L         | 10        |        | 10       |     |      |
| 2-Methylphenol                           | UG/L         | 10        |        | 10       |     |      |
| 2-Nitroaniline                           | UG/L         |           | UJ     | 10       |     |      |
| 2-Nitrophenol                            | UG/L         | 10        |        | 10       |     | NA   |
| 3 or 4-Methylphenol                      | UG/L         | 10        |        |          | UJ  |      |
| 3,3'-Dichlorobenzidine                   | UG/L         |           | U      | 10       |     | NA   |
| 3-Nitroaniline                           | UG/L         | 10        |        | 10       |     |      |
| 4,6-Dinitro-2-methylphenol               | UG/L         |           | U      | 10       |     | NA   |
| 4-Bromophenyl phenyl ether               | UG/L         | 10        |        | 10       |     |      |
| 4-Chloro-3-methylphenol                  | UG/L         | 10        |        | 10       | R   | NA   |
| 4-Chloroaniline                          | UG/L         | 10        |        | 10       |     |      |
| 4-Chlorophenyl phenyl ether              | UG/L         | 10        | U      | 10       | U   |      |
| 4-Nitroaniline                           | UG/L         | 10        | U      | 10       | U   |      |
| 4-Nitrophenol                            | UG/L         | 10        | U      | 10       | R   | NA   |
| Acenaphthene                             | UG/L         | 10        | U      | 10       | U   |      |
| Acenaphthylene                           | UG/L         | 10        | U      | 10       | U   |      |
| Anthracene                               | UG/L         | 10        | U      | 10       | U   |      |
| Benzo(a)anthracene                       | UG/L         | 10        | U      | 10       | U   |      |
| Benzo(a)pyrene                           | UG/L         | 10        | U      | 10       | U   |      |
| Benzo(b)fluoranthene                     | UG/L         | 10        | U      | 10       | U   |      |
| Benzo(ghi)perylene                       | UG/L         | 10        | U      | 10       | U   |      |
| Benzo(k)fluoranthene                     | UG/L         | 10        |        |          | U   |      |
| Bis(2-Chloroethoxy)methane               | UG/L         |           |        |          | U   |      |
| Bis(2-Chloroethyl)ether                  | UG/L         |           |        |          | UJ  |      |
| Bis(2-Chloroisopropyl)ether              | UG/L         | 10        |        | 10       |     |      |
| Bis(2-Ethylhexyl)phthalate               | UG/L         | 10        |        |          | U   |      |
| Butylbenzylphthalate                     | UG/L         | 10        |        | 10       |     |      |
| Carbazole                                | UG/L         |           | U      | 10       |     |      |
| Chrysene                                 | UG/L         | 10        |        | 10       |     |      |
| Di-n-butylphthalate                      | UG/L         | 10        |        | 10       |     |      |
| Di-n-octylphthalate                      | UG/L         | 10        |        | 10       |     |      |
| Dibenz(a,h)anthracene                    | UG/L         | 10        |        | 10       |     |      |
| Dibenzofuran                             | UG/L         | 10        |        | 10       |     |      |
| Diethyl phthalate                        | UG/L         | 10        |        | 10       |     |      |
| Dimethylphthalate                        | UG/L         | 10        |        | 10       |     |      |
| Fluoranthene                             | UG/L<br>UG/L | 10        |        | 10       |     |      |
| Fluorantnene                             | UG/L<br>UG/L | 10        |        | 10       |     |      |
| Hexachlorobenzene                        | UG/L<br>UG/L | 10        |        | 10       |     |      |
| Hexachlorobenzene<br>Hexachlorobutadiene |              |           |        |          |     |      |
|  | UG/L         |           | UJ     |          | UJ  |      |
| Hexachlorocyclopentadiene                | UG/L         | 10        | UJ     | 10       | UJ  |      |

|                                  |       |                |    | SW121I-7 |    |      |  |
|----------------------------------|-------|----------------|----|----------|----|------|--|
| Parameter                        | Units | 121I-30        | 07 | 121I-30  | 05 | *RPD |  |
| Hexachloroethane                 | UG/L  | 10             | U  | 10       | U  |      |  |
| Indeno(1,2,3-cd)pyrene           | UG/L  | 10             | U  | 10       | UJ |      |  |
| Isophorone                       | UG/L  | 10             | UJ | 10       | U  |      |  |
| N-Nitrosodiphenylamine           | UG/L  | 10             | UJ | 10       | UJ |      |  |
| N-Nitrosodipropylamine           | UG/L  | 10             | U  | 10       | U  |      |  |
| Naphthalene                      | UG/L  | 10             | U  | 10       | U  |      |  |
| Nitrobenzene                     | UG/L  | 10             | U  | 10       | U  |      |  |
| Pentachlorophenol                | UG/L  | 10             |    | 10       | R  | NA   |  |
| Phenanthrene                     | UG/L  | 10             |    | 10       |    |      |  |
| Phenol                           | UG/L  | 10             |    | 10       |    | NA   |  |
| Pyrene                           | UG/L  | 10             |    | 10       |    |      |  |
| Pesticides/PCBs                  | 0 0,2 | - 10           |    | 10       |    |      |  |
| 4,4'-DDD                         | UG/L  | 0.01           | UJ | 0.01     | UJ |      |  |
| 4,4'-DDE                         | UG/L  | 0.005          |    | 0.005    |    |      |  |
| 4,4'-DDT                         | UG/L  | 0.01           |    | 0.01     |    |      |  |
| Aldrin                           | UG/L  | 0.02           |    | 0.02     |    |      |  |
| Alpha-BHC                        | UG/L  | 0.01           |    | 0.01     |    |      |  |
| Alpha-Chlordane                  | UG/L  | 0.02           |    | 0.02     |    |      |  |
| Beta-BHC                         | UG/L  | 0.02           |    | 0.01     |    |      |  |
| Chlordane                        | UG/L  | 0.01           |    | 0.01     |    |      |  |
| Delta-BHC                        | UG/L  | 0.004          |    | 0.004    |    |      |  |
| Dieldrin                         | UG/L  | 0.004          |    | 0.004    |    |      |  |
| Endosulfan I                     | UG/L  | 0.009          |    | 0.009    |    |      |  |
| Endosulfan II                    | UG/L  | 0.01           |    | 0.01     |    |      |  |
| Endosulfan sulfate               | UG/L  | 0.01           |    | 0.01     |    |      |  |
| Endrin                           | UG/L  | 0.02           |    | 0.02     |    |      |  |
|                                  | UG/L  | 0.02           |    | 0.02     |    |      |  |
| Endrin aldehyde<br>Endrin ketone | UG/L  | 0.02           |    | 0.02     |    |      |  |
|                                  |       |                |    |          |    |      |  |
| Gamma-BHC/Lindane                | UG/L  | 0.009          |    | 0.009    |    |      |  |
| Gamma-Chlordane                  | UG/L  | 0.01           |    |          |    |      |  |
| Heptachlor                       | UG/L  | 0.007<br>0.008 |    | 0.007    |    |      |  |
| Heptachlor epoxide               | UG/L  |                |    | 0.008    |    |      |  |
| Methoxychlor                     | UG/L  | 0.008          |    | 0.008    |    |      |  |
| Toxaphene                        | UG/L  | 0.12           |    | 0.12     |    |      |  |
| Aroclor-1016                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1221                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1232                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1242                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1248                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1254                     | UG/L  | 0.5            |    | 0.5      |    |      |  |
| Aroclor-1260                     | UG/L  | 0.5            | UJ | 0.5      | UJ |      |  |
| Metals & Cyanide                 |       |                |    |          |    |      |  |
| Aluminum                         | UG/L  | 45.8           |    | 46.3     |    | 1%   |  |
| Antimony                         | UG/L  | 3.8            |    | 3.8      |    |      |  |
| Arsenic                          | UG/L  | 4.5            | U  | 4.5      | U  |      |  |

#### Table C-1I

## Quality Control of Field Duplicates Surface Water at SEAD-121I SEAD-121C and SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|                              | SW121I-7 |         |    |         |    |      |  |
|------------------------------|----------|---------|----|---------|----|------|--|
| Parameter                    | Units    | 121I-30 | 07 | 121I-30 | 05 | *RPD |  |
| Barium                       | UG/L     | 9.9     | U  | 9.9     | U  |      |  |
| Beryllium                    | UG/L     | 0.1     | U  | 0.1     | U  |      |  |
| Cadmium                      | UG/L     | 0.8     | U  | 0.8     | U  |      |  |
| Calcium                      | UG/L     | 18300   |    | 17700   |    | 3%   |  |
| Chromium                     | UG/L     | 1.4     | U  | 1.4     | U  |      |  |
| Cobalt                       | UG/L     | 0.7     | U  | 0.7     | U  |      |  |
| Copper                       | UG/L     | 3.6     | U  | 3.6     | U  |      |  |
| Cyanide, Amenable            | MG/L     | 0.01    | U  | 0.01    | U  |      |  |
| Cyanide, Total               | MG/L     | 0.01    | U  | 0.01    | U  |      |  |
| Iron                         | UG/L     | 41.8    | J  | 41.8    | J  |      |  |
| Lead                         | UG/L     | 3       | U  | 3       | U  |      |  |
| Magnesium                    | UG/L     | 3660    |    | 3610    |    | 1%   |  |
| Manganese                    | UG/L     | 5.3     |    | 3       |    | 55%  |  |
| Mercury                      | UG/L     | 0.2     | U  | 0.2     | U  |      |  |
| Nickel                       | UG/L     | 2       | U  | 2       | U  |      |  |
| Potassium                    | UG/L     | 630     |    | 660     |    | 5%   |  |
| Selenium                     | UG/L     | 3.1     | J  | 1.8     | J  | 53%  |  |
| Silver                       | UG/L     | 3.7     | U  | 3.7     | U  |      |  |
| Sodium                       | UG/L     | 2180    |    | 2300    |    | 5%   |  |
| Thallium                     | UG/L     | 5.3     | U  | 5.3     | U  |      |  |
| Vanadium                     | UG/L     | 1.4     | UJ | 1.4     | UJ |      |  |
| Zinc                         | UG/L     | 14.7    | J  | 13.8    | J  | 6%   |  |
| Other                        |          |         |    |         |    | •    |  |
| Total Petroleum Hydrocarbons | MG/L     | 0.412   | UJ | 0.408   | UJ | 1%   |  |

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

**RPD** = | SR - SDR | X 100 SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

---- = No difference between results or both results were non-detect

| Sample Depth to<br>Sample Depth to Bo | Location ID<br>Matrix<br>Sample ID<br>o Top of Sample | SOIL<br>EB231<br>0<br>0.2 | SEAD-121C<br>SB121C-1<br>SOIL<br>EB014<br>0<br>0.2<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-1<br>SOIL<br>EB231/EB014<br>0<br>0.2<br>3/9/1998<br>SA/DU<br>EBS | SEAD-121C<br>SB121C-4<br>SOIL<br>EB020<br>0<br>0.2<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-4<br>SOIL<br>EB229<br>0<br>0.2<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-4<br>SOIL<br>EB229/EB020<br>0<br>0.2<br>3/9/1998<br>SA/DU<br>EBS | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1074<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1080<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1074/DRMO-1080<br>0<br>2<br>10/27/2002<br>SA/DU<br>PID-RI |
|---------------------------------------|---|---------------------------|---|--|---|---|--|---|---|--|
| Parameter                             | Units   | Value (Q)                 | Value (Q)   | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)  |
| Volatile Organic Compounds            |   |                           |   |  |   |   |  |   |   |  |
| 1,1,1-Trichloroethane                 | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,1,2,2-Tetrachloroethane             | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,1,2-Trichloroethane                 | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,1-Dichloroethane                    | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,1-Dichloroethene                    | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,2-Dichloroethane                    | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| 1,2-Dichloroethene (total)            | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  |   |   |  |
| 1,2-Dichloropropane                   | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Acetone                               | UG/KG   | 6 U                       | 12 J  | 9 J  | 10 J  | 5.5 UJ  | 7.8 J  | 2.6 UJ  | 2.8 UJ  | 2.7 UJ   |
| Benzene                               | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Bromodichloromethane                  | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Bromoform                             | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 UJ  | 2.8 UJ  | 2.7 UJ   |
| Carbon disulfide                      | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Carbon tetrachloride                  | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Chlorobenzene                         | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Chlorodibromomethane                  | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Chloroethane                          | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Chloroform                            | UG/KG   | 12 U                      | 12 U  | 12 U   | 5.5 UJ  | 4 J   | 4.8 J  | 2.6 U   | 2.8 U   | 2.7 U  |
| Cis-1,2-Dichloroethene                | UG/KG   |                           |   |  |   |   |  | 2.6 U   | 2.8 U   | 2.7 U  |
| Cis-1,3-Dichloropropene               | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Ethyl benzene                         | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Meta/Para Xylene                      | UG/KG   |                           |   |  |   |   |  | 2.6 U   | 2.8 U   | 2.7 U  |
| Methyl bromide                        | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Methyl butyl ketone                   | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Methyl chloride                       | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 UJ  | 2.8 UJ  | 2.7 UJ   |
| Methyl ethyl ketone                   | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Methyl isobutyl ketone                | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Methylene chloride<br>Ortho Xylene    | UG/KG<br>UG/KG  | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U<br>2.6 U  | 2.8 U<br>2.8 U  | 2.7 U<br>2.7 U   |
|                                       | UG/KG<br>UG/KG  | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 777   | 2.6 U<br>2.6 UJ   | 2.8 U<br>2.8 UJ   |  |
| Styrene<br>Tetrachloroethene          | UG/KG<br>UG/KG  | 12 U<br>12 U              | 12 U<br>12 U  | 12 U<br>12 U   | 11 UJ<br>11 UJ  | 11 UJ<br>11 UJ  | 11 UJ<br>11 UJ   | 2.6 UJ<br>2.6 UJ  | 2.8 UJ<br>2.8 UJ  | 2.7 UJ<br>2.7 UJ   |
| Toluene                               | UG/KG<br>UG/KG  | 12 U<br>2 J               | 5 J   | 12 U<br>4 J  | 11 UJ<br>12 J   | 10 J  | 11 UJ<br>11 J  | 2.6 U<br>2.6 U  | 2.8 U   | 2.7 U  |
| Total Xylenes                         | UG/KG   | 12 U                      | 12 U  | 12 U   | 12 J<br>11 UJ   | 10 J<br>11 UJ   | 11 UJ  | 2.0 0   | 2.8 U   | 2.7 0  |
| Trans-1,2-Dichloroethene              | UG/KG   | 12 0                      | 12 0  | 12 0   | 11 03   | 11 03   | 11 03  | 2.6 U   | 2.8 U   | 2.7 U  |
| Trans-1,3-Dichloropropene             | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Trichloroethene                       | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Vinyl chloride                        | UG/KG   | 12 U                      | 12 U  | 12 U   | 11 UJ   | 11 UJ   | 11 UJ  | 2.6 U   | 2.8 U   | 2.7 U  |
| Semivolatile Organic Compound         |   | 12 0                      | 12 0  | 12 0   | 11 03   | 11 03   | 11 03  | 2.00  | 2.0 0   | 2.7 0  |
| 1,2,4-Trichlorobenzene                | UG/KG   | 78 U                      | 73 U  | 76 U   | 72 U  | 71 U  | 72 U   | 360 U   | 360 U   | 360 U  |
| 1.2-Dichlorobenzene                   | UG/KG   | 78 U                      | 73 U  | 76 U   | 72 U  | 71 U  | 72 U   | 360 U   | 360 U   | 360 U  |
| 1,3-Dichlorobenzene                   | UG/KG   | 78 U                      | 73 U  | 76 U   | 72 U  | 71 U  | 72 U   | 360 U   | 360 U   | 360 U  |
| 1,4-Dichlorobenzene                   | UG/KG   | 78 U                      | 73 U  | 76 U   | 72 U  | 71 U  | 72 U   | 360 U   | 360 U   | 360 U  |
|                                       |   |                           |   |  | •   |   |  | •   |   |  |

|                             | Pacility         | SEAD-121C | SEAD-121C | SEAD-121C    | SEAD-121C    | SEAD-121C | SEAD-121C   | SEAD-121C        | SEAD-121C        | SEAD-121C           |
|-----------------------------|------------------|-----------|-----------|--------------|--------------|-----------|-------------|------------------|------------------|---------------------|
|                             | Location ID      |           | SB121C-1  | SB121C-1     | SB121C-4     | SB121C-4  | SB121C-4    | SBDRMO-16        | SBDRMO-16        | SBDRMO-16           |
|                             | Matrix           | SOIL      | SOIL      | SOIL<br>SOIL | SOIL<br>SOIL | SOIL      | SOIL        | SOIL             | SOIL             | SOIL                |
|                             | Sample ID        | EB231     | EB014     | EB231/EB014  | EB020        | EB229     | EB229/EB020 | DRMO-1074        | DRMO-1080        | DRMO-1074/DRMO-1080 |
| Comple Donth                | to Top of Sample | 0         | 0         | 0            | 0            | 0         | 0           | DKWIO-1074<br>0  | 0                | 0                   |
| Sample Depth to I           |                  | 0.2       | 0.2       | 0.2          | 0.2          | 0.2       | 0.2         | 2                | 2                | 2                   |
| Sample Deput to I           | Sample Date      | 3/9/1998  | 3/9/1998  | 3/9/1998     | 3/9/1998     | 3/9/1998  | 3/9/1998    | 10/27/2002       | 10/27/2002       | 10/27/2002          |
|                             | OC Code          | SA        | SA        | SA/DU        | SA           | SA        | SA/DU       | 10/2//2002<br>SA | 10/2//2002<br>SA | SA/DU               |
|                             | Investigation    | EBS       | EBS       | EBS          | EBS          | EBS       | EBS         | PID-RI           | PID-RI           | PID-RI              |
|                             | mvesugation      | EDS       | LDS       | EDS          | LDS          | EDS       | EDS         | I ID-KI          | I ID-KI          | I ID-KI             |
| Parameter                   | Units            | Value (Q) | Value (Q) | Value (Q)    | Value (Q)    | Value (Q) | Value (Q)   | Value (Q)        | Value (Q)        | Value (Q)           |
| 2,4,5-Trichlorophenol       | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| 2,4,6-Trichlorophenol       | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2,4-Dichlorophenol          | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2,4-Dimethylphenol          | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2,4-Dinitrophenol           | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 UJ           | 900 UJ              |
| 2,4-Dinitrotoluene          | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2,6-Dinitrotoluene          | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2-Chloronaphthalene         | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2-Chlorophenol              | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2-Methylnaphthalene         | UG/KG            | 39 U      | 4.3 J     | 21.7 J       | 72 U         | 71 U      | 72 U        | 200 J            | 210 J            | 205 J               |
| 2-Methylphenol              | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 2-Nitroaniline              | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| 2-Nitrophenol               | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 3 or 4-Methylphenol         | UG/KG            |           |           |              |              |           |             | 360 U            | 360 U            | 360 U               |
| 3,3'-Dichlorobenzidine      | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 UJ           | 360 UJ              |
| 3-Nitroaniline              | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| 4,6-Dinitro-2-methylphenol  | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| 4-Bromophenyl phenyl ether  | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 4-Chloro-3-methylphenol     | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 4-Chloroaniline             | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 4-Chlorophenyl phenyl ether | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| 4-Methylphenol              | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        |                  |                  |                     |
| 4-Nitroaniline              | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| 4-Nitrophenol               | UG/KG            | 190 U     | 180 U     | 185 U        | 170 U        | 170 U     | 170 U       | 900 U            | 900 U            | 900 U               |
| Acenaphthene                | UG/KG            | 39 U      | 6.8 J     | 22.9 J       | 72 U         | 71 U      | 72 U        | 160 J            | 170 J            | 165 J               |
| Acenaphthylene              | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 1100             | 750              | 925                 |
| Anthracene                  | UG/KG            | 39 U      | 15 J      | 27 J         | 72 U         | 71 U      | 72 U        | 1100             | 950              | 1025                |
| Benzo(a)anthracene          | UG/KG            | 39 U      | 76        | 58 J         | 3.9 J        | 7 J       | 5.5 J       | 5500 J           | 2900 J           | 4200 J              |
| Benzo(a)pyrene              | UG/KG            | 39 U      | 57 J      | 48 J         | 72 U         | 71 U      | 72 U        | 4800 J           | 2700 J           | 3750 J              |
| Benzo(b)fluoranthene        | UG/KG            | 39 U      | 95        | 67 J         | 13 J         | 35.5 U    | 24 J        | 6600 J           | 3700 J           | 5150 J              |
| Benzo(ghi)perylene          | UG/KG            | 39 U      | 42 J      | 41 J         | 72 U         | 71 U      | 72 U        | 1700 J           | 740 J            | 1220 J              |
| Benzo(k)fluoranthene        | UG/KG            | 39 U      | 67 J      | 53 J         | 72 U         | 71 U      | 72 U        | 3000 J           | 1700 J           | 2350 J              |
| Bis(2-Chloroethoxy)methane  | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| Bis(2-Chloroethyl)ether     | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| Bis(2-Chloroisopropyl)ether | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 U            | 360 U               |
| Bis(2-Ethylhexyl)phthalate  | UG/KG            | 13 J      | 36.5 U    | 25 J         | 9.3 J        | 13 J      | 11 J        | 97 J             | 74 J             | 86 J                |
| Butylbenzylphthalate        | UG/KG            | 78 U      | 73 U      | 76 U         | 72 U         | 71 U      | 72 U        | 360 U            | 360 UJ           | 360 UJ              |
| Carbazole                   | UG/KG            | 39 U      | 17 J      | 28 J         | 72 U         | 71 U      | 72 U        | 170 J            | 130 J            | 150 J               |
| Chrysene                    | UG/KG            | 39 U      | 90        | 65 J         | 8.8 J        | 12 J      | 10 J        | 5000 J           | 2700 J           | 3850 J              |
| Di-n-butylphthalate         | UG/KG            | 78 U      | 73 U      | 76 U         | 36 U         | 3.7 J     | 20 J        | 360 U            | 360 U            | 360 U               |
| Di-n-octylphthalate         | UG/KG            | 9.9 J     | 36.5 U    | 23 J         | 72 U         | 71 U      | 72 U        | 360 U            | 360 UJ           | 360 UJ              |
| Dibenz(a,h)anthracene       | UG/KG            | 39 U      | 21 J      | 30 J         | 72 U         | 71 U      | 72 U        | 250 J            | 100 J            | 175 J               |
| Dibenzofuran                | UG/KG            | 39 U      | 5.1 J     | 22 J         | 72 U         | 71 U      | 72 U        | 170 J            | 190 J            | 180 J               |

|                              |                          | SEAD-121C        | SEAD-121C    | SEAD-121C     | SEAD-121C      | SEAD-121C      | SEAD-121C         | SEAD-121C       | SEAD-121C        | SEAD-121C           |
|------------------------------|--------------------------|------------------|--------------|---------------|----------------|----------------|-------------------|-----------------|------------------|---------------------|
|                              | Location ID              |                  | SB121C-1     | SB121C-1      | SB121C-4       | SB121C-4       | SB121C-4          | SBDRMO-16       | SBDRMO-16        | SBDRMO-16           |
|                              | Matrix                   |                  | SOIL         | SOIL          | SOIL           | SOIL           | SOIL              | SOIL            | SOIL             | SOIL                |
|                              | Sample ID                |                  | EB014        | EB231/EB014   | EB020          | EB229          | EB229/EB020       | DRMO-1074       | DRMO-1080        | DRMO-1074/DRMO-1080 |
|                              | to Top of Sample         |                  | 0            | 0             | 0              | 0              | 0                 | 0               | 0                | 0                   |
| Sample Depth to I            |                          |                  | 0.2          | 0.2           | 0.2            | 0.2            | 0.2               | 2               | 2                | 2                   |
|                              | Sample Date              |                  | 3/9/1998     | 3/9/1998      | 3/9/1998       | 3/9/1998<br>SA | 3/9/1998<br>SA/DU | 10/27/2002      | 10/27/2002<br>SA | 10/27/2002<br>SA/DU |
|                              | QC Code<br>Investigation |                  | SA<br>EBS    | SA/DU<br>EBS  | SA<br>EBS      | EBS            | EBS               | SA<br>PID-RI    | PID-RI           | PID-RI              |
|                              | investigation            | EDS              | EDS          | EDS           | EDS            | EDS            | EDS               | FID-KI          | FID-KI           | FID-KI              |
| Parameter                    | Units                    | Value (Q)        | Value (Q)    | Value (Q)     | Value (Q)      | Value (Q)      | Value (Q)         | Value (Q)       | Value (Q)        | Value (Q)           |
| Diethyl phthalate            | UG/KG                    |                  | 36.5 U       | 21 J          | 8.1 J          | 10 J           | 9.1 J             | 360 U           | 360 U            | 360 U               |
| Dimethylphthalate            | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Fluoranthene                 | UG/KG                    | 39 U             | 180          | 110 J         | 7.4 J          | 10 J           | 8.7 J             | 8200 J          | 5100 J           | 6650 J              |
| Fluorene                     | UG/KG                    | 39 U             | 8 J          | 24 J          | 72 U           | 71 U           | 72 U              | 650             | 690              | 670                 |
| Hexachlorobenzene            | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Hexachlorobutadiene          | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Hexachlorocyclopentadien     | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Hexachloroethane             | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Indeno(1,2,3-cd)pyrene       | UG/KG                    | 39 U             | 41 J         | 40 J          | 72 U           | 71 U           | 72 U              | 760             | 330 J            | 545 J               |
| Isophorone                   | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| N-Nitrosodiphenylamine       | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| N-Nitrosodipropylamine       | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Naphthalene                  | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 100 J           | 82 J             | 91 J                |
| Nitrobenzene                 | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Pentachlorophenol            | UG/KG                    | 190 UJ           | 180 U        | 185 UJ        | 170 U          | 170 U          | 170 U             | 900 U           | 900 U            | 900 U               |
| Phenanthrene                 | UG/KG                    |                  | 96           | 68 J          | 8.8 J          | 7.6 J          | 8.2 J             | 4400 J          | 4000 J           | 4200 J              |
| Phenol                       | UG/KG                    | 78 U             | 73 U         | 76 U          | 72 U           | 71 U           | 72 U              | 360 U           | 360 U            | 360 U               |
| Pyrene                       | UG/KG                    | 39 U             | 170          | 105 J         | 8.3 J          | 14 J           | 11 J              | 12000 J         | 5300 J           | 8650 J              |
| Pesticides/PCBs              | HCWC                     | 20.11            | 2711         | 3.8 U         | 3.6 U          | 3.5 U          | 3.6 U             | 0.9 UJ          | 6 J              | 3 J                 |
| 4,4'-DDD<br>4.4'-DDE         | UG/KG<br>UG/KG           | 3.9 U<br>1.95 U  | 3.7 U<br>29  | 3.8 U<br>15 J | 3.8            | 3.3 U<br>4.5   | 4.2               | 1.8 UJ          | 41 R             | 1.8 UJ              |
| 4,4'-DDE<br>4,4'-DDT         | UG/KG<br>UG/KG           | 1.95 U<br>1.95 U | 29<br>35     | 15 J<br>18 J  | 3.8<br>1.9 J   | 4.5<br>2.3 J   | 4.2<br>2.1 J      | 1.8 UJ<br>19 J  | 41 K<br>21 J     | 1.8 UJ<br>20 J      |
|                              |                          |                  |              |               |                |                |                   | 9.9 J           |                  |                     |
| Aldrin                       | UG/KG<br>UG/KG           | 2 U<br>2 U       | 1.8 U<br>2 R | 1.9 U<br>2 U  | 1.8 U          | 1.8 U          | 1.8 U<br>1.8 U    | 9.9 J<br>1.8 UJ | 19 NJ<br>1.8 UJ  | 14 J                |
| Alpha-BHC<br>Alpha-Chlordane | UG/KG                    | 2 U              | 1.8 U        | 1.9 U         | 1.8 U<br>1.8 U | 1.8 U<br>1.8 U | 1.8 U             | 63 J            | 71 R             | 1.8 UJ<br>63 J      |
| Beta-BHC                     | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ          | 1.8 UJ           | 1.8 UJ              |
| Chlordane                    | UG/KG                    | 2 0              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ<br>18 U  | 1.8 UJ<br>18 U   | 1.8 UJ<br>18 U      |
| Delta-BHC                    | UG/KG                    | 1 U              | 0.95 J       | 0.98 J        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ          | 1.8 UJ           | 1.8 UJ              |
| Dieldrin                     | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 41 J            | 32 R             | 41 J                |
| Endosulfan I                 | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 65              | 69 J             | 67 J                |
| Endosulfan II                | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 1.8 U           | 1.8 U            | 1.8 U               |
| Endosulfan sulfate           | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 1.8 U           | 1.8 U            | 1.8 U               |
| Endrin                       | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 17 J            | 26 J             | 22 J                |
| Endrin aldehyde              | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 1.8 U           | 1.8 U            | 1.8 U               |
| Endrin ketone                | UG/KG                    | 3.9 U            | 3.7 UJ       | 3.8 UJ        | 3.6 U          | 3.5 U          | 3.6 U             | 7.5 J           | 1.8 U<br>10 R    | 7.5 J               |
| Gamma-BHC/Lindane            | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ          | 1.8 UJ           | 1.8 UJ              |
| Gamma-Chlordane              | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ          | 1.8 UJ           | 1.8 UJ              |
| Heptachlor                   | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 1.8 UJ          | 1.8 UJ           | 1.8 UJ              |
| Heptachlor epoxide           | UG/KG                    | 2 U              | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U          | 1.8 U             | 20 R            | 1.8 UJ           | 1.8 UJ              |
| Methoxychlor                 | UG/KG                    | 20 U             | 1.8 UJ       | 1.9 UJ        | 1.8 U          | 1.8 U<br>18 U  | 1.8 U<br>18 U     | 1.8 U           | 1.8 U            | 1.8 U               |
| Toxaphene                    | UG/KG                    | 200 U            | 180 UJ       | 19 UJ         | 180 U          | 180 U          | 180 U             | 18 U            | 1.8 U            | 1.8 U               |
| Aroclor-1016                 | UG/KG                    | 200 U            | 37 UJ        | 38 UJ         | 36 U           | 35 U           | 36 U              | 18 UJ           | 18 UJ            | 18 UJ               |
| A10C101-1010                 | UG/KG                    | 39 0             | 37 03        | 36 UJ         | 30 0           | 33 0           | 30 0              | I 10 UJ         | 18 03            | 18 UJ               |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Eilia-           | SEAD-121C | SEAD 121C | SEAD 121C   | SEAD-121C | SEAD 121C | SEAD 121C        | SEAD-121C  | SEAD 121C  | CEAD 121C           |
|------------------------------|------------------|-----------|-----------|-------------|-----------|-----------|------------------|------------|------------|---------------------|
|                              |                  |           | SEAD-121C | SEAD-121C   | SB121C-4  | SEAD-121C | SEAD-121C        |            | SEAD-121C  | SEAD-121C           |
|                              | Location ID      |           | SB121C-1  | SB121C-1    |           | SB121C-4  | SB121C-4<br>SOIL | SBDRMO-16  | SBDRMO-16  | SBDRMO-16           |
|                              | Matrix           |           | SOIL      | SOIL        | SOIL      | SOIL      |                  | SOIL       | SOIL       | SOIL DDMG 1000      |
|                              | Sample ID        |           | EB014     | EB231/EB014 | EB020     | EB229     | EB229/EB020      | DRMO-1074  | DRMO-1080  | DRMO-1074/DRMO-1080 |
|                              | to Top of Sample |           | 0         | 0           | 0         | 0         | 0                | 0          | 0          | 0                   |
| Sample Depth to E            |                  |           | 0.2       | 0.2         | 0.2       | 0.2       | 0.2              | 2          | 2          | 2                   |
|                              | Sample Date      |           | 3/9/1998  | 3/9/1998    | 3/9/1998  | 3/9/1998  | 3/9/1998         | 10/27/2002 | 10/27/2002 | 10/27/2002          |
|                              | QC Code          |           | SA        | SA/DU       | SA        | SA        | SA/DU            | SA         | SA         | SA/DU               |
|                              | Investigation    | EBS       | EBS       | EBS         | EBS       | EBS       | EBS              | PID-RI     | PID-RI     | PID-RI              |
| Parameter                    | Units            | Value (Q) | Value (Q) | Value (Q)   | Value (Q) | Value (Q) | Value (Q)        | Value (Q)  | Value (Q)  | Value (Q)           |
| Aroclor-1221                 | UG/KG            | 79 U      | 74 UJ     | 77 UJ       | 73 U      | 72 U      | 73 U             | 18 U       | 18 U       | 18 U                |
| Aroclor-1232                 | UG/KG            | 39 U      | 37 UJ     | 38 UJ       | 36 U      | 35 U      | 36 U             | 18 UJ      | 18 UJ      | 18 UJ               |
| Aroclor-1242                 | UG/KG            | 39 U      | 37 UJ     | 38 UJ       | 36 U      | 35 U      | 36 U             | 18 UJ      | 18 UJ      | 18 UJ               |
| Aroclor-1248                 | UG/KG            | 39 U      | 37 UJ     | 38 UJ       | 36 U      | 35 U      | 36 U             | 18 U       | 18 U       | 18 U                |
| Aroclor-1254                 | UG/KG            | 39 U      | 37 UJ     | 38 UJ       | 36 U      | 35 U      | 36 U             | 18 UJ      | 18 UJ      | 18 UJ               |
| Aroclor-1260                 | UG/KG            | 19.5 U    | 30 J      | 25 J        | 36 U      | 35 U      | 36 U             | 22 J       | 35 J       | 29 Ј                |
| Metals and Cyanide           |                  |           |           |             |           |           |                  |            |            |                     |
| Aluminum                     | MG/KG            | 12800     | 14500     | 13650       | 14400     | 13000     | 13700            | 3100       | 3760       | 3430                |
| Antimony                     | MG/KG            | 1.1 J     | 19.3 J    | 10.2 J      | 1.7 J     | 0.81 J    | 1.3 J            | 0.49 U     | 0.99       | 0.74 J              |
| Arsenic                      | MG/KG            | 5.5       | 6.1       | 5.8         | 5         | 3.7       | 4.4              | 4.8        | 5.5        | 5.2                 |
| Barium                       | MG/KG            | 64.9      | 1600      | 832         | 86.6      | 69.6      | 78.1             | 42         | 45.6       | 44                  |
| Beryllium                    | MG/KG            | 0.52      | 0.4       | 0.5         | 0.57      | 0.49      | 0.53             | 0.26 J     | 0.32 J     | 0.29 J              |
| Cadmium                      | MG/KG            | 0.035 U   | 2.7       | 1.4 J       | 0.07 U    | 0.05 U    | 0.06 U           | 0.56       | 0.49 J     | 0.53 J              |
| Calcium                      | MG/KG            | 2580      | 31300     | 16940       | 17200     | 25500     | 21350            | 199000     | 157000     | 178000              |
| Chromium                     | MG/KG<br>MG/KG   |           |           |             |           |           |                  |            |            |                     |
|                              |                  | 20.9      | 32.9      | 26.9        | 27.8      | 22.6      | 25.2             | 13         | 13.8       | 13                  |
| Cobalt                       | MG/KG            | 12.8      | 16.5      | 14.7        | 17.6      | 12.5      | 15.1             | 5.9        | 6.1        | 6.0                 |
| Copper                       | MG/KG            | 19.7 J    | 7690      | 3855 J      | 39.1 J    | 33 J      | 36 J             | 28.8       | 34.3       | 31.6                |
| Cyanide                      | MG/KG            | 0.63 U    | 0.59 U    | 0.61 U      | 0.56 U    | 0.61 U    | 0.59 U           |            |            |                     |
| Cyanide, Amenable            | MG/KG            |           |           |             |           |           |                  | 0.54 U     | 0.55 U     | 0.55 U              |
| Cyanide, Total               | MG/KG            |           |           |             |           |           |                  | 0.542 U    | 0.545 U    | 0.544 U             |
| Iron                         | MG/KG            | 25700     | 41100     | 33400       | 32000     | 25900     | 28950            | 8710       | 10500      | 9605                |
| Lead                         | MG/KG            | 11.8 J    | 5280      | 2646 J      | 27.1      | 23.5 J    | 25.3 J           | 89.3       | 94.5       | 91.9                |
| Magnesium                    | MG/KG            | 4590      | 6820      | 5705        | 6980      | 5630      | 6305             | 17900      | 13000      | 15450               |
| Manganese                    | MG/KG            | 598       | 612       | 605         | 413       | 359       | 386              | 425        | 390        | 408                 |
| Mercury                      | MG/KG            | 0.06 U    | 0.05 U    | 0.06 U      | 0.04 U    | 0.04 U    | 0.04 U           | 0.07       | 0.07       | 0.07                |
| Nickel                       | MG/KG            | 40.5      | 54.2 J    | 47.4 J      | 61.8      | 49.3      | 55.6             | 19.4 J     | 22.1 J     | 20.8 J              |
| Potassium                    | MG/KG            | 1600      | 1840      | 1720        | 1980      | 1450      | 1715             | 934 J      | 882 J      | 908 J               |
| Selenium                     | MG/KG            | 1.1 U     | 0.92 UJ   | 1.0 UJ      | 1 U       | 0.8 U     | 0.9 U            | 0.46 U     | 0.45 U     | 0.46 U              |
| Silver                       | MG/KG            | 0.48 U    | 0.41 U    | 0.45 U      | 0.46 U    | 0.36 U    | 0.41 U           | 0.29 U     | 0.29 U     | 0.29 U              |
| Sodium                       | MG/KG            | 69.5 U    | 606       | 338 J       | 66 U      | 110       | 88 J             | 276        | 232        | 254                 |
| Thallium                     | MG/KG            | 1.4 UJ    | 1.2 U     | 1.3 UJ      | 1.4 J     | 0.55 UJ   | 0.98 J           | 0.34 U     | 0.33 U     | 0.34 U              |
| Vanadium                     | MG/KG            | 20.8      | 19.5 J    | 20.2 J      | 21        | 17        | 19               | 11 J       | 10.7 J     | 11 J                |
| Zinc                         | MG/KG            | 80.3      | 1280      | 680         | 153       | 196       | 175              | 130 J      | 135 J      | 133 J               |
| Other                        |                  |           |           |             |           |           |                  |            |            |                     |
| Total Organic Carbon         | MG/KG            |           |           |             |           |           |                  | 5200       | 5300       | 5250                |
| Total Petroleum Hydrocarbons | MG/KG            |           |           |             | 1         |           |                  | 2800 J     | 6200 J     | 4500 J              |
|                              |                  |           |           |             | 1         |           |                  |            | ~=~~ *     |                     |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "U" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "U" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

|   | Facility       | SEAD-121C        | SEAD-121C        | SEAD-121C           | SEAD-121C        | SEAD-121C       | SEAD-121C           |
|---|----------------|------------------|------------------|---------------------|------------------|-----------------|---------------------|
|   | Location ID    | SBDRMO-6         | SBDRMO-6         | SBDRMO-6            | SSDRMO-7         | SSDRMO-7        | SSDRMO-7            |
|   | Matrix         | SOIL             | SOIL             | SOIL                | SOIL             | SOIL            | SOIL                |
|   | Sample ID      | DRMO-1043        | DRMO-1050        | DRMO-1043/DRMO-1050 | DRMO-1002        | DRMO-1003       | DRMO-1002/DRMO-1003 |
| Sample Depth to                               | Top of Sample  | 0                | 0                | 0                   | 0                | 0               | 0                   |
| Sample Depth to Bo                            | ttom of Sample | 2                | 2                | 2                   | 0.2              | 0.2             | 0.2                 |
| • •   | Sample Date    | 10/25/2002       | 10/25/2002       | 10/25/2002          | 10/24/2002       | 10/24/2002      | 10/24/2002          |
|   | QC Code        | SA               | SA               | SA/DU               | SA               | SA              | SA/DU               |
|   | Investigation  | PID-RI           | PID-RI           | PID-RI              | PID-RI           | PID-RI          | PID-RI              |
|   |                |                  |                  |                     |                  |                 |                     |
| Parameter                                     | Units          | Value (Q)        | Value (Q)        | Value (Q)           | Value (Q)        | Value (Q)       | Value (Q)           |
| Volatile Organic Compounds                    |                |                  |                  |                     |                  |                 |                     |
| 1,1,1-Trichloroethane                         | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,1,2,2-Tetrachloroethane                     | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,1,2-Trichloroethane                         | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,1-Dichloroethane                            | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,1-Dichloroethene                            | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,2-Dichloroethane                            | UG/KG          | 2.6 UJ           | 2.7 UJ           | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| 1,2-Dichloroethene (total)                    | UG/KG          |                  |                  |                     |                  |                 |                     |
| 1,2-Dichloropropane                           | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Acetone                                       | UG/KG          | 2.6 UJ           | 4.6 U            | 3.6 UJ              | 3.1 UJ           | 2.9 R           | 3.1 UJ              |
| Benzene                                       | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Bromodichloromethane                          | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Bromoform                                     | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Carbon disulfide                              | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Carbon tetrachloride                          | UG/KG          | 2.6 UJ           | 2.7 UJ           | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Chlorobenzene                                 | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Chlorodibromomethane                          | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Chloroethane                                  | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Chloroform                                    | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Cis-1,2-Dichloroethene                        | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Cis-1,3-Dichloropropene                       | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Ethyl benzene                                 | UG/KG          | 0.66 J           | 1.35 U           | 1.0 J               | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Meta/Para Xylene                              | UG/KG          | 4.1 J            | 1.35 U           | 2.7 J               | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Methyl bromide                                | UG/KG          | 2.6 UJ           | 2.7 UJ           | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Methyl butyl ketone                           | UG/KG          | 2.6 UJ           | 2.7 UJ           | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Methyl chloride                               | UG/KG<br>UG/KG | 2.6 UJ<br>2.6 UJ | 2.7 UJ<br>2.7 UJ | 2.7 UJ<br>2.7 UJ    | 3.1 UJ<br>3.1 UJ | 2.9 U<br>2.9 UJ | 3.0 UJ<br>3.0 UJ    |
| Methyl ethyl ketone<br>Methyl isobutyl ketone | UG/KG<br>UG/KG | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ<br>3.1 UJ | 2.9 U           | 3.0 UJ              |
| Methylene chloride                            | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           |                 | 2.4 UJ              |
|   | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ<br>3.1 UJ | 1.7 U<br>2.9 U  | 2.4 UJ<br>3.0 UJ    |
| Ortho Xylene<br>Styrene                       | UG/KG<br>UG/KG | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ<br>3.1 UJ | 2.9 U           | 3.0 UJ              |
| Tetrachloroethene                             | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ<br>3.1 UJ | 2.9 U           | 3.0 UJ              |
| Toluene                                       | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Total Xylenes                                 | UG/KG          | 2.0 03           | 2.7 0            | 2.7 03              | 3.1 03           | 2.9 0           | 3.0 03              |
| Trans-1,2-Dichloroethene                      | UG/KG<br>UG/KG | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Trans-1,3-Dichloropropene                     | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Trichloroethene                               | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ<br>3.1 UJ | 2.9 U           | 3.0 UJ              |
| Vinyl chloride                                | UG/KG          | 2.6 UJ           | 2.7 U            | 2.7 UJ              | 3.1 UJ           | 2.9 U           | 3.0 UJ              |
| Semivolatile Organic Compounds                |                | 2.0 03           | 2.7 0            | 2.7 03              | 5.1 03           | 2.9 0           | 3.0 03              |
| 1,2,4-Trichlorobenzene                        | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U            | 380 U           | 380 U               |
| 1,2-Dichlorobenzene                           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U            | 380 U           | 380 U               |
| 1.3-Dichlorobenzene                           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U            | 380 U           | 380 U               |
| 1.4-Dichlorobenzene                           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U            | 380 U           | 380 U               |
| 1,4-Dichiologenzene                           | UU/KU          | 340 U            | 330 U            | 343 0               | 360 U            | 300 U           | 360 0               |

|                             | Facility                 | SEAD-121C             | SEAD-121C      | SEAD-121C           | SEAD-121C             | SEAD-121C             | SEAD-121C             |
|-----------------------------|--------------------------|-----------------------|----------------|---------------------|-----------------------|-----------------------|-----------------------|
|                             | Location ID              | SEAD-121C<br>SBDRMO-6 | SBDRMO-6       | SBDRMO-6            | SEAD-121C<br>SSDRMO-7 | SEAD-121C<br>SSDRMO-7 | SEAD-121C<br>SSDRMO-7 |
|                             | Location ID<br>Matrix    | SOIL                  | SOIL           | SOIL                | SOIL                  | SOIL                  | SOIL                  |
|                             |                          | DRMO-1043             | DRMO-1050      | DRMO-1043/DRMO-1050 | DRMO-1002             | DRMO-1003             | DRMO-1002/DRMO-1003   |
| 6 15 1.                     | Sample ID                | DKMO-1043<br>0        | DKMO-1050<br>0 |                     | DRMO-1002<br>0        | DRMO-1003<br>0        | DRMO-1002/DRMO-1003   |
| Sample Depth to             |                          | 2                     | 2              | 0<br>2              | 0.2                   | 0.2                   | 0.2                   |
| Sample Depth to Bot         |                          | 10/25/2002            | 10/25/2002     | 10/25/2002          | 10/24/2002            | 10/24/2002            | 10/24/2002            |
|                             | Sample Date              | 10/25/2002<br>SA      |                | 10/25/2002<br>SA/DU |                       | 10/24/2002<br>SA      | 10/24/2002<br>SA/DU   |
|                             | QC Code<br>Investigation | PID-RI                | SA<br>PID-RI   | PID-RI              | SA<br>PID-RI          | PID-RI                | PID-RI                |
|                             | investigation            | PID-KI                | PID-KI         | PID-RI              | PID-KI                | PID-KI                | PID-KI                |
| Parameter                   | Units                    | Value (Q)             | Value (Q)      | Value (Q)           | Value (Q)             | Value (Q)             | Value (Q)             |
| 2,4,5-Trichlorophenol       | UG/KG                    | 870 U                 | 880 U          | 875 U               | 960 U                 | 950 U                 | 955 U                 |
| 2,4,6-Trichlorophenol       | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2,4-Dichlorophenol          | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2,4-Dimethylphenol          | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2,4-Dinitrophenol           | UG/KG                    | 870 R                 | 880 UJ         | 880 UJ              | 960 U                 | 950 U                 | 955 U                 |
| 2,4-Dinitrotoluene          | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2,6-Dinitrotoluene          | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2-Chloronaphthalene         | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2-Chlorophenol              | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2-Methylnaphthalene         | UG/KG                    | 340 U                 | 350 U          | 345 U               | 140 J                 | 110 J                 | 125 J                 |
| 2-Methylphenol              | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 2-Nitroaniline              | UG/KG                    | 870 UJ                | 880 U          | 875 UJ              | 960 U                 | 950 U                 | 955 U                 |
| 2-Nitrophenol               | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 3 or 4-Methylphenol         | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 3.3'-Dichlorobenzidine      | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 380 UJ                | 380 UJ                | 380 UJ                |
| 3-Nitroaniline              | UG/KG                    | 870 U                 | 880 U          | 875 U               | 960 U                 | 950 U                 | 955 U                 |
| 4,6-Dinitro-2-methylphenol  | UG/KG                    | 870 UJ                | 880 UJ         | 875 UJ              | 960 U                 | 950 U                 | 955 U                 |
| 4-Bromophenyl phenyl ether  | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 4-Chloro-3-methylphenol     | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 4-Chloroaniline             | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 4-Chlorophenyl phenyl ether | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| 4-Methylphenol              | UG/KG                    |                       |                |                     |                       |                       |                       |
| 4-Nitroaniline              | UG/KG                    | 870 U                 | 880 U          | 875 U               | 960 U                 | 950 U                 | 955 U                 |
| 4-Nitrophenol               | UG/KG                    | 870 UJ                | 880 U          | 875 UJ              | 960 U                 | 950 U                 | 955 U                 |
| Acenaphthene                | UG/KG                    | 340 U                 | 350 U          | 345 U               | 310 J                 | 190 J                 | 250 J                 |
| Acenaphthylene              | UG/KG                    | 340 U                 | 350 U          | 345 U               | 1000                  | 810                   | 905                   |
| Anthracene                  | UG/KG                    | 340 U                 | 350 U          | 345 U               | 1600                  | 850                   | 1225                  |
| Benzo(a)anthracene          | UG/KG                    | 340 U                 | 350 UJ         | 345 UJ              | 6700 J                | 3900 J                | 5300 J                |
| Benzo(a)pyrene              | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 7600 J                | 5000 J                | 6300 J                |
| Benzo(b)fluoranthene        | UG/KG                    | 50 J                  | 175 UJ         | 113 J               | 11000 J               | 6600 J                | 8800 J                |
| Benzo(ghi)perylene          | UG/KG                    | 110 J                 | 57 J           | 84 J                | 3800 J                | 2500 J                | 3150 J                |
| Benzo(k)fluoranthene        | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 4900 J                | 3100 J                | 4000 J                |
| Bis(2-Chloroethoxy)methane  | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| Bis(2-Chloroethyl)ether     | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| Bis(2-Chloroisopropyl)ether | UG/KG                    | 340 U                 | 350 U          | 345 U               | 380 U                 | 380 U                 | 380 U                 |
| Bis(2-Ethylhexyl)phthalate  | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 200 J                 | 97 J                  | 149 J                 |
| Butylbenzylphthalate        | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 380 UJ                | 380 UJ                | 380 UJ                |
| Carbazole                   | UG/KG                    | 340 U                 | 350 U          | 345 U               | 910                   | 550                   | 730                   |
| Chrysene                    | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 6800 J                | 4300 J                | 5550 J                |
| Di-n-butylphthalate         | UG/KG                    | 340 U                 | 350 U          | 345 U               | 190 U                 | 73 J                  | 132 J                 |
| Di-n-octylphthalate         | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 380 UJ                | 380 UJ                | 380 UJ                |
| Dibenz(a,h)anthracene       | UG/KG                    | 340 UJ                | 350 UJ         | 345 UJ              | 570 J                 | 370 J                 | 470 J                 |
| Dibenzofuran                | UG/KG                    | 340 U                 | 350 U          | 345 U               | 330 J                 | 160 J                 | 245 J                 |
|                             |                          |                       |                |                     |                       |                       |                       |

|                             | Facility       | SEAD-121C        | SEAD-121C        | SEAD-121C           | SEAD-121C    | SEAD-121C        | SEAD-121C           |
|-----------------------------|----------------|------------------|------------------|---------------------|--------------|------------------|---------------------|
|                             |                |                  |                  |                     |              |                  |                     |
|                             | Location ID    | SBDRMO-6<br>SOIL | SBDRMO-6<br>SOIL | SBDRMO-6            | SSDRMO-7     | SSDRMO-7         | SSDRMO-7            |
|                             | Matrix         |                  |                  | SOIL                | SOIL         | SOIL             | SOIL                |
|                             | Sample ID      | DRMO-1043        | DRMO-1050        | DRMO-1043/DRMO-1050 | DRMO-1002    | DRMO-1003        | DRMO-1002/DRMO-1003 |
| Sample Depth to             |                | 0                | 0                | 0                   | 0            | 0                | 0                   |
| Sample Depth to Bo          |                | 2                | 2                | 2                   | 0.2          | 0.2              | 0.2                 |
|                             | Sample Date    | 10/25/2002       | 10/25/2002       | 10/25/2002          | 10/24/2002   | 10/24/2002       | 10/24/2002          |
|                             | QC Code        | SA               | SA               | SA/DU               | SA           | SA               | SA/DU               |
|                             | Investigation  | PID-RI           | PID-RI           | PID-RI              | PID-RI       | PID-RI           | PID-RI              |
| Parameter                   | Units          | Value (Q)        | Value (Q)        | Value (Q)           | Value (Q)    | Value (Q)        | Value (Q)           |
| Diethyl phthalate           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| Dimethylphthalate           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| Fluoranthene                | UG/KG          | 53 J             | 38 J             | 46 J                | 15000        | 8800             | 11900               |
| Fluorene                    | UG/KG          | 340 U            | 350 U            | 345 U               | 1000         | 560              | 780                 |
| Hexachlorobenzene           | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| Hexachlorobutadiene         | UG/KG          | 340 U            | 350 U            | 345 U               | 380 UJ       | 380 UJ           | 380 UJ              |
| Hexachlorocyclopentadiene   | UG/KG          | 340 UJ           | 350 UJ           | 345 UJ              | 380 U        | 380 U            | 380 U               |
| Hexachloroethane            | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| Indeno(1,2,3-cd)pyrene      | UG/KG          | 60 J             | 175 UJ           | 118 J               | 1100 J       | 840 J            | 970 J               |
| Isophorone                  | UG/KG          | 340 U            | 350 U            | 345 U               | 380 UJ       | 380 UJ           | 380 UJ              |
| N-Nitrosodiphenylamine      | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| N-Nitrosodipropylamine      | UG/KG          | 340 UJ           | 350 U            | 345 UJ              | 380 U        | 380 U            | 380 U               |
| Naphthalene                 | UG/KG          | 340 U            | 350 U            | 345 U               | 97 J         | 74 J             | 86 J                |
| Nitrobenzene                | UG/KG          | 340 U            | 350 U            | 345 U               | 380 UJ       | 380 UJ           | 380 UJ              |
| Pentachlorophenol           | UG/KG          | 870 U            | 880 U            | 875 U               | 960 U        | 950 U            | 955 U               |
| Phenanthrene                | UG/KG          | 340 U            | 350 U            | 345 U               | 13000        | 7600             | 10300               |
| Phenol                      | UG/KG          | 340 U            | 350 U            | 345 U               | 380 U        | 380 U            | 380 U               |
| Pyrene                      | UG/KG          | 130 J            | 78 J             | 104 J               | 24000 J      | 14000 J          | 19000 J             |
| Pesticides/PCBs             | OG/KG          | 130 3            | 783              | 104 3               | 24000 J      | 14000 3          | 19000 3             |
| 4.4'-DDD                    | UG/KG          | 1.8 R            | 1.8 UJ           | 1.8 UJ              | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| 4,4'-DDE                    | UG/KG          | 6.1 J            | 6.3 J            | 6.2 J               | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| 4,4'-DDE<br>4,4'-DDT        | UG/KG          | 1.8 UJ           | 1.8 UJ           | 1.8 UJ              | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| Aldrin                      | UG/KG          | 1.8 UJ           | 1.8 UJ           | 1.8 UJ              | 2 U          | 1.9 U            | 2.0 U               |
|                             |                | 1.8 UJ           | 1.8 UJ<br>1.8 UJ | 1.8 UJ              | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| Alpha-BHC                   | UG/KG<br>UG/KG | 1.8 UJ<br>6.1 J  | 1.8 UJ<br>4.7 J  | 1.8 UJ<br>5.4 J     | 2 UJ<br>2 UJ |                  | 2.0 UJ<br>2.0 UJ    |
| Alpha-Chlordane<br>Beta-BHC | UG/KG<br>UG/KG | 1.8 U            | 4.7 J<br>1.8 UJ  |                     | 2 UJ         | 1.9 UJ<br>1.9 UJ | 2.0 UJ              |
| Chlordane                   |                | 1.8 U<br>18 U    | 1.8 UJ<br>18 U   | 1.8 UJ              | 2 UJ<br>20 U | 1.9 UJ<br>19 U   |                     |
|                             | UG/KG          |                  |                  | 18 U                |              |                  | 20 U                |
| Delta-BHC                   | UG/KG          | 1.8 UJ           | 1.8 UJ           | 1.8 UJ              | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| Dieldrin                    | UG/KG          | 1.8 UJ           | 1.8 UJ           | 1.8 UJ              | 2 UJ         | 1.9 UJ           | 2.0 UJ              |
| Endosulfan I                | UG/KG          | 6.1              | 5.4              | 5.8                 | 190 J        | 180 J            | 185 J               |
| Endosulfan II               | UG/KG          | 1.8 U            | 1.8 U            | 1.8 U               | 2 U          | 1.9 U            | 2.0 U               |
| Endosulfan sulfate          | UG/KG          | 1.8 U            | 1.8 U            | 1.8 U               | 2 U          | 1.9 U            | 2.0 U               |
| Endrin                      | UG/KG          | 1.8 UJ           | 1.8 U            | 1.8 UJ              | 2 U          | 1.9 UJ           | 2.0 UJ              |
| Endrin aldehyde             | UG/KG          | 1.8 U            | 1.8 U            | 1.8 U               | 2 U          | 1.9 UJ           | 2.0 UJ              |
| Endrin ketone               | UG/KG          | 1.8 U            | 1.8 U            | 1.8 U               | 2 U          | 1.9 U            | 2.0 U               |
| Gamma-BHC/Lindane           | UG/KG          | 1.8 UJ           | 1.8 UJ           | 1.8 UJ              | 2 U          | 1.9 U            | 2.0 U               |
| Gamma-Chlordane             | UG/KG          | 1.8 U            | 1.8 UJ           | 1.8 UJ              | 2 U          | 1.9 UJ           | 2.0 UJ              |
| Heptachlor                  | UG/KG          | 1.8 U            | 1.8 UJ           | 1.8 UJ              | 2 U          | 1.9 U            | 2.0 U               |
| Heptachlor epoxide          | UG/KG          | 1.8 U            | 1.8 UJ           | 1.8 UJ              | 2 U          | 1.9 UJ           | 2.0 UJ              |
| Methoxychlor                | UG/KG          | 1.8 UJ           | 1.8 U            | 1.8 UJ              | 2 U          | 1.9 UJ           | 2.0 UJ              |
| Toxaphene                   | UG/KG          | 18 U             | 18 U             | 18 U                | 20 U         | 19 U             | 20 U                |
| Aroclor-1016                | UG/KG          | 18 U             | 18 U             | 18 U                | 20 U         | 19 U             | 20 U                |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility      | SEAD-121C  | SEAD-121C  | SEAD-121C           | SEAD-121C  | SEAD-121C  | SEAD-121C           |
|------------------------------|---------------|------------|------------|---------------------|------------|------------|---------------------|
|                              | Location ID   | SBDRMO-6   | SBDRMO-6   | SBDRMO-6            | SSDRMO-7   | SSDRMO-7   | SSDRMO-7            |
|                              | Matrix        | SOIL       | SOIL       | SOIL                | SOIL       | SOIL       | SOIL                |
|                              | Sample ID     | DRMO-1043  | DRMO-1050  | DRMO-1043/DRMO-1050 | DRMO-1002  | DRMO-1003  | DRMO-1002/DRMO-1003 |
| Sample Depth to              | Top of Sample | 0          | 0          | 0                   | 0          | 0          | 0                   |
| Sample Depth to Bot          | tom of Sample | 2          | 2          | 2                   | 0.2        | 0.2        | 0.2                 |
|                              | Sample Date   | 10/25/2002 | 10/25/2002 | 10/25/2002          | 10/24/2002 | 10/24/2002 | 10/24/2002          |
|                              | QC Code       | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
|                              | Investigation | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
|                              |               |            |            |                     |            |            |                     |
| Parameter                    | Units         | Value (Q)  | Value (Q)  | Value (Q)           | Value (Q)  | Value (Q)  | Value (Q)           |
| Aroclor-1221                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 U       | 19 U       | 20 U                |
| Aroclor-1232                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 U       | 19 U       | 20 U                |
| Aroclor-1242                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 U       | 19 U       | 20 U                |
| Aroclor-1248                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 U       | 19 U       | 20 U                |
| Aroclor-1254                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 UJ      | 19 UJ      | 20 UJ               |
| Aroclor-1260                 | UG/KG         | 18 U       | 18 U       | 18 U                | 20 UJ      | 19 UJ      | 20 UJ               |
| Metals and Cyanide           |               |            |            |                     |            |            |                     |
| Aluminum                     | MG/KG         | 8030       | 11100      | 9565                | 7420       | 8280       | 7850                |
| Antimony                     | MG/KG         | 1.5        | 0.48 U     | 0.99 J              | 3.2 J      | 1.4 J      | 2.3 J               |
| Arsenic                      | MG/KG         | 3.7        | 4.7        | 4.2                 | 6.2        | 5.4        | 5.8                 |
| Barium                       | MG/KG         | 37.9 J     | 66.7 J     | 52.3 J              | 80.9 J     | 84.5 J     | 82.7 J              |
| Beryllium                    | MG/KG         | 0.44 J     | 0.6        | 0.52 J              | 0.5        | 0.53       | 0.5                 |
| Cadmium                      | MG/KG         | 0.2 J      | 0.065 U    | 0.1 J               | 0.57       | 0.44       | 0.51                |
| Calcium                      | MG/KG         | 36500 J    | 41400 J    | 38950 J             | 63600 J    | 61200 J    | 62400 J             |
| Chromium                     | MG/KG         | 38.8       | 38.6       | 38.7                | 17.6 J     | 18.8 J     | 18.2 J              |
| Cobalt                       | MG/KG         | 9.5        | 14.2       | 12                  | 8.6 R      | 8.7 R      |                     |
| Copper                       | MG/KG         | 34.6 J     | 39.6 J     | 37.1 J              | 39.8 J     | 32.8 J     | 36.3 J              |
| Cyanide                      | MG/KG         |            |            |                     |            |            |                     |
| Cyanide, Amenable            | MG/KG         | 0.52 U     | 0.53 U     | 0.53 U              | 0.58 U     | 0.57 U     | 0.58 U              |
| Cyanide, Total               | MG/KG         | 0.525 U    | 0.535 U    | 0.53 U              | 0.582 U    | 0.575 U    | 0.579 U             |
| Iron                         | MG/KG         | 18300      | 24200      | 21250               | 18500      | 18700      | 18600               |
| Lead                         | MG/KG         | 66.9       | 56.3       | 61.6                | 117        | 93.8       | 105                 |
| Magnesium                    | MG/KG         | 5080       | 6940       | 6010                | 12700      | 6180       | 9440                |
| Manganese                    | MG/KG         | 348        | 376        | 362                 | 480        | 553        | 517                 |
| Mercury                      | MG/KG         | 0.04       | 0.03       | 0.04                | 0.07       | 0.06       | 0.07                |
| Nickel                       | MG/KG         | 31.8 J     | 44.4 J     | 38.1 J              | 22.4 J     | 23.5 J     | 23.0 J              |
| Potassium                    | MG/KG         | 1220 J     | 1770 J     | 1495 J              | 862 J      | 712 J      | 787 J               |
| Selenium                     | MG/KG         | 0.44 U     | 0.45 U     | 0.445 U             | 0.49 U     | 0.47 U     | 0.48 U              |
| Silver                       | MG/KG         | 0.28 U     | 0.29 U     | 0.29 U              | 0.31 U     | 0.3 U      | 0.3 U               |
| Sodium                       | MG/KG         | 223        | 277        | 250                 | 191        | 194        | 193                 |
| Thallium                     | MG/KG         | 0.33 U     | 0.33 U     | 0.33 U              | 0.36 U     | 0.35 U     | 0.36 U              |
| Vanadium                     | MG/KG         | 12.9       | 17.9       | 15.4                | 15.3 J     | 14.4 J     | 14.9 J              |
| Zinc                         | MG/KG         | 123        | 196        | 160                 | 107 J      | 96.8 J     | 102 J               |
| Other                        | l             |            |            | l                   |            |            |                     |
| Total Organic Carbon         | MG/KG         | 3300       | 8500       | 5900                | 5800       | 6000       | 5900                |
| Total Petroleum Hydrocarbons | MG/KG         | 42 UJ      | 43 UJ      | 43 UJ               | 190        | 46 U       | 118 J               |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

|                            | Facility      | SEAD-121C | SEAD-121C | SEAD-121C           |
|----------------------------|---------------|-----------|-----------|---------------------|
|                            | Location ID   | SDDRMO-8  | SDDRMO-8  | SDDRMO-8            |
|                            | Matrix        | DITCHSOIL | DITCHSOIL | DITCHSOIL           |
|                            | Sample ID     | DRMO-4005 | DRMO-4008 | DRMO-4008/DRMO-4005 |
| Sample Depth to            | Top of Sample | 0         | 0         | 0                   |
| Sample Depth to Bot        | tom of Sample | 2         | 2         | 2                   |
|                            | Sample Date   | 11/5/2002 | 11/5/2002 | 11/5/2002           |
|                            | QC Code       | SA        | SA        | SA/DU               |
|                            | Investigation | PID-RI    | PID-RI    | PID-RI              |
|                            |               | 1         | 1         | 1                   |
| Parameter                  | Units         | Value (Q) | Value (Q) | Value (Q)           |
| Volatile Organic Compounds | 8             |           |           |                     |
| 1,1,1-Trichloroethane      | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,1,2,2-Tetrachloroethane  | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,1,2-Trichloroethane      | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,1-Dichloroethane         | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,1-Dichloroethene         | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,2-Dichloroethane         | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| 1,2-Dichloropropane        | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Acetone                    | UG/KG         | 21 J      | 72 J      | 47 J                |
| Benzene                    | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Bromodichloromethane       | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Bromoform                  | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Carbon disulfide           | UG/KG         |           | 6.7 J     | 5.0 J               |
| Carbon tetrachloride       | UG/KG         |           | 11 UJ     |                     |
|                            |               | 6.6 UJ    |           | 8.8 UJ              |
| Chlorobenzene              | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Chloroothono               | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Chloroethane               | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Chloroform                 | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Cis-1,2-Dichloroethene     | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Cis-1,3-Dichloropropene    | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Ethyl benzene              | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Meta/Para Xylene           | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methyl bromide             | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methyl butyl ketone        | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methyl chloride            | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methyl ethyl ketone        | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methyl isobutyl ketone     | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Methylene chloride         | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Ortho Xylene               | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Styrene                    | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Tetrachloroethene          | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Toluene                    | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Trans-1,2-Dichloroethene   | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Trans-1,3-Dichloropropene  | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Trichloroethene            | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Vinyl chloride             | UG/KG         | 6.6 UJ    | 11 UJ     | 8.8 UJ              |
| Semivolatile Organic Compo | unds          |           |           |                     |
| 1,2,4-Trichlorobenzene     | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 1,2-Dichlorobenzene        | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 1,3-Dichlorobenzene        | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 1,4-Dichlorobenzene        | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 2,4,5-Trichlorophenol      | UG/KG         | 1600 UJ   | 2600 UJ   | 2100 UJ             |
| 2,4,6-Trichlorophenol      | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 2,4-Dichlorophenol         | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 2,4-Dimethylphenol         | UG/KG         | 650 UJ    | 1100 UJ   | 875 UJ              |
| 2,4-Dinitrophenol          | UG/KG         | 1600 UJ   | 2600 UJ   | 2100 UJ             |
| _, . z opon                | 55,110        | 1000 03   | 2000 03   | 2.00 00             |

|                             | Location ID   | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL |
|-----------------------------|---------------|------------------------------------|------------------------------------|------------------------------------|
|                             | Sample ID     | DRMO-4005                          | DRMO-4008                          | DRMO-4008/DRMO-4005                |
| Sample Depth to             | Top of Sample | 0                                  | 0                                  | 0                                  |
| Sample Depth to Bot         | tom of Sample | 2                                  | 2                                  | 2                                  |
|                             | Sample Date   | 11/5/2002                          | 11/5/2002                          | 11/5/2002                          |
|                             | QC Code       | SA                                 | SA                                 | SA/DU                              |
|                             | Investigation | PID-RI                             | PID-RI                             | PID-RI                             |
|                             |               | 1                                  | 1                                  | 1                                  |
| Parameter                   | Units         | Value (Q)                          |                                    | Value (Q)                          |
| 2,4-Dinitrotoluene          | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2,6-Dinitrotoluene          | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2-Chloronaphthalene         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2-Chlorophenol              | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2-Methylnaphthalene         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2-Methylphenol              | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 2-Nitroaniline              | UG/KG         | 1600 UJ                            | 2600 UJ                            | 2100 UJ                            |
| 2-Nitrophenol               | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 3 or 4-Methylphenol         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 3,3'-Dichlorobenzidine      | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 3-Nitroaniline              | UG/KG         | 1600 UJ                            | 2600 UJ                            | 2100 UJ                            |
| 4,6-Dinitro-2-methylphenol  | UG/KG         | 1600 UJ                            | 2600 UJ                            | 2100 UJ                            |
| 4-Bromophenyl phenyl ether  | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 4-Chloro-3-methylphenol     | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 4-Chloroaniline             | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 4-Chlorophenyl phenyl ether | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| 4-Nitroaniline              | UG/KG         | 1600 UJ                            | 2600 UJ                            | 2100 UJ                            |
| 4-Nitrophenol               | UG/KG         | 1600 UJ                            | 2600 UJ                            | 2100 UJ                            |
| Acenaphthene                | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Acenaphthylene              | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Anthracene                  | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Benzo(a)anthracene          | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Benzo(a)pyrene              | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Benzo(b)fluoranthene        | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Benzo(ghi)perylene          | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Benzo(k)fluoranthene        | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Bis(2-Chloroethoxy)methane  | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Bis(2-Chloroethyl)ether     | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Bis(2-Chloroisopropyl)ether | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Bis(2-Ethylhexyl)phthalate  | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Butylbenzylphthalate        | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Carbazole                   | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Chrysene                    | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Di-n-butylphthalate         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Di-n-octylphthalate         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Dibenz(a,h)anthracene       | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Dibenzofuran                | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Diethyl phthalate           | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Dimethylphthalate           | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Fluoranthene                | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Fluorene                    | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Hexachlorobenzene           | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Hexachlorobutadiene         | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Hexachlorocyclopentadiene   | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Hexachloroethane            | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
| Indeno(1,2,3-cd)pyrene      | UG/KG         | 650 UJ                             | 1100 UJ                            | 875 UJ                             |
|                             |               |                                    |                                    |                                    |

| Parameter  | Sample Depth to<br>Sample Depth to Bo | Location ID Matrix Sample ID Top of Sample | 2<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008<br>0<br>2<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008/DRMO-4005<br>0<br>2<br>11/5/2002<br>SA/DU<br>PID-RI |
|--|---------------------------------------|--|--------------------------------|--|---|
| Sophorone  | Parameter                             | Units                                      |                                |  |   |
| N-Nitrosodiphenylamine   |                                       |  |                                |  |   |
| N-Nitrosodipropylamine   |                                       |  |                                |  |   |
| Naphthalene  |                                       |  |                                |  |   |
| Nitrobenzene   |                                       |  | 650 UJ                         |  |   |
| Phenanthrene   |                                       |  |                                |  |   |
| Phenol   UG/KG   650 UJ   1100 UJ   875 UJ   Pyrene   UG/KG   650 UJ   1100 UJ   875 UJ   Pyrene   UG/KG   650 UJ   1100 UJ   875 UJ   Pesticides/PCBS   | Pentachlorophenol                     | UG/KG                                      | 1600 UJ                        | 2600 UJ  | 2100 UJ   |
| Pesticides/PCBs  | Phenanthrene                          | UG/KG                                      | 650 UJ                         | 1100 UJ  | 875 UJ  |
| Pesticides/PCBs  | Phenol                                | UG/KG                                      | 650 UJ                         | 1100 UJ  | 875 UJ  |
| 4,4'-DDD         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           4,4'-DDT         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           4,4'-DDT         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Aldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Alpha-BHC         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Beta-BHC         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Beta-BHC         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Chlordane         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Endosulfan I         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin setone         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG </td <td>Pyrene</td> <td>UG/KG</td> <td>650 UJ</td> <td>1100 UJ</td> <td>875 UJ</td>                | Pyrene                                | UG/KG                                      | 650 UJ                         | 1100 UJ  | 875 UJ  |
| A,4'-DDE   | Pesticides/PCBs                       |  |                                |  |   |
| A,4'-DDT   | 4,4'-DDD                              | UG/KG                                      | 0.4 UJ                         | 0.65 UJ  | 0.5 UJ  |
| Aldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Alpha-BHC         UG/KG         2.4 UJ         3.9 UJ         3.2 UJ           Alpha-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Beta-BHC         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Chlordane         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan Sulfate         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptach  | 4,4'-DDE                              | UG/KG                                      | 0.4 UJ                         | 0.65 UJ  | 0.5 UJ  |
| Alpha-BHC         UG/KG         2.4 UJ         3.9 UJ         3.2 UJ           Alpha-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Beta-BHC         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Chlordane         UG/KG         3.8 UJ         6.1 UJ         5.0 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan III         UG/KG         1.6 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methox  | 4,4'-DDT                              | UG/KG                                      | 0.4 UJ                         | 0.65 UJ  | 0.5 UJ  |
| Alpha-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Beta-BHC         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Chlordane         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Met  | Aldrin                                | UG/KG                                      | 0.2 UJ                         | 0.32 UJ  | 0.3 UJ  |
| Beta-BHC         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Chlordane         UG/KG         3.8 UJ         6.1 UJ         5.0 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan III         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Arco  | -                                     |  | 2.4 UJ                         | 3.9 UJ   |   |
| Chlordane         UG/KG         3.8 UJ         6.1 UJ         5.0 UJ           Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endrin         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Aroclor-1210 6  | 1                                     |  | 0.6 UJ                         |  | 0.8 UJ  |
| Delta-BHC         UG/KG         0.4 UJ         0.65 UJ         0.5 UJ           Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ  |                                       |  | 0.2 UJ                         | 0.32 UJ  | 0.3 UJ  |
| Dieldrin         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           <  |                                       | UG/KG                                      | 3.8 UJ                         |  |   |
| Endosulfan I         UG/KG         1 UJ         1.6 UJ         1 UJ           Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Aroclor-1016         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ <t< td=""><td></td><td>UG/KG</td><td>0.4 UJ</td><td>0.65 UJ</td><td>0.5 UJ</td></t<> |                                       | UG/KG                                      | 0.4 UJ                         | 0.65 UJ  | 0.5 UJ  |
| Endosulfan II         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Arcolor-1016         UG/KG         0.2 UJ         10 UJ         10 UJ         10 UJ </td <td></td> <td></td> <td></td> <td></td> <td></td>                    |                                       |  |                                |  |   |
| Endosulfan sulfate         UG/KG         1.2 UJ         1.9 UJ         1.6 UJ           Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Metocor-1260         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Arcolor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ   |                                       |  |                                |  |   |
| Endrin         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Arcolor-1016         UG/KG         0.4 UJ         10 UJ         8.2 UJ           Arcolor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Arcolor-1232         UG/KG         16 UJ         26 UJ         21 UJ   |                                       |  |                                |  |   |
| Endrin aldehyde         UG/KG         1.6 UJ         2.6 UJ         2.1 UJ           Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         2 UJ         3.2 UJ         3 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         0.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroc  |                                       |  |                                |  |   |
| Endrin ketone         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         2 UJ         3.2 UJ         3 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         28 UJ           Aroclor-1254         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         1000         14700 J         12400 J           Antimony <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>                                   |                                       |  |                                |  |   |
| Gamma-BHC/Lindane         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         2 UJ         3.2 UJ         3 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1254         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         3.9 UJ         6.4 UJ         5.2 UJ           Aluminum         MG/KG         1000         14700 J         12400 J           Arsenic         MG/KG<  | •                                     |  |                                |  |   |
| Gamma-Chlordane         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Heptachlor         UG/KG         2 UJ         3.2 UJ         3 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         18 UJ         2.9 UJ         2.4 UJ           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG   |                                       |  |                                |  |   |
| Heptachlor         UG/KG         2 UJ         3.2 UJ         3 UJ           Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Bari   |                                       |  |                                |  |   |
| Heptachlor epoxide         UG/KG         0.6 UJ         0.97 UJ         0.8 UJ           Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryl   |                                       |  |                                |  |   |
| Methoxychlor         UG/KG         0.2 UJ         0.32 UJ         0.3 UJ           Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Ca  |                                       |  |                                |  |   |
| Toxaphene         UG/KG         6.4 UJ         10 UJ         8.2 UJ           Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Aroclor-1016         UG/KG         10 UJ         17 UJ         13.5 UJ           Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Aroclor-1221         UG/KG         2.6 UJ         4.2 UJ         3.4 UJ           Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ  | •                                     |  |                                |  |   |
| Aroclor-1232         UG/KG         16 UJ         26 UJ         21 UJ           Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide         Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ  |                                       |  |                                |  |   |
| Aroclor-1242         UG/KG         4.3 UJ         7 UJ         6 UJ           Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Aroclor-1248         UG/KG         11 UJ         18 UJ         15 UJ           Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Aroclor-1254         UG/KG         21 UJ         34 UJ         28 UJ           Aroclor-1260         UG/KG         3.9 UJ         6.4 UJ         5.2 UJ           Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ  |                                       |  |                                |  |   |
| Aroclor-1260       UG/KG       3.9 UJ       6.4 UJ       5.2 UJ         Metals and Cyanide         Aluminum       MG/KG       10100       14700 J       12400 J         Antimony       MG/KG       1.8 UJ       2.9 UJ       2.4 UJ         Arsenic       MG/KG       2.1       5.9 J       4.0 J         Barium       MG/KG       72.2 J       122 J       97.1 J         Beryllium       MG/KG       0.63       1 J       0.8 J         Cadmium       MG/KG       0.24 U       0.39 UJ       0.32 UJ   |                                       |  |                                |  |   |
| Metals and Cyanide           Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Aluminum         MG/KG         10100         14700 J         12400 J           Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ  |                                       | OG/KG                                      | 3.9 UJ                         | 0.4 01   | J.2 UJ  |
| Antimony         MG/KG         1.8 UJ         2.9 UJ         2.4 UJ           Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   | •                                     | MG/KG                                      | 10100                          | 14700 J  | 12400 I   |
| Arsenic         MG/KG         2.1         5.9 J         4.0 J           Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   |                                       |  |                                |  |   |
| Barium         MG/KG         72.2 J         122 J         97.1 J           Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ   | •                                     |  |                                |  |   |
| Beryllium         MG/KG         0.63         1 J         0.8 J           Cadmium         MG/KG         0.24 U         0.39 UJ         0.32 UJ  |                                       |  |                                |  |   |
| Cadmium MG/KG 0.24 U 0.39 UJ 0.32 UJ   |                                       |  |                                |  |   |
|  | •                                     |  |                                |  |   |
|  |                                       |  |                                |  |   |

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

| Sample Depth to T<br>Sample Depth to Bott | Location ID Matrix Sample ID Op of Sample om of Sample Sample Date QC Code Investigation | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4005<br>0<br>2<br>11/5/2002<br>SA<br>PID-RI<br>1 | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008<br>0<br>2<br>11/5/2002<br>SA<br>PID-RI<br>1 | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008/DRMO-4005<br>0<br>2<br>11/5/2002<br>SA/DU<br>PID-RI<br>1 |
|---|--|---|---|--|
| Parameter                                 | Units  | Value (Q)   | Value (Q)   | Value (Q)  |
| Chromium                                  | MG/KG  | 22.6  | 32.7 J  | 27.7 J   |
| Cobalt                                    | MG/KG  | 11.4  | 20.2 J  | 15.8 J   |
| Copper                                    | MG/KG  | 34  | 50.6 J  | 42 J   |
| Cyanide, Amenable                         | MG/KG  | 1.1 U   | 1.59 UJ   | 1.3 UJ   |
| Cyanide, Total                            | MG/KG  | 1.1 U   | 1.59 UJ   | 1.3 UJ   |
| Iron                                      | MG/KG  | 20500   | 34100 J   | 27300 Ј  |
| Lead                                      | MG/KG  | 58.3  | 85.2 J  | 71.8 J   |
| Magnesium                                 | MG/KG  | 5150  | 7310 J  | 6230 J   |
| Manganese                                 | MG/KG  | 471   | 885 J   | 678 J  |
| Mercury                                   | MG/KG  | 0.11  | 0.18 J  | 0.15 J   |
| Nickel                                    | MG/KG  | 30.9  | 45.3 J  | 38.1 J   |
| Potassium                                 | MG/KG  | 905   | 1270 J  | 1088 J   |
| Selenium                                  | MG/KG  | 0.82 U  | 1.4 UJ  | 1.1 UJ   |
| Silver                                    | MG/KG  | 0.65  | 1 J   | 0.8 J  |
| Sodium                                    | MG/KG  | 388   | 656 J   | 522 J  |
| Thallium                                  | MG/KG  | 0.61 U  | 1 UJ  | 1 UJ   |
| Vanadium                                  | MG/KG  | 17.8  | 27.3 J  | 22.6 J   |
| Zinc                                      | MG/KG  | 135 J   | 195 J   | 165 J  |
| Other                                     |  |   |   |  |
| Total Organic Carbon                      | MG/KG  | 7100 J  | 7100 J  | 7100 J   |
| Total Petroleum Hydrocarbons              | MG/KG  | 80 UJ   | 130 UJ  | 105 UJ   |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

|                             | Facility      | SEAD-121C | SEAD-121C   | SEAD-121C           | SEAD-121C   | SEAD-121C   | SEAD-121C   |
|-----------------------------|---------------|-----------|-------------|---------------------|-------------|-------------|-------------|
|                             | Location ID   | MW121C-4  | MW121C-4    | MW121C-4            | MW121C-1    | MW121C-1    | MW121C-1    |
|                             |               |           | GROUNDWATER |                     | GROUNDWATER | GROUNDWATER | GROUNDWATER |
|                             | Sample ID     | 121C-2002 | 121C-2004   | 121C-2004/121C-2002 | EB023       | EB153       | EB153/EB023 |
| Sample Depth to             | Top of Sample | 4.5       | 4.5         | 4.5                 | 2.1         | 2.1         | 2.1         |
| Sample Depth to Bot         |               |           | 10          | 10                  | 9.7         | 9.7         | 9.7         |
| • •                         | Sample Date   |           | 2/4/2003    | 2/4/2003            | 3/17/1998   | 3/17/1998   | 3/17/1998   |
|                             | QC Code       | SA        | SA          | SA/DU               | SA          | SA          | SA/DU       |
|                             | Investigation | PID-RI    | PID-RI      | PID-RI              | EBS         | EBS         | EBS         |
|                             | -             | 2         | 2           | 2                   |             |             |             |
| Parameter                   | Units         | Value (Q) | Value (Q)   | Value (Q)           | Value (Q)   | Value (Q)   | Value (Q)   |
| Volatile Organic Compound   |               |           |             |                     |             |             |             |
| 1,1,1-Trichloroethane       | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,1,2,2-Tetrachloroethane   | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,1,2-Trichloroethane       | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,1-Dichloroethane          | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,1-Dichloroethene          | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,2-Dibromo-3-chloropropane |               |           |             |                     | 1 U         | 1 U         | 1 U         |
| 1,2-Dibromoethane           | UG/L          |           |             |                     | 1 U         | 1 U         | 1 U         |
| 1,2-Dichlorobenzene         | UG/L          |           |             |                     | 1 U         | 1 U         | 1 U         |
| 1,2-Dichloroethane          | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,2-Dichloropropane         | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| 1,3-Dichlorobenzene         | UG/L          |           |             |                     | 1 U         | 1 U         | 1 U         |
| 1,4-Dichlorobenzene         | UG/L          |           |             |                     | 1 U         | 1 U         | 1 U         |
| Acetone                     | UG/L          | 5 UJ      | 5 UJ        | 5 UJ                | 52          | 61          | 57          |
| Benzene                     | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Bromochloromethane          | UG/L          |           |             |                     | 1 U         | 1 U         | 1 U         |
| Bromodichloromethane        | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Bromoform                   | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Carbon disulfide            | UG/L          | 5 UJ      | 5 UJ        | 5 UJ                | 2           | 2           | 2           |
| Carbon tetrachloride        | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Chlorobenzene               | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Chlorodibromomethane        | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Chloroethane                | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Chloroform                  | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Cis-1,2-Dichloroethene      | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Cis-1,3-Dichloropropene     | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Ethyl benzene               | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Meta/Para Xylene            | UG/L          | 5 U       | 5 U         | 5 U                 |             |             |             |
| Methyl bromide              | UG/L          | 5 U       | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Methyl butyl ketone         | UG/L          | 5 U       | 5 U         | 5 U                 | 5 U         | 5 U         | 5 U         |
| Methyl chloride             | UG/L          | 5 UJ      | 5 UJ        | 5 UJ                | 1 U         | 1 U         | 1 U         |
| Methyl ethyl ketone         | UG/L          | 5 UJ      | 5 UJ        | 5 UJ                | 5 U         | 5 U         | 5 U         |

|                           |                |             |             | - <b>P</b>          |             |             |             |
|---------------------------|----------------|-------------|-------------|---------------------|-------------|-------------|-------------|
|                           | Facility       | SEAD-121C   | SEAD-121C   | SEAD-121C           | SEAD-121C   | SEAD-121C   | SEAD-121C   |
|                           |                | MW121C-4    | MW121C-4    | MW121C-4            | MW121C-1    | MW121C-1    | MW121C-1    |
|                           | Matrix         | GROUNDWATER | GROUNDWATER | GROUNDWATER         | GROUNDWATER | GROUNDWATER | GROUNDWATER |
|                           | Sample ID      | 121C-2002   | 121C-2004   | 121C-2004/121C-2002 | EB023       | EB153       | EB153/EB023 |
| Sample Depth to           | Top of Sample  | 4.5         | 4.5         | 4.5                 | 2.1         | 2.1         | 2.1         |
| Sample Depth to Bot       | ttom of Sample | 10          | 10          | 10                  | 9.7         | 9.7         | 9.7         |
|                           | Sample Date    | 2/3/2003    | 2/4/2003    | 2/4/2003            | 3/17/1998   | 3/17/1998   | 3/17/1998   |
|                           | QC Code        | SA          | SA          | SA/DU               | SA          | SA          | SA/DU       |
|                           | Investigation  | PID-RI      | PID-RI      | PID-RI              | EBS         | EBS         | EBS         |
|                           |                | 2           | 2           | 2                   |             |             |             |
| Parameter                 | Units          | Value (Q)   | Value (Q)   | Value (Q)           | Value (Q)   | Value (Q)   | Value (Q)   |
| Methyl isobutyl ketone    | UG/L           | 5 U         | 5 U         | 5 U                 | 5 U         | 5 U         | 5 U         |
| Methylene chloride        | UG/L           | 5 U         | 5 U         | 5 U                 | 2 U         | 2 U         | 2 U         |
| Ortho Xylene              | UG/L           | 5 U         | 5 U         | 5 U                 |             |             |             |
| Styrene                   | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Tetrachloroethene         | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Toluene                   | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Total Xylenes             | UG/L           |             |             |                     | 1 U         | 1 U         | 1 U         |
| Trans-1,2-Dichloroethene  | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Trans-1,3-Dichloropropene | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Trichloroethene           | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Vinyl chloride            | UG/L           | 5 U         | 5 U         | 5 U                 | 1 U         | 1 U         | 1 U         |
| Semivolatile Organic Comp | ounds          |             |             |                     |             |             |             |
| 1,2,4-Trichlorobenzene    | UG/L           | 1.2 U       | 1.3 UJ      | 1.3 UJ              |             | 1.1 U       | 1.1 U       |
| 1,2-Dichlorobenzene       | UG/L           | 1 U         | 1.1 UJ      | 1 UJ                |             | 1.1 U       | 1.1 U       |
| 1,3-Dichlorobenzene       | UG/L           | 1.2 U       | 1.3 UJ      | 1.3 UJ              |             | 1.1 U       | 1.1 U       |
| 1,4-Dichlorobenzene       | UG/L           | 1 U         | 1.1 UJ      | 1 UJ                |             | 1.1 U       | 1.1 U       |
| 2,4,5-Trichlorophenol     | UG/L           | 1 U         | 1.1 U       | 1 U                 |             | 2.7 U       | 2.7 U       |
| 2,4,6-Trichlorophenol     | UG/L           | 1 U         | 1.1 U       | 1 U                 |             | 1.1 U       | 1.1 U       |
| 2,4-Dichlorophenol        | UG/L           | 1.4 U       | 1.4 U       | 1.4 U               |             | 1.1 U       | 1.1 U       |
| 2,4-Dimethylphenol        | UG/L           | 2.4 U       | 2.4 U       | 2.4 U               |             | 1.1 U       | 1.1 U       |
| 2,4-Dinitrophenol         | UG/L           |             |             |                     |             | 2.7 U       | 2.7 U       |
| 2,4-Dinitrotoluene        | UG/L           | 1.1 U       | 1.2 UJ      | 1.2 UJ              |             | 1.1 U       | 1.1 U       |
| 2,6-Dinitrotoluene        | UG/L           | 1 U         | 1.1 UJ      | 1 UJ                |             | 1.1 U       | 1.1 U       |
| 2-Chloronaphthalene       | UG/L           | 1.2 U       | 1.3 UJ      | 1.3 UJ              |             | 1.1 U       | 1.1 U       |
| 2-Chlorophenol            | UG/L           | 1.1 U       | 1.2 U       | 1.2 U               |             | 1.1 U       | 1.1 U       |
| 2-Methylnaphthalene       | UG/L           | 1.2 U       | 1.3 UJ      | 1.3 UJ              |             | 1.1 U       | 1.1 U       |
| 2-Methylphenol            | UG/L           | 1 U         | 1.1 U       | 1 U                 |             | 1.1 U       | 1.1 U       |
| 2-Nitroaniline            | UG/L           | 1 U         | 1.1 UJ      | 1 UJ                |             | 2.7 U       | 2.7 U       |
| 2-Nitrophenol             | UG/L           | 1.1 U       | 1.2 U       | 1.2 U               |             | 1.1 U       | 1.1 U       |
| 3 or 4-Methylphenol       | UG/L           | 1.9 U       | 1.9 U       | 1.9 U               |             |             |             |
| 3,3'-Dichlorobenzidine    | UG/L           | 1 UJ        | 1.1 UJ      | 1.1 UJ              |             | 1.1 U       | 1.1 U       |
| 3-Nitroaniline            | UG/L           | 1.2 U       | 1.3 UJ      | 1.3 UJ              |             | 2.7 U       | 2.7 U       |
|                           |                |             |             |                     | '           |             |             |

|                             | Facility      | SEAD-121C | SEAD-121C   | SEAD-121C           | SEAD-121C | SEAD-121C   | SEAD-121C   |
|-----------------------------|---------------|-----------|-------------|---------------------|-----------|-------------|-------------|
|                             | -             | MW121C-4  | MW121C-4    | MW121C-4            | MW121C-1  | MW121C-1    | MW121C-1    |
|                             |               |           | GROUNDWATER |                     | 1         | GROUNDWATER |             |
|                             | Sample ID     |           | 121C-2004   | 121C-2004/121C-2002 | 1         | EB153       | EB153/EB023 |
| Sample Depth to             |               |           | 4.5         | 4.5                 | 2.1       | 2.1         | 2.1         |
| Sample Depth to Bot         |               |           | 10          | 10                  | 9.7       | 9.7         | 9.7         |
| 1 1 1                       | Sample Date   |           | 2/4/2003    | 2/4/2003            | 3/17/1998 | 3/17/1998   | 3/17/1998   |
|                             | OC Code       |           | SA          | SA/DU               | SA        | SA          | SA/DU       |
|                             | Investigation | PID-RI    | PID-RI      | PID-RI              | EBS       | EBS         | EBS         |
|                             | Ü             | 2         | 2           | 2                   |           |             |             |
| Parameter                   | Units         | Value (Q) | Value (Q)   | Value (Q)           | Value (Q) | Value (Q)   | Value (Q)   |
| 4,6-Dinitro-2-methylphenol  | UG/L          | 1.2 U     | 1.3 U       | 1.3 U               |           | 2.7 U       | 2.7 U       |
| 4-Bromophenyl phenyl ether  | UG/L          | 1.4 U     | 1.4 UJ      | 1.4 UJ              |           | 1.1 U       | 1.1 U       |
| 4-Chloro-3-methylphenol     | UG/L          | 1.1 U     | 1.2 U       | 1.2 U               |           | 1.1 U       | 1.1 U       |
| 4-Chloroaniline             | UG/L          | 1.2 UJ    | 1.3 UJ      | 1.3 UJ              |           | 1.1 U       | 1.1 U       |
| 4-Chlorophenyl phenyl ether | UG/L          | 1.2 U     | 1.3 UJ      | 1.3 UJ              |           | 1.1 U       | 1.1 U       |
| 4-Methylphenol              | UG/L          |           |             |                     |           | 1.1 U       | 1.1 U       |
| 4-Nitroaniline              | UG/L          | 2.5 U     | 2.5 UJ      | 2.5 UJ              |           | 2.7 U       | 2.7 U       |
| 4-Nitrophenol               | UG/L          | 1.1 U     | 1.2 U       | 1.2 U               |           | 2.7 U       | 2.7 U       |
| Acenaphthene                | UG/L          | 1 U       | 1.1 UJ      | 1.1 UJ              |           | 1.1 U       | 1.1 U       |
| Acenaphthylene              | UG/L          | 1.2 U     | 1.3 UJ      | 1.3 UJ              |           | 1.1 U       | 1.1 U       |
| Anthracene                  | UG/L          | 1.4 U     | 1.4 UJ      | 1.4 UJ              |           | 1.1 U       | 1.1 U       |
| Benzo(a)anthracene          | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Benzo(a)pyrene              | UG/L          | 1.6 U     | 1.6 UJ      | 1.6 UJ              |           | 1.1 U       | 1.1 U       |
| Benzo(b)fluoranthene        | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Benzo(ghi)perylene          | UG/L          | 1.4 UJ    | 1.4 UJ      | 1.4 UJ              |           | 1.1 U       | 1.1 U       |
| Benzo(k)fluoranthene        | UG/L          | 2.7 U     | 2.7 UJ      | 2.7 UJ              |           | 1.1 U       | 1.1 U       |
| Bis(2-Chloroethoxy)methane  | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Bis(2-Chloroethyl)ether     | UG/L          | 1.2 U     | 1.3 UJ      | 1.3 UJ              |           | 1.1 U       | 1.1 U       |
| Bis(2-Chloroisopropyl)ether | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Bis(2-Ethylhexyl)phthalate  | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 0.23 J      | 0.23 J      |
| Butylbenzylphthalate        | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 0.12 J      | 0.12 J      |
| Carbazole                   | UG/L          | 0.43 U    | 0.44 UJ     | 0.44 UJ             |           | 1.1 U       | 1.1 U       |
| Chrysene                    | UG/L          | 1.7 U     | 1.7 UJ      | 1.7 UJ              |           | 1.1 U       | 1.1 U       |
| Di-n-butylphthalate         | UG/L          | 1.2 U     | 1.3 UJ      | 1.3 UJ              |           | 1.7         | 1.7         |
| Di-n-octylphthalate         | UG/L          | 1.6 U     | 1.6 UJ      | 1.6 UJ              |           | 1.1 U       | 1.1 U       |
| Dibenz(a,h)anthracene       | UG/L          | 1.6 UJ    | 1.6 UJ      | 1.6 UJ              |           | 1.1 UJ      | 1.1 UJ      |
| Dibenzofuran                | UG/L          | 1 U       | 1.1 UJ      | 1.1 UJ              |           | 1.1 U       | 1.1 U       |
| Diethyl phthalate           | UG/L          | 1 U       | 1.1 UJ      | 1.1 UJ              |           | 0.057 J     | 0.057 J     |
| Dimethylphthalate           | UG/L          | 1 U       | 1.1 UJ      | 1.1 UJ              |           | 1.1 U       | 1.1 U       |
| Fluoranthene                | UG/L          | 1 U       | 1.1 UJ      | 1.1 UJ              |           | 1.1 U       | 1.1 U       |
| Fluorene                    | UG/L          | 1.1 U     | 1.2 UJ      | 1.2 UJ              |           | 1.1 U       | 1.1 U       |
| Hexachlorobenzene           | UG/L          | 1.1 U     | 1.2 UJ      | 1.2 UJ              | I         | 1.1 U       | 1.1 U       |

|                           | Engility      | SEAD-121C | SEAD-121C   | SEAD-121C           | SEAD-121C | SEAD-121C   | SEAD-121C   |
|---------------------------|---------------|-----------|-------------|---------------------|-----------|-------------|-------------|
|                           | -             | MW121C-4  | MW121C-4    | MW121C-4            | MW121C-1  | MW121C-1    | MW121C-1    |
|                           |               |           | GROUNDWATER |                     |           | GROUNDWATER |             |
|                           | Sample ID     |           | 121C-2004   | 121C-2004/121C-2002 | EB023     | EB153       | EB153/EB023 |
| Sample Depth to           |               |           | 4.5         | 4.5                 | 2.1       | 2.1         | 2.1         |
| Sample Depth to Bot       |               |           | 10          | 10                  | 9.7       | 9.7         | 9.7         |
| Sample Depth to Bo        | Sample Date   |           | 2/4/2003    | 2/4/2003            | 3/17/1998 | 3/17/1998   | 3/17/1998   |
|                           | OC Code       |           | SA          | SA/DU               | SA        | SA          | SA/DU       |
|                           | Investigation |           | PID-RI      | PID-RI              | EBS       | EBS         | EBS         |
|                           | mvestigation  | 2         | 2           | 2                   | LDS       | LDS         | LDS         |
| Parameter                 | Units         | Value (Q) | Value (Q)   | Value (Q)           | Value (O) | Value (O)   | Value (O)   |
| Hexachlorobutadiene       | UG/L          | 1.6 U     | 1.6 UJ      | 1.6 UJ              |           | 0.061 J     | 0.061 J     |
| Hexachlorocyclopentadiene | UG/L          | 4 U       | 4 UJ        | 4 UJ                |           | 1.1 UJ      | 1.1 UJ      |
| Hexachloroethane          | UG/L          | 1.1 U     | 1.2 UJ      | 1.2 UJ              |           | 1.1 U       | 1.1 U       |
| Indeno(1,2,3-cd)pyrene    | UG/L          | 1.7 U     | 1.7 UJ      | 1.7 UJ              |           | 1.1 U       | 1.1 U       |
| Isophorone                | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| N-Nitrosodiphenylamine    | UG/L          | 2.1 U     | 2.1 UJ      | 2.1 UJ              |           | 1.1 U       | 1.1 U       |
| N-Nitrosodipropylamine    | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Naphthalene               | UG/L          | 1.2 U     | 1.3 UJ      | 1.25 UJ             |           | 1.1 U       | 1.1 U       |
| Nitrobenzene              | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Pentachlorophenol         | UG/L          | 2 U       | 2 U         | 2 U                 |           | 2.7 U       | 2.7 U       |
| Phenanthrene              | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Phenol                    | UG/L          | 1 U       | 1.1 U       | 1 U                 |           | 1.1 U       | 1.1 U       |
| Pyrene                    | UG/L          | 1 U       | 1.1 UJ      | 1 UJ                |           | 1.1 U       | 1.1 U       |
| Pesticides/PCBs           |               |           |             |                     |           |             |             |
| 4,4'-DDD                  | UG/L          | 0.01 R    | 0.01 R      |                     | 0.9       | 0.055 U     | 0.5 J       |
| 4,4'-DDE                  | UG/L          | 0.005 UJ  | 0.005 UJ    | 0.005 UJ            | 0.27 J    | 0.093 J     | 0.18 J      |
| 4,4'-DDT                  | UG/L          | 0.01 R    | 0.01 R      |                     | 0.29 J    | 0.28        | 0.29 J      |
| Aldrin                    | UG/L          | 0.02 U    | 0.02 U      | 0.02 U              | 0.057 U   | 0.057 U     | 0.057 U     |
| Alpha-BHC                 | UG/L          | 0.01 U    | 0.01 U      | 0.01 U              | 0.0285 U  | 0.036 J     | 0.032 J     |
| Alpha-Chlordane           | UG/L          | 0.02 U    | 0.02 U      | 0.02 U              | 0.096     | 0.068       | 0.082       |
| Beta-BHC                  | UG/L          | 0.01 U    | 0.01 U      | 0.01 U              | 0.56 J    | 0.096 J     | 0.33 J      |
| Chlordane                 | UG/L          | 0.14 U    | 0.14 U      | 0.14 U              |           |             |             |
| Delta-BHC                 | UG/L          | 0.004 UJ  | 0.004 UJ    | 0.004 UJ            | 0.23 J    | 0.094       | 0.16 J      |
| Dieldrin                  | UG/L          | 0.009 U   | 0.009 U     | 0.009 U             | 0.055 U   | 0.052 J     | 0.05 J      |
| Endosulfan I              | UG/L          | 0.02 UJ   | 0.02 UJ     | 0.02 UJ             | 0.11 J    | 0.08 J      | 0.10 J      |
| Endosulfan II             | UG/L          | 0.01 UJ   | 0.01 UJ     | 0.01 UJ             | 0.28 J    | 0.055 U     | 0.17 J      |
| Endosulfan sulfate        | UG/L          | 0.02 U    | 0.02 U      | 0.02 U              | 0.28 J    | 0.14 J      | 0.21 J      |
| Endrin                    | UG/L          | 0.02 UJ   | 0.02 UJ     | 0.02 UJ             | 0.11 U    | 0.11 U      | 0.11 U      |
| Endrin aldehyde           | UG/L          | 0.02 UJ   | 0.02 UJ     | 0.02 UJ             | 0.22 J    | 0.073 J     | 0.15 J      |
| Endrin ketone             | UG/L          | 0.009 U   | 0.009 U     | 0.009 U             | 0.11 U    | 0.11 U      | 0.11 U      |
| Gamma-BHC/Lindane         | UG/L          | 0.009 U   | 0.009 U     | 0.009 U             | 0.057 U   | 0.057 U     | 0.057 U     |
| Gamma-Chlordane           | UG/L          | 0.01 U    | 0.01 U      | 0.01 U              | 0.47      | 0.086 J     | 0.28 J      |

|                    |                  |             |           | J                   | _         |             |             |
|--------------------|------------------|-------------|-----------|---------------------|-----------|-------------|-------------|
|                    |                  | SEAD-121C   | SEAD-121C | SEAD-121C           | SEAD-121C | SEAD-121C   | SEAD-121C   |
|                    |                  | MW121C-4    | MW121C-4  | MW121C-4            | MW121C-1  | MW121C-1    | MW121C-1    |
|                    | Matrix           | GROUNDWATER |           | GROUNDWATER         | 1         | GROUNDWATER | GROUNDWATER |
|                    | Sample ID        |             | 121C-2004 | 121C-2004/121C-2002 |           | EB153       | EB153/EB023 |
| Sample Depth       | to Top of Sample | 4.5         | 4.5       | 4.5                 | 2.1       | 2.1         | 2.1         |
| Sample Depth to 1  | Bottom of Sample | 10          | 10        | 10                  | 9.7       | 9.7         | 9.7         |
|                    | Sample Date      | 2/3/2003    | 2/4/2003  | 2/4/2003            | 3/17/1998 | 3/17/1998   | 3/17/1998   |
|                    | QC Code          | SA          | SA        | SA/DU               | SA        | SA          | SA/DU       |
|                    | Investigation    | PID-RI      | PID-RI    | PID-RI              | EBS       | EBS         | EBS         |
|                    |                  | 2           | 2         | 2                   |           |             |             |
| Parameter          | Units            | Value (Q)   | Value (Q) | Value (Q)           | Value (Q) | Value (Q)   | Value (Q)   |
| Heptachlor         | UG/L             | 0.007 U     | 0.007 U   | 0.007 U             | 0.23 J    | 0.058 J     | 0.14 J      |
| Heptachlor epoxide | UG/L             | 0.009 UJ    | 0.009 UJ  | 0.009 UJ            | 0.0285 U  | 0.072 J     | 0.050 J     |
| Methoxychlor       | UG/L             | 0.008 UJ    | 0.008 UJ  | 0.008 UJ            | 0.57      | 0.285 U     | 0.43 J      |
| Toxaphene          | UG/L             | 0.12 U      | 0.12 U    | 0.12 U              | 5.7 U     | 5.7 U       | 5.7 U       |
| Aroclor-1016       | UG/L             | 0.24 U      | 0.24 U    | 0.24 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Aroclor-1221       | UG/L             | 0.08 U      | 0.08 U    | 0.08 U              | 2.3 U     | 2.3 U       | 2.3 U       |
| Aroclor-1232       | UG/L             | 0.09 U      | 0.09 U    | 0.09 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Aroclor-1242       | UG/L             | 0.08 U      | 0.08 U    | 0.08 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Aroclor-1248       | UG/L             | 0.12 U      | 0.12 U    | 0.12 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Aroclor-1254       | UG/L             | 0.05 U      | 0.05 U    | 0.05 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Aroclor-1260       | UG/L             | 0.01 U      | 0.01 U    | 0.01 U              | 1.1 U     | 1.1 U       | 1.1 U       |
| Metals and Cyanide |                  |             |           |                     |           |             |             |
| Aluminum           | UG/L             | 146 J       | 1030      | 588 J               | 133       | 738 J       | 436 J       |
| Antimony           | UG/L             | 3.75 U      | 10.9 J    | 7.33 J              | 5.1 U     | 5.1 U       | 5.1 U       |
| Arsenic            | UG/L             | 4.5 U       | 4.5 U     | 4.5 U               | 1.85 U    | 3.8         | 2.8 J       |
| Barium             | UG/L             | 29.6        | 32.4      | 31.0                | 39.5      | 38          | 39          |
| Beryllium          | UG/L             | 0.9 U       | 0.9 U     | 0.9 U               | 0.1 U     | 0.1 U       | 0.1 U       |
| Cadmium            | UG/L             | 0.8 U       | 0.8 U     | 0.8 U               | 0.39      | 0.15 U      | 0.27 J      |
| Calcium            | UG/L             | 420000      | 513000    | 466500              | 172000 J  | 163000      | 167500 J    |
| Chromium           | UG/L             | 0.7 U       | 5.8       | 3.3 J               | 1.2       | 2.4         | 1.8         |
| Cobalt             | UG/L             | 1.15 U      | 4.8 J     | 3.0 J               | 0.7 U     | 1.6         | 1 J         |
| Copper             | UG/L             | 2 U         | 2 U       | 2 U                 | 0.6 U     | 2           | 1 J         |
| Cyanide            | UG/L             |             |           |                     | 5 U       | 5 U         | 5 U         |
| Cyanide, Amenable  | MG/L             | 0.01 U      | 0.01 U    | 0.01 U              |           |             |             |
| Cyanide, Total     | MG/L             | 0.01 U      | 0.01 U    | 0.01 U              |           |             |             |
| Iron               | UG/L             | 17.45 U     | 1720      | 868.725 J           | 346       | 1430        | 888         |
| Lead               | UG/L             | 5.6         | 4.8       | 5.2                 | 1.8 U     | 1.8 U       | 1.8 U       |
| Magnesium          | UG/L             | 73600       | 88000     | 80800               | 23800     | 24100       | 23950       |
| Manganese          | UG/L             | 328         | 244       | 286                 | 1590      | 1140        | 1365        |
| Mercury            | UG/L             | 0.2 U       | 0.2 U     | 0.2 U               | 0.1 U     | 0.1 U       | 0.1 U       |
| Nickel             | UG/L             | 1 U         | 3.2 J     | 2.1 J               | 2.8       | 4.2         | 3.5         |
| Potassium          | UG/L             | 9430        | 6320      | 7875                | 7610      | 10900       | 9255        |
| Potassium          | UG/L             | 9430        | 6320      | 78/5                | I 7/610   | 10900       | 9255        |

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | -             | SEAD-121C   | SEAD-121C   | SEAD-121C           | SEAD-121C   | SEAD-121C   | SEAD-121C   |
|------------------------------|---------------|-------------|-------------|---------------------|-------------|-------------|-------------|
|                              | Location ID   | MW121C-4    | MW121C-4    | MW121C-4            | MW121C-1    | MW121C-1    | MW121C-1    |
|                              | Matrix        | GROUNDWATER | GROUNDWATER | GROUNDWATER         | GROUNDWATER | GROUNDWATER | GROUNDWATER |
|                              | Sample ID     | 121C-2002   | 121C-2004   | 121C-2004/121C-2002 | EB023       | EB153       | EB153/EB023 |
| Sample Depth to To           | p of Sample   | 4.5         | 4.5         | 4.5                 | 2.1         | 2.1         | 2.1         |
| Sample Depth to Botto        | m of Sample   | 10          | 10          | 10                  | 9.7         | 9.7         | 9.7         |
|                              | Sample Date   | 2/3/2003    | 2/4/2003    | 2/4/2003            | 3/17/1998   | 3/17/1998   | 3/17/1998   |
|                              | QC Code       | SA          | SA          | SA/DU               | SA          | SA          | SA/DU       |
| ]                            | Investigation | PID-RI      | PID-RI      | PID-RI              | EBS         | EBS         | EBS         |
|                              |               | 2           | 2           | 2                   |             |             |             |
| Parameter                    | Units         | Value (Q)   | Value (Q)   | Value (Q)           | Value (Q)   | Value (Q)   | Value (Q)   |
| Selenium                     | UG/L          | 3 U         | 5 U         | 4 U                 | 3.7 J       | 5.6 J       | 4.7 J       |
| Silver                       | UG/L          | 3.7 U       | 3.7 U       | 3.7 U               | 1.3 U       | 1.3 U       | 1.3 U       |
| Sodium                       | UG/L          | 60100       | 56700       | 58400               | 8920        | 11200       | 10060       |
| Thallium                     | UG/L          | 4.2 U       | 4.2 U       | 4.2 U               | 6.7 U       | 6.7 U       | 6.7 U       |
| Vanadium                     | UG/L          | 2.5 U       | 2.5 U       | 2.5 U               | 0.75 U      | 2.4         | 1.6 J       |
| Zinc                         | UG/L          | 9.2 J       | 24          | 17 J                | 2.4         | 9.3         | 5.9         |
| Other                        |               |             |             |                     |             |             |             |
| Total Petroleum Hydrocarbons | MG/L          | 0.041 U     | 0.04 U      | 0.04 U              |             |             |             |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

### SEAD-121C and SEAD-121I RI REPORT

|                             | Facility Location ID Matrix ( Sample ID | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2005 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2008 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2005/DRMO-2008 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2013 | Building 360<br>MW-1<br>GROUNDWATER<br>121C-2019 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2013/DRMO-2019 |
|-----------------------------|---|--|--|--|--|--|--|
| Sample Depth to             |   | 16.5   | 16.5   | 16.5   | 16.6   | 16.6   | 16.6   |
| Sample Depth to Bot         |   | 16.5   | 16.5   | 16.5   | 16.6   | 16.6   | 16.6   |
| 1 1                         | Sample Date                             | 4/4/2003   | 4/4/2003   | 4/4/2003   | 5/9/2003   | 5/9/2003   | 5/9/2003   |
|                             | QC Code                                 | SA   | SA   | SADU   | SA   | SA   | SADU   |
|                             | Investigation                           | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   |
|                             |   | 2  | 2  | 2  | 3  | 3  | 3  |
| Parameter                   | Units                                   | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Volatile Organic Compounds  |   |  |  |  |  |  |  |
| 1,1,1-Trichloroethane       | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| 1,1,2,2-Tetrachloroethane   | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| 1,1,2-Trichloroethane       | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| 1,1-Dichloroethane          | UG/L                                    | 2.5 UJ   | 4.4 J  | 3 J  | 4.3  | 4.3  | 4.3  |
| 1,1-Dichloroethene          | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| 1,2-Dibromo-3-chloropropane | UG/L                                    |  |  |  |  |  |  |
| 1,2-Dibromoethane           | UG/L                                    |  |  |  |  |  |  |
| 1,2-Dichlorobenzene         | UG/L                                    |  |  |  |  |  |  |
| 1,2-Dichloroethane          | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| 1,2-Dichloropropane         | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.2 U  | 0.5 J  | 0.4 J  |
| 1,3-Dichlorobenzene         | UG/L                                    |  |  |  |  |  |  |
| 1,4-Dichlorobenzene         | UG/L                                    |  |  |  |  |  |  |
| Acetone                     | UG/L                                    | 5 R  | 5 R  | 5 R  | 5.8 R  | 8.4 J  | 8.4 J  |
| Benzene                     | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| Bromochloromethane          | UG/L                                    |  |  |  |  |  |  |
| Bromodichloromethane        | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Bromoform                   | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| Carbon disulfide            | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 0.3 U  | 0.3 U  | 0.3 U  |
| Carbon tetrachloride        | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Chlorobenzene               | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Chlorodibromomethane        | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Chloroethane                | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 0.4 U  | 0.4 U  | 0.4 U  |
| Chloroform                  | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Cis-1,2-Dichloroethene      | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.15 U   | 0.4 J  | 0.3 J  |
| Cis-1,3-Dichloropropene     | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| Ethyl benzene               | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Meta/Para Xylene            | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.8 U  | 0.8 U  | 0.8 U  |
| Methyl bromide              | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 0.4 U  | 0.4 U  | 0.4 U  |
| Methyl butyl ketone         | UG/L                                    | 5 U  | 5 U  | 5 U  | 2.8 U  | 2.8 U  | 2.8 U  |
| Methyl chloride             | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Methyl ethyl ketone         | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 3.6 R  | 3.6 R  |  |
| Methyl isobutyl ketone      | UG/L                                    | 5 U  | 5 U  | 5 U  | 2.5 U  | 2.5 U  | 2.5 U  |
| Methylene chloride          | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 1 J  | 1 J  | 1 J  |
| Ortho Xylene                | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Styrene                     | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.3 U  | 0.3 U  | 0.3 U  |
| Tetrachloroethene           | UG/L                                    | 5 UJ   | 5 UJ   | 5 UJ   | 0.5 U  | 0.5 U  | 0.5 U  |
| Toluene                     | UG/L                                    | 5 U  | 5 U  | 5 U  | 0.4 U  | 0.4 U  | 0.4 U  |
| Total Xylenes               | UG/L                                    |  |  |  | 1  |  |  |

|                             | Facility<br>Location ID<br>Matrix ( | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER |
|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                             | Sample ID                           | DRMO-2005                           | DRMO-2008                           | DRMO-2005/DRMO-2008                 | DRMO-2013                           | 121C-2019                           | DRMO-2013/DRMO-2019                 |
| Sample Depth to             | Top of Sample                       | 16.5                                | 16.5                                | 16.5                                | 16.6                                | 16.6                                | 16.6                                |
| Sample Depth to Bo          | ttom of Sample                      | 16.5                                | 16.5                                | 16.5                                | 16.6                                | 16.6                                | 16.6                                |
|                             | Sample Date                         | 4/4/2003                            | 4/4/2003                            | 4/4/2003                            | 5/9/2003                            | 5/9/2003                            | 5/9/2003                            |
|                             | QC Code                             | SA                                  | SA                                  | SADU                                | SA                                  | SA                                  | SADU                                |
|                             | Investigation                       | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              |
|                             |                                     | 2                                   | 2                                   | 2                                   | 3                                   | 3                                   | 3                                   |
| Parameter                   | Units                               | Value (Q)                           |
| Trans-1,2-Dichloroethene    | UG/L                                | 5 U                                 | 5 U                                 | 5 U                                 | 0.4 U                               | 0.4 U                               | 0.4 U                               |
| Trans-1,3-Dichloropropene   | UG/L                                | 5 U                                 | 5 U                                 | 5 U                                 | 0.3 U                               | 0.3 U                               | 0.3 U                               |
| Trichloroethene             | UG/L                                | 5 U                                 | 5 U                                 | 5 U                                 | 0.4 U                               | 0.4 U                               | 0.4 U                               |
| Vinyl chloride              | UG/L                                | 2.2 J                               | 2.4 J                               | 2.3 J                               | 1.4                                 | 1.3                                 | 1.4                                 |
| Semivolatile Organic Compou |                                     |                                     |                                     |                                     |                                     |                                     |                                     |
| 1,2,4-Trichlorobenzene      | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| 1,2-Dichlorobenzene         | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| 1,3-Dichlorobenzene         | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| 1,4-Dichlorobenzene         | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| 2,4,5-Trichlorophenol       | UG/L                                | 1 R                                 | 1 R                                 |                                     | 1 U                                 | 1 U                                 | 1 U                                 |
| 2,4,6-Trichlorophenol       | UG/L                                | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 |
| 2,4-Dichlorophenol          | UG/L                                | 1.4 R                               | 1.3 R                               |                                     | 1.3 U                               | 1.3 U                               | 1.3 U                               |
| 2,4-Dimethylphenol          | UG/L                                | 2.4 R                               | 2.3 R                               |                                     | 2.3 U                               | 2.3 U                               | 2.3 U                               |
| 2,4-Dinitrophenol           | UG/L                                |                                     |                                     |                                     | 2 UJ                                | 2 UJ                                | 2 UJ                                |
| 2,4-Dinitrotoluene          | UG/L                                | 1.1 UJ                              | 1.1 UJ                              | 1.1 UJ                              | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| 2,6-Dinitrotoluene          | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| 2-Chloronaphthalene         | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| 2-Chlorophenol              | UG/L                                | 1.1 R                               | 1.1 R                               |                                     | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| 2-Methylnaphthalene         | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| 2-Methylphenol              | UG/L                                | 1 R                                 | 1 R                                 |                                     | 1 U                                 | 1 U                                 | 1 U                                 |
| 2-Nitroaniline              | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| 2-Nitrophenol               | UG/L                                | 1.1 R                               | 1.1 R                               |                                     | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| 3 or 4-Methylphenol         | UG/L                                |                                     |                                     |                                     |                                     |                                     |                                     |
| 3,3'-Dichlorobenzidine      | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| 3-Nitroaniline              | UG/L                                | 1.2 UJ                              |
| 4,6-Dinitro-2-methylphenol  | UG/L                                | 1.2 R                               | 1.2 R                               |                                     | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              |
| 4-Bromophenyl phenyl ether  | UG/L                                | 1.4 UJ                              | 1.3 UJ                              | 1.4 UJ                              | 1.3 U                               | 1.3 U                               | 1.3 U                               |
| 4-Chloro-3-methylphenol     | UG/L                                | 1.1 R                               | 1.1 R                               |                                     | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| 4-Chloroaniline             | UG/L                                | 1.2 R                               | 1.2 R                               |                                     | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              |
| 4-Chlorophenyl phenyl ether | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| 4-Methylphenol              | UG/L                                | 1.9 R                               | 1.8 R                               |                                     | 1.8 U                               | 1.8 U                               | 1.8 U                               |
| 4-Nitroaniline              | UG/L                                | 2.5 UJ                              | 2.4 UJ                              | 2.5 UJ                              | 2.4 UJ                              | 2.4 UJ                              | 2.4 UJ                              |
| 4-Nitrophenol               | UG/L                                | 1.1 R                               | 1.1 R                               |                                     | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| Acenaphthene                | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Acenaphthylene              | UG/L                                | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| Anthracene                  | UG/L                                | 1.4 UJ                              | 1.3 UJ                              | 1.4 UJ                              | 1.3 U                               | 1.3 U                               | 1.3 U                               |
| Benzo(a)anthracene          | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Benzo(a)pyrene              | UG/L                                | 1.6 UJ                              | 1.5 UJ                              | 1.6 UJ                              | 1.5 U                               | 1.5 U                               | 1.5 U                               |
| Benzo(b)fluoranthene        | UG/L                                | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |

#### SEAD-121C and SEAD-121I RI REPORT

|                             | Facility Location ID Matrix | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER | Building 360<br>MW-1<br>GROUNDWATER |
|-----------------------------|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                             | Sample ID                   | DRMO-2005                           | DRMO-2008                           | DRMO-2005/DRMO-2008                 | DRMO-2013                           | 121C-2019                           | DRMO-2013/DRMO-2019                 |
| Sample Depth to             |                             | 16.5                                | 16.5                                | 16.5                                | 16.6                                | 16.6                                | 16.6                                |
| Sample Depth to Bo          |                             | 16.5                                | 16.5                                | 16.5                                | 16.6                                | 16.6                                | 16.6                                |
| 1 1                         | Sample Date                 | 4/4/2003                            | 4/4/2003                            | 4/4/2003                            | 5/9/2003                            | 5/9/2003                            | 5/9/2003                            |
|                             | QC Code                     | SA                                  | SA                                  | SADU                                | SA                                  | SA                                  | SADU                                |
|                             | Investigation               | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              | PID-RI                              |
|                             |                             | 2                                   | 2                                   | 2                                   | 3                                   | 3                                   | 3                                   |
| Parameter                   | Units                       | Value (Q)                           |
| Benzo(ghi)perylene          | UG/L                        | 1.4 UJ                              | 1.3 UJ                              | 1.4 UJ                              | 1.3 UJ                              | 1.3 UJ                              | 1.3 UJ                              |
| Benzo(k)fluoranthene        | UG/L                        | 2.7 UJ                              | 2.7 UJ                              | 2.7 UJ                              | 2.6 U                               | 2.7 U                               | 2.7 U                               |
| Bis(2-Chloroethoxy)methane  | UG/L                        | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 |
| Bis(2-Chloroethyl)ether     | UG/L                        | 1.2 U                               |
| Bis(2-Chloroisopropyl)ether | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Bis(2-Ethylhexyl)phthalate  | UG/L                        | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 | 1 U                                 |
| Butylbenzylphthalate        | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Carbazole                   | UG/L                        | 0.43 UJ                             | 0.42 UJ                             | 0.43 UJ                             | 0.42 U                              | 0.42 U                              | 0.42 U                              |
| Chrysene                    | UG/L                        | 1.7 UJ                              | 1.6 UJ                              | 1.7 UJ                              | 1.6 U                               | 1.6 U                               | 1.6 U                               |
| Di-n-butylphthalate         | UG/L                        | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| Di-n-octylphthalate         | UG/L                        | 1.6 UJ                              | 1.5 UJ                              | 1.6 UJ                              | 1.5 U                               | 1.5 U                               | 1.5 U                               |
| Dibenz(a,h)anthracene       | UG/L                        | 1.6 UJ                              | 1.5 UJ                              | 1.6 UJ                              | 1.5 UJ                              | 1.5 UJ                              | 1.5 UJ                              |
| Dibenzofuran                | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Diethyl phthalate           | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Dimethylphthalate           | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Fluoranthene                | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Fluorene                    | UG/L                        | 1.1 UJ                              | 1.1 UJ                              | 1.1 UJ                              | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| Hexachlorobenzene           | UG/L                        | 1.1 UJ                              | 1.1 UJ                              | 1.1 UJ                              | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| Hexachlorobutadiene         | UG/L                        | 1.6 UJ                              | 1.5 UJ                              | 1.6 UJ                              | 1.5 U                               | 1.5 U                               | 1.5 U                               |
| Hexachlorocyclopentadiene   | UG/L                        | 4 UJ                                | 3.9 UJ                              | 4 UJ                                | 3.8 R                               | 3.9 R                               |                                     |
| Hexachloroethane            | UG/L                        | 1.1 UJ                              | 1.1 UJ                              | 1.1 UJ                              | 1.1 U                               | 1.1 U                               | 1.1 U                               |
| Indeno(1,2,3-cd)pyrene      | UG/L                        | 1.7 UJ                              | 1.6 UJ                              | 1.7 UJ                              | 1.6 UJ                              | 1.6 UJ                              | 1.6 UJ                              |
| Isophorone                  | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| N-Nitrosodiphenylamine      | UG/L                        | 2.1 UJ                              | 2 UJ                                | 2 UJ                                | 2 U                                 | 2 U                                 | 2 U                                 |
| N-Nitrosodipropylamine      | UG/L                        | 1 UJ                                |
| Naphthalene                 | UG/L                        | 1.2 UJ                              | 1.2 UJ                              | 1.2 UJ                              | 1.2 U                               | 1.2 U                               | 1.2 U                               |
| Nitrobenzene                | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Pentachlorophenol           | UG/L                        | 2 R                                 | 1.9 R                               |                                     | 1.9 U                               | 1.9 U                               | 1.9 U                               |
| Phenanthrene                | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Phenol                      | UG/L                        | 1 R                                 | 1 R                                 |                                     | 1 U                                 | 1 U                                 | 1 U                                 |
| Pyrene                      | UG/L                        | 1 UJ                                | 1 UJ                                | 1 UJ                                | 1 U                                 | 1 U                                 | 1 U                                 |
| Pesticides/PCBs             |                             |                                     |                                     |                                     |                                     |                                     |                                     |
| 4,4'-DDD                    | UG/L                        | 0.01 U                              | 0.01 U                              | 0.01 U                              | 0.01 UJ                             | 0.01 UJ                             | 0.01 UJ                             |
| 4,4'-DDE                    | UG/L                        | 0.005 U                             |
| 4,4'-DDT                    | UG/L                        | 0.01 UJ                             |
| Aldrin                      | UG/L                        | 0.02 U                              | 0.02 U                              | 0.02 U                              | 0.02 UJ                             | 0.02 UJ                             | 0.02 UJ                             |
| Alpha-BHC                   | UG/L                        | 0.01 UJ                             |
| Alpha-Chlordane             | UG/L                        | 0.02 U                              | 0.02 U                              | 0.02 U                              | 0.02 UJ                             | 0.02 UJ                             | 0.02 UJ                             |
| Beta-BHC                    | UG/L                        | 0.01 U                              |

#### SEAD-121C and SEAD-121I RI REPORT

|                    | Facility<br>Location ID | Building 360<br>MW-1 | Building 360<br>MW-1 | Building 360<br>MW-1 | Building 360<br>MW-1 | Building 360<br>MW-1 | Building 360<br>MW-1 |
|--------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                    | Matrix (                | GROUNDWATER          | GROUNDWATER          | GROUNDWATER          | GROUNDWATER          | GROUNDWATER          | GROUNDWATER          |
|                    | Sample ID               | DRMO-2005            | DRMO-2008            | DRMO-2005/DRMO-2008  | DRMO-2013            | 121C-2019            | DRMO-2013/DRMO-2019  |
|                    | to Top of Sample        | 16.5                 | 16.5                 | 16.5                 | 16.6                 | 16.6                 | 16.6                 |
| Sample Depth to I  |                         | 16.5                 | 16.5                 | 16.5                 | 16.6                 | 16.6                 | 16.6                 |
|                    | Sample Date             | 4/4/2003             | 4/4/2003             | 4/4/2003             | 5/9/2003             | 5/9/2003             | 5/9/2003             |
|                    | QC Code                 | SA                   | SA                   | SADU                 | SA                   | SA                   | SADU                 |
|                    | Investigation           | PID-RI               | PID-RI               | PID-RI               | PID-RI               | PID-RI               | PID-RI               |
|                    |                         | 2                    | 2                    | 2                    | 3                    | 3                    | 3                    |
| Parameter          | Units                   | Value (Q)            |
| Chlordane          | UG/L                    | 0.14 U               | 0.14 U               | 0.14 U               |                      |                      |                      |
| Delta-BHC          | UG/L                    | 0.004 UJ             |
| Dieldrin           | UG/L                    | 0.009 U              |
| Endosulfan I       | UG/L                    | 0.02 U               | 0.02 U               | 0.02 U               | 0.02 UJ              | 0.01 UJ              | 0.02 UJ              |
| Endosulfan II      | UG/L                    | 0.01 U               | 0.01 U               | 0.01 U               | 0.01 UJ              | 0.01 UJ              | 0.01 UJ              |
| Endosulfan sulfate | UG/L                    | 0.02 U               |
| Endrin             | UG/L                    | 0.02 U               |
| Endrin aldehyde    | UG/L                    | 0.02 U               |
| Endrin ketone      | UG/L                    | 0.009 U              | 0.009 U              | 0.009 U              | 0.009 UJ             | 0.009 UJ             | 0.009 UJ             |
| Gamma-BHC/Lindane  | UG/L                    | 0.009 U              | 0.009 U              | 0.009 U              | 0.009 UJ             | 0.009 UJ             | 0.009 UJ             |
| Gamma-Chlordane    | UG/L                    | 0.01 UJ              | 0.01 UJ              | 0.01 UJ              | 0.01 U               | 0.01 U               | 0.01 U               |
| Heptachlor         | UG/L                    | 0.007 U              |
| Heptachlor epoxide | UG/L                    | 0.009 U              | 0.009 U              | 0.009 U              | 0.009 U              | 0.008 U              | 0.0085 U             |
| Methoxychlor       | UG/L                    | 0.008 UJ             | 0.008 UJ             | 0.008 UJ             | 0.008 U              | 0.008 U              | 0.008 U              |
| Toxaphene          | UG/L                    | 0.12 U               |
| Aroclor-1016       | UG/L                    | 0.24 UJ              | 0.25 UJ              | 0.25 UJ              | 0.25 UJ              | 0.24 UJ              | 0.25 UJ              |
| Aroclor-1221       | UG/L                    | 0.082 U              | 0.082 U              | 0.082 U              | 0.083 U              | 0.081 U              | 0.082 U              |
| Aroclor-1232       | UG/L                    | 0.092 UJ             | 0.093 UJ             | 0.093 UJ             | 0.094 UJ             | 0.091 UJ             | 0.093 UJ             |
| Aroclor-1242       | UG/L                    | 0.082 UJ             | 0.082 UJ             | 0.082 UJ             | 0.083 UJ             | 0.081 UJ             | 0.082 UJ             |
| Aroclor-1248       | UG/L                    | 0.12 U               |
| Aroclor-1254       | UG/L                    | 0.051 U              | 0.052 U              | 0.052 U              | 0.052 U              | 0.051 U              | 0.052 U              |
| Aroclor-1260       | UG/L                    | 0.01 U               | 0.01 U               | 0.01 U               | 0.01 UJ              | 0.01 UJ              | 0.01 UJ              |
| Metals and Cyanide |                         |                      |                      |                      |                      |                      |                      |
| Aluminum           | UG/L                    | 75 U                 | 28.3 J               | 52 J                 | 32 U                 | 32 U                 | 32 U                 |
| Antimony           | UG/L                    | 3.8 U                | 3.8 U                | 3.8 U                | 7.5 U                | 7.5 U                | 7.5 U                |
| Arsenic            | UG/L                    | 4.5 U                | 4.5 U                | 4.5 U                | 7.1                  | 2.25 U               | 4.7 J                |
| Barium             | UG/L                    | 135                  | 147                  | 141                  | 113                  | 113                  | 113                  |
| Beryllium          | UG/L                    | 0.1 U                | 0.1 U                | 0.1 U                | 0.9 U                | 0.9 U                | 0.9 U                |
| Cadmium            | UG/L                    | 0.8 U                |
| Calcium            | UG/L                    | 88700                | 96900                | 92800                | 84200                | 87100                | 85650                |
| Chromium           | UG/L                    | 1.4 U                |
| Cobalt             | UG/L                    | 0.7 U                | 0.7 U                | 0.7 U                | 2.3 U                | 2.3 U                | 2.3 U                |
| Copper             | UG/L                    | 3.6 U                | 3.6 U                | 3.6 U                | 2 U                  | 2 U                  | 2 U                  |
| Cyanide            | UG/L                    |                      |                      |                      |                      |                      |                      |
| Cyanide, Amenable  | MG/L                    | 0.01 U               |
| Cyanide, Total     | MG/L                    |                      |                      |                      |                      |                      |                      |
| Iron               | UG/L                    | 3780 J               | 3290 J               | 3535 J               | 3810                 | 3510                 | 3660                 |
| Lead               | UG/L                    | 3 U                  | 3 U                  | 3 U                  | 3 U                  | 3 U                  | 3 U                  |
| Magnesium          | UG/L                    | 11400                | 12500                | 11950                | 11000                | 11400                | 11200                |

#### SEAD-121C and SEAD-121I RI REPORT

#### Seneca Army Depot Activity

|                              | Sample ID     | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2005 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2008 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2005/DRMO-2008 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2013 | Building 360<br>MW-1<br>GROUNDWATER<br>121C-2019 | Building 360<br>MW-1<br>GROUNDWATER<br>DRMO-2013/DRMO-2019 |
|------------------------------|---------------|--|--|--|--|--|--|
| Sample Depth to              |               | 16.5   | 16.5   | 16.5   | 16.6   | 16.6   | 16.6   |
| Sample Depth to Bot          | •             | 16.5   | 16.5   | 16.5   | 16.6   | 16.6   | 16.6   |
|                              | Sample Date   | 4/4/2003   | 4/4/2003   | 4/4/2003   | 5/9/2003   | 5/9/2003   | 5/9/2003   |
|                              | QC Code       | SA   | SA   | SADU   | SA   | SA   | SADU   |
|                              | Investigation | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   |
|                              |               | 2  | 2  | 2  | 3  | 3  | 3  |
| Parameter                    | Units         | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Manganese                    | UG/L          | 1580   | 1710   | 1645   | 1140   | 1180   | 1160   |
| Mercury                      | UG/L          | 0.2 U  | 0.2 U  | 0.2 U  | 0.2 U  | 0.2 U  | 0.2 U  |
| Nickel                       | UG/L          | 3 J  | 3.8 J  | 3.4 J  | 2 U  | 2 U  | 2 U  |
| Potassium                    | UG/L          | 9450 J   | 10600 J  | 10025 J  | 8820   | 9430   | 9125   |
| Selenium                     | UG/L          | 4.2 J  | 3.3 J  | 3.8 J  | 0.65 U   | 3.2 J  | 1.9 J  |
| Silver                       | UG/L          | 3.7 U  | 3.7 U  | 3.7 U  | 3.7 U  | 3.7 U  | 3.7 U  |
| Sodium                       | UG/L          | 40400  | 45300  | 42850  | 41100  | 44000  | 42550  |
| Thallium                     | UG/L          | 5.3 U  | 5.3 U  | 5.3 U  | 4.4 J  | 2.1 U  | 3.3 J  |
| Vanadium                     | UG/L          | 1.4 U  | 1.4 U  | 1.4 U  | 2.5 U  | 2.5 U  | 2.5 U  |
| Zinc                         | UG/L          | 7.1 J  | 7.1 J  | 7.1 J  | 14.4 J   | 17 J   | 16 J   |
| Other                        |               |  |  |  |  |  |  |
| Total Petroleum Hydrocarbons | MG/L          | 1 U  | 1 U  | 1 U  | 1 U  | 1 U  | 1 U  |

#### NOTES

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

SEAD-121C

SEAD-121C

Facility SEAD-121C

|   | -             | SEAD-121C        | SEAD-121C                  | SEAD-121C           |
|---|---------------|------------------|----------------------------|---------------------|
|   |               | SWDRMO-8         | SWDRMO-8                   | SWDRMO-8            |
|   |               | DRMO-3008        | SURFACE WATER<br>DRMO-3005 | SURFACE WATER       |
| Cample Donth to 7                         | •             |                  |                            | DRMO-3008/DRMO-3005 |
| Sample Depth to 3<br>Sample Depth to Bott |               | 0<br>N/A         | 0<br>N/A                   | 0<br>N/A            |
| Sample Depth to Bott                      | Sample Date   | N/A<br>11/5/2002 | 11/5/2002                  | 11/5/2002           |
|   |               |                  |                            |                     |
|   | QC Code       | SA<br>DID DI     | SA<br>DID DI               | SA/DU               |
|   | Investigation | PID-RI<br>1      | PID-RI                     | PID-RI              |
| Danamatan                                 | Units         | =                | Value (O)                  | 1<br>Value (O)      |
| Parameter Volatile Organic Compounds      | Units         | Value (Q)        | Value (Q)                  | Value (Q)           |
| 1,1,1-Trichloroethane                     | UG/L          | 0.75 U           | 0.75 U                     | 0.75 U              |
| 1,1,2,2-Tetrachloroethane                 | UG/L<br>UG/L  | 0.73 U           | 0.73 U<br>0.7 U            | 0.73 U              |
| 1,1,2-Trichloroethane                     | UG/L<br>UG/L  | 0.7 U<br>0.62 U  | 0.7 U<br>0.62 U            | 0.7 U<br>0.62 U     |
| 1,1-Dichloroethane                        | UG/L<br>UG/L  | 0.66 U           | 0.66 U                     | 0.66 U              |
| 1,1-Dichloroethene                        | UG/L<br>UG/L  | 0.69 U           | 0.69 U                     | 0.69 U              |
| 1,2-Dichloroethane                        | UG/L<br>UG/L  | 0.56 U           | 0.56 U                     | 0.56 U              |
| 1,2-Dichloropropane                       |               | 0.73 U           |                            |                     |
|   | UG/L          | 3.5 UJ           | 0.73 U                     | 0.73 U<br>3.5 UJ    |
| Acetone                                   | UG/L<br>UG/L  |                  | 3.5 UJ                     |                     |
| Benzene                                   |               | 0.71 U           | 0.71 U                     | 0.71 U              |
| Bromodichloromethane<br>Bromoform         | UG/L          | 0.73 U           | 0.73 U                     | 0.73 U              |
| Carbon disulfide                          | UG/L<br>UG/L  | 0.49 U           | 0.49 U                     | 0.49 U              |
|   |               | 0.72 U           | 0.72 U                     | 0.72 U<br>0.47 U    |
| Carbon tetrachloride                      | UG/L          | 0.47 U           | 0.47 U                     |                     |
| Chlorobenzene<br>Chlorodibromomethane     | UG/L<br>UG/L  | 0.78 U           | 0.78 U                     | 0.78 U              |
| Chloroethane                              | UG/L<br>UG/L  | 0.66 U           | 0.66 U                     | 0.66 U              |
| Chloroform                                | UG/L<br>UG/L  | 2.4 U            | 2.4 U                      | 2.4 U               |
|   |               | 0.61 U           | 0.61 U                     | 0.61 U              |
| Cis-1,2-Dichloroethene                    | UG/L          | 0.62 U           | 0.62 U                     | 0.62 U              |
| Cis-1,3-Dichloropropene                   | UG/L          | 0.66 U           | 0.66 U                     | 0.66 U              |
| Ethyl benzene                             | UG/L          | 0.76 U           | 0.76 U                     | 0.76 U              |
| Meta/Para Xylene                          | UG/L          | 1.5 U            | 1.5 U                      | 1.5 U               |
| Methyl bromide                            | UG/L          | 0.38 UJ          | 0.38 UJ                    | 0.38 UJ             |
| Methyl butyl ketone                       | UG/L          | 0.6 U            | 0.6 U                      | 0.6 U               |
| Methyl chloride                           | UG/L          | 0.51 U           | 0.51 U                     | 0.51 U              |
| Methyl ethyl ketone                       | UG/L          | 2.3 U            | 2.3 U                      | 2.3 U               |
| Methyl isobutyl ketone                    | UG/L          | 0.81 UJ          | 0.81 UJ                    | 0.81 UJ             |
| Methylene chloride                        | UG/L          | 1.8 U            | 1.8 U                      | 1.8 U               |
| Ortho Xylene                              | UG/L          | 0.72 U           | 0.72 U                     | 0.72 U              |
| Styrene                                   | UG/L          | 0.92 U           | 0.92 U                     | 0.92 U              |
| Tetrachloroethene                         | UG/L          | 0.7 UJ           | 0.7 UJ                     | 0.7 UJ              |
| Toluene                                   | UG/L          | 0.71 U           | 0.71 U                     | 0.71 U              |
| Trans-1,2-Dichloroethene                  | UG/L          | 0.81 U           | 0.81 U                     | 0.81 U              |
| Trans-1,3-Dichloropropene                 | UG/L          | 0.66 U           | 0.66 U                     | 0.66 U              |
| Trichloroethene                           | UG/L          | 0.72 U           | 0.72 U                     | 0.72 U              |
| Vinyl chloride                            | UG/L          | 0.79 U           | 0.79 U                     | 0.79 U              |
| Semivolatile Organic Compou               |               | 10.11            | 10.11                      | 10.11               |
| 1,2,4-Trichlorobenzene                    | UG/L          | 10 U             | 10 U                       | 10 U                |
| 1,2-Dichlorobenzene                       | UG/L          | 10 U             | 10 U                       | 10 U                |
| 1,3-Dichlorobenzene                       | UG/L          | 10 U             | 10 U                       | 10 U                |
| 1,4-Dichlorobenzene                       | UG/L          | 10 U             | 10 U                       | 10 U                |

|                             | E:1:4         | CEAD 101C      | CEAD 101C     | SEAD 121C           |
|-----------------------------|---------------|----------------|---------------|---------------------|
|                             |               | SEAD-121C      | SEAD-121C     | SEAD-121C           |
|                             |               | SWDRMO-8       | SWDRMO-8      | SWDRMO-8            |
|                             |               |                | SURFACE WATER | SURFACE WATER       |
| 0 15 1 7                    |               | DRMO-3008      | DRMO-3005     | DRMO-3008/DRMO-3005 |
| Sample Depth to To          |               | 0              | 0             | 0                   |
| Sample Depth to Botto       |               | N/A            | N/A           | N/A                 |
|                             | Sample Date   | 11/5/2002      | 11/5/2002     | 11/5/2002           |
|                             | QC Code       | SA             | SA            | SA/DU               |
| 1                           | Investigation | PID-RI         | PID-RI        | PID-RI              |
| Parameter                   | Units         | 1<br>Value (Q) | Value (Q)     | 1<br>Value (Q)      |
| 2,4,5-Trichlorophenol       | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,4,6-Trichlorophenol       | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,4-Dichlorophenol          | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,4-Dimethylphenol          | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,4-Dinitrophenol           | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,4-Dinitrotoluene          | UG/L          | 10 U           | 10 U          | 10 U                |
| 2,6-Dinitrotoluene          | UG/L          | 10 U           | 10 U          | 10 U                |
| 2-Chloronaphthalene         | UG/L          | 10 U           | 10 U          | 10 U                |
| 2-Chlorophenol              | UG/L<br>UG/L  | 10 U           | 10 U          | 10 U                |
| 2-Methylnaphthalene         | UG/L          | 10 U           | 10 U          | 10 U                |
| 2-Methylphenol              | UG/L<br>UG/L  | 10 U           | 10 U          | 10 U                |
| 2-Nitroaniline              | UG/L<br>UG/L  | 10 U           | 10 U          |                     |
|                             |               | 10 U           | 10 U          | 10 U                |
| 2-Nitrophenol               | UG/L          |                |               | 10 U                |
| 3 or 4-Methylphenol         | UG/L          | 10 U           | 10 U          | 10 U                |
| 3,3'-Dichlorobenzidine      | UG/L          | 10 U           | 10 U          | 10 U                |
| 3-Nitroaniline              | UG/L          | 10 U           | 10 U          | 10 U                |
| 4,6-Dinitro-2-methylphenol  | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Bromophenyl phenyl ether  | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Chloro-3-methylphenol     | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Chloroaniline             | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Chlorophenyl phenyl ether | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Nitroaniline              | UG/L          | 10 U           | 10 U          | 10 U                |
| 4-Nitrophenol               | UG/L          | 10 U           | 10 U          | 10 U                |
| Acenaphthene                | UG/L          | 10 U           | 10 U          | 10 U                |
| Acenaphthylene              | UG/L          | 10 U           | 10 U          | 10 U                |
| Anthracene                  | UG/L          | 10 U           | 10 U          | 10 U                |
| Benzo(a)anthracene          | UG/L          | 10 U           | 10 U          | 10 U                |
| Benzo(a)pyrene              | UG/L          | 10 U           | 10 U          | 10 U                |
| Benzo(b)fluoranthene        | UG/L          | 10 U           | 10 U          | 10 U                |
| Benzo(ghi)perylene          | UG/L          | 10 U           | 10 U          | 10 U                |
| Benzo(k)fluoranthene        | UG/L          | 10 U           | 10 U          | 10 U                |
| Bis(2-Chloroethoxy)methane  | UG/L          | 10 U           | 10 U          | 10 U                |
| Bis(2-Chloroethyl)ether     | UG/L          | 10 UJ          | 10 UJ         | 10 UJ               |
| Bis(2-Chloroisopropyl)ether | UG/L          | 10 U           | 10 U          | 10 U                |
| Bis(2-Ethylhexyl)phthalate  | UG/L          | 10 U           | 10 U          | 10 U                |
| Butylbenzylphthalate        | UG/L          | 10 U           | 10 U          | 10 U                |
| Carbazole                   | UG/L          | 10 U           | 10 U          | 10 U                |
| Chrysene                    | UG/L          | 10 U           | 10 U          | 10 U                |
| Di-n-butylphthalate         | UG/L          | 10 U           | 10 U          | 10 U                |
| Di-n-octylphthalate         | UG/L          | 10 U           | 10 U          | 10 U                |
| Dibenz(a,h)anthracene       | UG/L          | 10 U           | 10 U          | 10 U                |

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

SEAD-121C

SEAD-121C

Facility SEAD-121C

|                           | Location ID   | SWDRMO-8  | SWDRMO-8      | SWDRMO-8            |
|---------------------------|---------------|-----------|---------------|---------------------|
|                           |               |           | SURFACE WATER |                     |
|                           |               | DRMO-3008 | DRMO-3005     | DRMO-3008/DRMO-3005 |
| Sample Depth to           |               | 0         | 0             | 0                   |
| Sample Depth to Bo        |               | N/A       | N/A           | N/A                 |
| Sample Depth to Bo        | Sample Date   | 11/5/2002 | 11/5/2002     | 11/5/2002           |
|                           | QC Code       | SA        | SA            | SA/DU               |
|                           | Investigation | PID-RI    | PID-RI        | PID-RI              |
|                           | mvestigation  | 1         | 110 10        | 1                   |
| Parameter                 | Units         | Value (Q) | Value (Q)     | Value (Q)           |
| Dibenzofuran              | UG/L          | 10 U      | 10 U          | 10 U                |
| Diethyl phthalate         | UG/L          | 10 U      | 10 U          | 10 U                |
| Dimethylphthalate         | UG/L          | 10 U      | 10 U          | 10 U                |
| Fluoranthene              | UG/L          | 10 U      | 10 U          | 10 U                |
| Fluorene                  | UG/L          | 10 U      | 10 U          | 10 U                |
| Hexachlorobenzene         | UG/L          | 10 U      | 10 U          | 10 U                |
| Hexachlorobutadiene       | UG/L          | 10 U      | 10 U          | 10 U                |
| Hexachlorocyclopentadiene | UG/L          | 10 UJ     | 10 UJ         | 10 UJ               |
| Hexachloroethane          | UG/L          | 10 U      | 10 U          | 10 U                |
| Indeno(1,2,3-cd)pyrene    | UG/L          | 10 U      | 10 U          | 10 U                |
| Isophorone                | UG/L          | 10 U      | 10 U          | 10 U                |
| N-Nitrosodiphenylamine    | UG/L          | 10 U      | 10 U          | 10 U                |
| N-Nitrosodipropylamine    | UG/L          | 10 U      | 10 U          | 10 U                |
| Naphthalene               | UG/L          | 10 U      | 10 U          | 10 U                |
| Nitrobenzene              | UG/L          | 10 U      | 10 U          | 10 U                |
| Pentachlorophenol         | UG/L          | 10 U      | 10 U          | 10 U                |
| Phenanthrene              | UG/L          | 10 U      | 10 U          | 10 U                |
| Phenol                    | UG/L          | 10 U      | 10 U          | 10 U                |
| Pyrene                    | UG/L          | 10 U      | 10 U          | 10 U                |
| Pesticides/PCBs           |               |           |               |                     |
| 4,4'-DDD                  | UG/L          | 0.01 U    | 0.01 U        | 0.01 U              |
| 4,4'-DDE                  | UG/L          | 0.005 U   | 0.005 U       | 0.005 U             |
| 4,4'-DDT                  | UG/L          | 0.01 UJ   | 0.01 UJ       | 0.01 UJ             |
| Aldrin                    | UG/L          | 0.02 U    | 0.02 U        | 0.02 U              |
| Alpha-BHC                 | UG/L          | 0.01 UJ   | 0.01 UJ       | 0.01 UJ             |
| Alpha-Chlordane           | UG/L          | 0.02 U    | 0.02 U        | 0.02 U              |
| Beta-BHC                  | UG/L          | 0.01 U    | 0.01 U        | 0.01 U              |
| Chlordane                 | UG/L          | 0.13 U    | 0.13 U        | 0.13 U              |
| Delta-BHC                 | UG/L          | 0.004 U   | 0.004 U       | 0.004 U             |
| Dieldrin                  | UG/L          | 0.009 UJ  | 0.009 U       | 0.009 UJ            |
| Endosulfan I              | UG/L          | 0.01 U    | 0.01 U        | 0.01 U              |
| Endosulfan II             | UG/L          | 0.01 UJ   | 0.01 UJ       | 0.01 UJ             |
| Endosulfan sulfate        | UG/L          | 0.02 U    | 0.02 U        | 0.02 U              |
| Endrin                    | UG/L          | 0.02 U    | 0.02 U        | 0.02 U              |
| Endrin aldehyde           | UG/L          | 0.02 U    | 0.02 U        | 0.02 U              |
| Endrin ketone             | UG/L          | 0.009 U   | 0.009 U       | 0.009 U             |
| Gamma-BHC/Lindane         | UG/L          | 0.009 U   | 0.009 U       | 0.009 U             |
| Gamma-Chlordane           | UG/L          | 0.01 U    | 0.01 U        | 0.01 U              |
| Heptachlor                | UG/L          | 0.007 U   | 0.007 U       | 0.007 U             |
| Heptachlor epoxide        | UG/L          | 0.008 U   | 0.008 U       | 0.008 U             |
| Methoxychlor              | UG/L          | 0.008 U   | 0.008 U       | 0.008 U             |

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

SEAD-121C

SEAD-121C

Facility SEAD-121C

|                              | -             | SEAD-121C      | SUDDMO 9      | CWDDMO 9            |
|------------------------------|---------------|----------------|---------------|---------------------|
|                              |               | SWDRMO-8       | SWDRMO-8      | SWDRMO-8            |
|                              |               |                | SURFACE WATER | SURFACE WATER       |
| G 1 D 4 . 7                  |               | DRMO-3008      | DRMO-3005     | DRMO-3008/DRMO-3005 |
| Sample Depth to              |               | 0              | 0             | 0                   |
| Sample Depth to Bott         | _             | N/A            | N/A           | N/A                 |
|                              | Sample Date   | 11/5/2002      | 11/5/2002     | 11/5/2002           |
|                              | QC Code       | SA             | SA            | SA/DU               |
|                              | Investigation | PID-RI         | PID-RI        | PID-RI              |
| Parameter                    | Units         | 1<br>Value (Q) | Value (Q)     | 1<br>Value (Q)      |
| Toxaphene                    | UG/L          | 0.12 U         | 0.12 U        | 0.12 U              |
| Aroclor-1016                 | UG/L          | 0.24 UJ        | 0.24 UJ       | 0.24 UJ             |
| Aroclor-1221                 | UG/L          | 0.08 U         | 0.08 U        | 0.08 U              |
| Aroclor-1232                 | UG/L          | 0.09 UJ        | 0.09 UJ       | 0.09 UJ             |
| Aroclor-1242                 | UG/L          | 0.08 UJ        | 0.08 UJ       | 0.08 UJ             |
| Aroclor-1248                 | UG/L          | 0.12 U         | 0.12 U        | 0.12 U              |
| Aroclor-1254                 | UG/L          | 0.05 U         | 0.05 U        | 0.05 U              |
| Aroclor-1260                 | UG/L          | 0.01 UJ        | 0.01 UJ       | 0.01 UJ             |
| Metals and Cyanide           |               |                |               |                     |
| Aluminum                     | UG/L          | 23.9           | 23.4          | 23.7                |
| Antimony                     | UG/L          | 4.7 U          | 4.7 U         | 4.7 U               |
| Arsenic                      | UG/L          | 2.8 U          | 2.8 U         | 2.8 U               |
| Barium                       | UG/L          | 43.7           | 47.4          | 45.6                |
| Beryllium                    | UG/L          | 0.14           | 0.12          | 0.13                |
| Cadmium                      | UG/L          | 0.4 U          | 0.4 U         | 0.4 U               |
| Calcium                      | UG/L          | 67700          | 72200         | 69950               |
| Chromium                     | UG/L          | 0.6 U          | 0.6 U         | 0.6 U               |
| Cobalt                       | UG/L          | 0.6            | 0.6           | 0.6                 |
| Copper                       | UG/L          | 1.8            | 2.1           | 2.0                 |
| Cyanide, Amenable            | MG/L          | 0.01 U         | 0.01 U        | 0.01 U              |
| Cyanide, Total               | MG/L          | 0.01 U         | 0.01 U        | 0.01 U              |
| Iron                         | UG/L          | 19 J           | 34.2 J        | 27 J                |
| Lead                         | UG/L          | 3.7            | 5.1 J         | 4.4 J               |
| Magnesium                    | UG/L          | 11600          | 12300         | 11950               |
| Manganese                    | UG/L          | 11.6           | 26.1          | 18.9                |
| Mercury                      | UG/L          | 0.2 U          | 0.2 U         | 0.2 U               |
| Nickel                       | UG/L          | 1.8 U          | 1.8 U         | 1.8 U               |
| Potassium                    | UG/L          | 3450 J         | 3660 J        | 3555 J              |
| Selenium                     | UG/L          | 3 U            | 3 U           | 3 U                 |
| Silver                       | UG/L          | 1 U            | 1 U           | 1 U                 |
| Sodium                       | UG/L          | 102000 J       | 108000 J      | 105000 J            |
| Thallium                     | UG/L          | 5.4 U          | 5.4 U         | 5.4 U               |
| Vanadium                     | UG/L          | 0.7 U          | 0.7 U         | 0.7 U               |
| Zinc                         | UG/L          | 13.9           | 16.8          | 15.4                |
| Other                        |               |                |               |                     |
| Total Petroleum Hydrocarbons | MG/L          | 1 U            | 1 U           | 1 U                 |

#### **SEAD-121C and SEAD-121I RI REPORT**

|   | Facility<br>Location ID<br>Matrix | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SS121I-10<br>SOIL | SEAD-121I<br>SS121I-10<br>SOIL | SEAD-121I<br>SS121I-10<br>SOIL |
|---|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|
|   | Sample ID                         | 121I-1043                     | 121I-1044                     | 121I-1043/121I-1044           | 121I-1006                      | 121I-1031                      | 121I-1006/121I-1031            |
| Sample Depth to                               |                                   | 0                             | 0                             | 0                             | 0                              | 0                              | 0                              |
| Sample Depth to Bo                            |                                   | 2                             | 2                             | 2                             | 0.2                            | 0.2                            | 0.2                            |
| 2 marpha = 2pm 13 = 2                         | Sample Date                       | 10/24/2002                    | 10/24/2002                    | 10/24/2002                    | 10/22/2002                     | 10/22/2002                     | 10/22/2002                     |
|   | QC Code                           | SA                            | SA                            | SA/DU                         | SA                             | SA                             | SA/DU                          |
|   | Investigation                     | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                         | PID-RI                         | PID-RI                         |
| Parameter                                     | Units                             | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                      | Value (Q)                      | Value (Q)                      |
| <b>Volatile Organic Compounds</b>             |                                   |                               |                               |                               |                                |                                |                                |
| 1,1,1-Trichloroethane                         | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| 1,1,2,2-Tetrachloroethane                     | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| 1,1,2-Trichloroethane                         | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| 1,1-Dichloroethane                            | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| 1,1-Dichloroethene                            | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| 1,2-Dichloroethane                            | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 UJ                         | 2.2 U                          | 2.4 UJ                         |
| 1,2-Dichloropropane                           | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Acetone                                       | UG/KG                             | 110 U                         | 33 UJ                         | 72 UJ                         | 4.5 J                          | 1.1 U                          | 2.8 J                          |
| Benzene                                       | UG/KG                             | 6.6 J                         | 10 J                          | 8 J                           | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Bromodichloromethane                          | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Bromoform                                     | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Carbon disulfide                              | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Carbon tetrachloride                          | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 UJ                         | 2.2 U                          | 2.4 UJ                         |
| Chlorobenzene                                 | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Chlorodibromomethane                          | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Chloroethane                                  | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Chloroform                                    | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Cis-1,2-Dichloroethene                        | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Cis-1,3-Dichloropropene                       | UG/KG<br>UG/KG                    | 3.1 U<br>2 J                  | 2.8 UJ<br>3.5 J               | 3.0 UJ<br>2.8 J               | 2.5 U<br>2.5 U                 | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Ethyl benzene                                 | UG/KG<br>UG/KG                    | 2.2 J                         | 3.5 J<br>3.4 J                | 2.8 J<br>2.8 J                | I .                            | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Meta/Para Xylene                              | UG/KG<br>UG/KG                    | 3.1 U                         | 3.4 J<br>2.8 UJ               |                               | 2.5 U                          | 2.2 U<br>2.2 U                 |                                |
| Methyl bromide                                | UG/KG<br>UG/KG                    | 3.1 U<br>3.1 U                | 2.8 UJ                        | 3.0 UJ<br>3.0 UJ              | 2.5 UJ<br>2.5 UJ               | 2.2 U<br>2.2 U                 | 2.4 UJ<br>2.4 UJ               |
| Methyl butyl ketone<br>Methyl chloride        | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| •   | UG/KG                             | 55                            | 2.8 UJ<br>27 J                | 3.0 OJ<br>41 J                | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Methyl ethyl ketone<br>Methyl isobutyl ketone | UG/KG                             | 3.1 U                         | 2.8 U                         | 3.0 U                         | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Methylene chloride                            | UG/KG                             | 1.55 U                        | 2.8 U<br>2.7 J                | 2.1 J                         | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Ortho Xylene                                  | UG/KG                             | 1.55 U<br>1.1 J               | 2.7 J                         | 2.1 J<br>2 J                  | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Styrene                                       | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U                          | 2.4 U                          |
| Tetrachloroethene                             | UG/KG<br>UG/KG                    | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Toluene                                       | UG/KG<br>UG/KG                    | 5.1 U<br>6.9                  | 2.8 UJ<br>11 J                | 9.0 J                         | 2.5 U<br>2.5 U                 | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Trans-1,2-Dichloroethene                      | UG/KG                             | 3.1 U                         | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Trans-1,3-Dichloropropene                     | UG/KG<br>UG/KG                    | 3.1 U<br>3.1 U                | 2.8 UJ                        | 3.0 UJ                        | 2.5 U<br>2.5 U                 | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Trichloroethene                               | UG/KG<br>UG/KG                    | 3.1 U<br>3.1 U                | 2.8 UJ                        | 3.0 UJ                        | 2.5 U                          | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| Vinyl chloride                                | UG/KG<br>UG/KG                    | 3.1 U<br>3.1 U                | 2.8 UJ                        | 3.0 UJ                        | 2.5 U<br>2.5 U                 | 2.2 U<br>2.2 U                 | 2.4 U<br>2.4 U                 |
| v myr emoriae                                 | UU/KU                             | 3.1 0                         | 2.0 UJ                        | 3.0 03                        | I 2.3 U                        | 2.2 0                          | 2.4 0                          |

#### **SEAD-121C and SEAD-121I RI REPORT**

|                             |                 |            | Deneca Min | ny Depot Menvity    |            |            |                     |
|-----------------------------|-----------------|------------|------------|---------------------|------------|------------|---------------------|
|                             | Facility        | SEAD-121I  | SEAD-121I  | SEAD-121I           | SEAD-121I  | SEAD-121I  | SEAD-121I           |
|                             | Location ID     | SB121I-2   | SB121I-2   | SB121I-2            | SS121I-10  | SS121I-10  | SS121I-10           |
|                             | Matrix          | SOIL       | SOIL       | SOIL                | SOIL       | SOIL       | SOIL                |
|                             | Sample ID       | 121I-1043  | 121I-1044  | 121I-1043/121I-1044 | 121I-1006  | 121I-1031  | 121I-1006/121I-1031 |
| Sample Depth to             | Top of Sample   | 0          | 0          | 0                   | 0          | 0          | 0                   |
| Sample Depth to Bo          | ottom of Sample | 2          | 2          | 2                   | 0.2        | 0.2        | 0.2                 |
| • •                         | Sample Date     | 10/24/2002 | 10/24/2002 | 10/24/2002          | 10/22/2002 | 10/22/2002 | 10/22/2002          |
|                             | QC Code         | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
|                             | Investigation   | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
|                             | Ü               |            |            |                     |            |            |                     |
| Parameter                   | Units           | Value (O)  | Value (Q)  | Value (Q)           | Value (O)  | Value (Q)  | Value (O)           |
| Semivolatile Organic Compo  | unds            |            |            |                     |            |            |                     |
| 1,2,4-Trichlorobenzene      | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 1,2-Dichlorobenzene         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 1,3-Dichlorobenzene         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 1,4-Dichlorobenzene         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2,4,5-Trichlorophenol       | UG/KG           | 970 U      | 980 U      | 975 U               | 910 U      | 910 U      | 910 U               |
| 2,4,6-Trichlorophenol       | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2,4-Dichlorophenol          | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2,4-Dimethylphenol          | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2,4-Dinitrophenol           | UG/KG           | 970 U      | 980 U      | 975 U               | 910 UJ     | 910 UJ     | 910 UJ              |
| 2,4-Dinitrotoluene          | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2,6-Dinitrotoluene          | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2-Chloronaphthalene         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2-Chlorophenol              | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2-Methylnaphthalene         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2-Methylphenol              | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 2-Nitroaniline              | UG/KG           | 970 U      | 980 U      | 975 U               | 910 U      | 910 UJ     | 910 UJ              |
| 2-Nitrophenol               | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 3 or 4-Methylphenol         | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 3.3'-Dichlorobenzidine      | UG/KG           | 390 UJ     | 390 U      | 390 UJ              | 360 U      | 360 U      | 360 U               |
| 3-Nitroaniline              | UG/KG           | 970 U      | 980 U      | 975 U               | 910 U      | 910 U      | 910 U               |
| 4,6-Dinitro-2-methylphenol  | UG/KG           | 970 U      | 980 UJ     | 975 UJ              | 910 UJ     | 910 UJ     | 910 UJ              |
| 4-Bromophenyl phenyl ether  | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 4-Chloro-3-methylphenol     | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 4-Chloroaniline             | UG/KG           | 390 U      | 390 U      | 390 U               | 360 UJ     | 360 U      | 360 UJ              |
| 4-Chlorophenyl phenyl ether | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| 4-Methylphenol              | UG/KG           |            |            |                     |            |            |                     |
| 4-Nitroaniline              | UG/KG           | 970 U      | 980 U      | 975 U               | 910 U      | 910 U      | 910 U               |
| 4-Nitrophenol               | UG/KG           | 970 U      | 980 U      | 975 U               | 910 U      | 910 U      | 910 U               |
| Acenaphthene                | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| Acenaphthylene              | UG/KG           | 390 U      | 390 U      | 390 U               | 360 U      | 360 U      | 360 U               |
| Anthracene                  | UG/KG           | 89 J       | 74 J       | 82 J                | 360 U      | 360 U      | 360 U               |
| Benzo(a)anthracene          | UG/KG           | 350 J      | 350 J      | 350 J               | 48 J       | 47 J       | 48 J                |
| Benzo(a)pyrene              | UG/KG           | 390 J      | 450 J      | 420 J               | 66 J       | 60 J       | 63 J                |
| Benzo(b)fluoranthene        | UG/KG           | 600 J      | 620 J      | 610 J               | 53 J       | 51 J       | 52 J                |
| Benzo(ghi)perylene          | UG/KG           | 220 J      | 140 J      | 180 J               | 67 J       | 63 J       | 65 J                |
| Benzo(k)fluoranthene        | UG/KG           | 300 J      | 360 J      | 330 J               | 360 U      | 360 U      | 360 U               |
| (n/moranione                | 0.0,110         | 500 5      | 500 3      | 220 2               | 1 200 5    | 200 0      | 200 2               |

#### **SEAD-121C and SEAD-121I RI REPORT**

## Seneca Army Depot Activity SEAD-121I SEAD-121I

|                             |                 |            | Selieca ATI | ny Depot Activity   |            |              |                     |
|-----------------------------|-----------------|------------|-------------|---------------------|------------|--------------|---------------------|
|                             | Facility        | SEAD-121I  | SEAD-121I   | SEAD-121I           | SEAD-121I  | SEAD-121I    | SEAD-121I           |
|                             | Location ID     | SB121I-2   | SB121I-2    | SB121I-2            | SS121I-10  | SS121I-10    | SS121I-10           |
|                             | Matrix          | SOIL       | SOIL        | SOIL                | SOIL       | SOIL         | SOIL                |
|                             | Sample ID       | 121I-1043  | 121I-1044   | 121I-1043/121I-1044 | 121I-1006  | 121I-1031    | 121I-1006/121I-1031 |
| Sample Depth to             | o Top of Sample | 0          | 0           | 0                   | 0          | 0            | 0                   |
| Sample Depth to Be          | ottom of Sample | 2          | 2           | 2                   | 0.2        | 0.2          | 0.2                 |
|                             | Sample Date     | 10/24/2002 | 10/24/2002  | 10/24/2002          | 10/22/2002 | 10/22/2002   | 10/22/2002          |
|                             | OC Code         | SA         | SA          | SA/DU               | SA         | SA           | SA/DU               |
|                             | Investigation   | PID-RI     | PID-RI      | PID-RI              | PID-RI     | PID-RI       | PID-RI              |
| Parameter                   | Units           | Value (Q)  | Value (Q)   | Value (Q)           | Value (Q)  | Value (Q)    | Value (Q)           |
| Bis(2-Chloroethoxy)methane  | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Bis(2-Chloroethyl)ether     | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Bis(2-Chloroisopropyl)ether | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Bis(2-Ethylhexyl)phthalate  | UG/KG           | 78 J       | 195 U       | 137 J               | 360 UJ     | 360 U        | 360 UJ              |
| Butylbenzylphthalate        | UG/KG           | 390 UJ     | 390 U       | 390 UJ              | 360 U      | 360 U        | 360 U               |
| Carbazole                   | UG/KG           | 56 J       | 67 J        | 62 J                | 360 U      | 360 U        | 360 U               |
| Chrysene                    | UG/KG           | 380 J      | 400         | 390 J               | 62 J       | 63 J         | 63 J                |
| Di-n-butylphthalate         | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Di-n-octylphthalate         | UG/KG           | 390 UJ     | 390 U       | 390 UJ              | 360 U      | 360 U        | 360 U               |
| Dibenz(a,h)anthracene       | UG/KG           | 390 UJ     | 390 U       | 390 UJ              | 360 U      | 360 UJ       | 360 UJ              |
| Dibenzofuran                | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Diethyl phthalate           | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Dimethylphthalate           | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Fluoranthene                | UG/KG           | 720        | 920         | 820                 | 100 J      | 78 J         | 89 J                |
| Fluorene                    | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Hexachlorobenzene           | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Hexachlorobutadiene         | UG/KG           | 390 UJ     | 390 UJ      | 390 UJ              | 360 U      | 360 U        | 360 U               |
| Hexachlorocyclopentadiene   | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Hexachloroethane            | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Indeno(1,2,3-cd)pyrene      | UG/KG           | 63 J       | 79 J        | 71 J                | 83 J       | 74 J         | 79 J                |
| Isophorone                  | UG/KG           | 390 UJ     | 390 UJ      | 390 UJ              | 360 U      | 360 U        | 360 U               |
| N-Nitrosodiphenylamine      | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| N-Nitrosodipropylamine      | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 UJ       | 360 UJ              |
| Naphthalene                 | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Nitrobenzene                | UG/KG           | 390 UJ     | 390 UJ      | 390 UJ              | 360 U      | 360 U        | 360 U               |
| Pentachlorophenol           | UG/KG           | 970 U      | 980 U       | 975 U               | 910 U      | 910 U        | 910 U               |
| Phenanthrene                | UG/KG           | 450        | 440         | 445                 | 60 J       | 56 J         | 58 J                |
| Phenol                      | UG/KG           | 390 U      | 390 U       | 390 U               | 360 U      | 360 U        | 360 U               |
| Pyrene                      | UG/KG           | 1200 J     | 660         | 930 J               | 79 J       | 98 J         | 89 J                |
| Pesticides/PCBs             | 00,110          | 1200 0     | 000         | ,550 <b>c</b>       |            | , o <b>c</b> | 0, 0                |
| 4,4'-DDD                    | UG/KG           | 2 UJ       | 2 UJ        | 2 UJ                | 1.9 UJ     | 1.8 UJ       | 1.9 UJ              |
| 4,4'-DDE                    | UG/KG           | 2 U        | 2 U         | 2 U                 | 1.9 U      | 1.8 U        | 1.9 U               |
| 4,4'-DDT                    | UG/KG           | 2 U        | 2 U         | 2 U                 | 1.9 UJ     | 1.8 UJ       | 1.9 UJ              |
| Aldrin                      | UG/KG           | 2 U        | 2 U         | 2 U                 | 1.9 U      | 1.8 U        | 1.9 U               |
| Alpha-BHC                   | UG/KG           | 2 UJ       | 2 U         | 2 UJ                | 1.9 UJ     | 1.8 UJ       | 1.9 UJ              |
| Alpha-Chlordane             | UG/KG           | 2 U        | 2 U         | 2 U                 | 1.9 UJ     | 1.8 UJ       | 1.9 UJ              |
| Beta-BHC                    | UG/KG           | 2 U        | 2 U         | 2 U                 | 1.9 U      | 1.8 U        | 1.9 U               |
| Dom Bile                    | 00/110          | 2.0        | 2 0         | 20                  | 1 1., 0    | 1.0 0        | 1.7 0               |

#### **SEAD-121C and SEAD-121I RI REPORT**

## Seneca Army Depot Activity SEAD-121I SEAD-121I

|                    |                    |            | Scheca All | ny Depot Activity   | _          |            |                     |
|--------------------|--------------------|------------|------------|---------------------|------------|------------|---------------------|
|                    | Facility           | SEAD-121I  | SEAD-121I  | SEAD-121I           | SEAD-121I  | SEAD-121I  | SEAD-121I           |
|                    | Location ID        | SB121I-2   | SB121I-2   | SB121I-2            | SS121I-10  | SS121I-10  | SS121I-10           |
|                    | Matrix             | SOIL       | SOIL       | SOIL                | SOIL       | SOIL       | SOIL                |
|                    | Sample ID          | 121I-1043  | 121I-1044  | 121I-1043/121I-1044 | 121I-1006  | 121I-1031  | 121I-1006/121I-1031 |
| Sample Dept        | h to Top of Sample | 0          | 0          | 0                   | 0          | 0          | 0                   |
| Sample Depth to    | Bottom of Sample   | 2          | 2          | 2                   | 0.2        | 0.2        | 0.2                 |
|                    | Sample Date        | 10/24/2002 | 10/24/2002 | 10/24/2002          | 10/22/2002 | 10/22/2002 | 10/22/2002          |
|                    | QC Code            | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
|                    | Investigation      | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
| Parameter          | Units              | Value (Q)  | Value (O)  | Value (Q)           | Value (Q)  | Value (Q)  | Value (Q)           |
| Chlordane          | UG/KG              | 20 U       | 20 U       | 20 U                | 19 U       | 18 U       | 19 U                |
| Delta-BHC          | UG/KG              | 2 UJ       | 2 UJ       | 2 UJ                | 1.9 UJ     | 1.8 UJ     | 1.9 UJ              |
| Dieldrin           | UG/KG              | 2 UJ       | 2 UJ       | 2 UJ                | 1.9 UJ     | 1.8 UJ     | 1.9 UJ              |
| Endosulfan I       | UG/KG              | 11 J       | 6.9 J      | 9.0 J               | 3.7 J      | 4.2 J      | 4.0 J               |
| Endosulfan II      | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Endosulfan sulfate | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Endrin             | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 UJ     | 1.8 UJ     | 1.9 UJ              |
| Endrin aldehyde    | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Endrin ketone      | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Gamma-BHC/Lindane  | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 UJ     | 1.8 UJ     | 1.9 UJ              |
| Gamma-Chlordane    | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Heptachlor         | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Heptachlor epoxide | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Methoxychlor       | UG/KG              | 2 U        | 2 U        | 2 U                 | 1.9 U      | 1.8 U      | 1.9 U               |
| Toxaphene          | UG/KG              | 20 U       | 20 U       | 20 U                | 19 U       | 18 U       | 19 U                |
| Aroclor-1016       | UG/KG              | 20 U       | 20 U       | 20 U                | 19 UJ      | 19 UJ      | 19 UJ               |
| Aroclor-1221       | UG/KG              | 20 U       | 20 U       | 20 U                | 19 U       | 19 U       | 19 U                |
| Aroclor-1232       | UG/KG              | 20 U       | 20 U       | 20 U                | 19 UJ      | 19 UJ      | 19 UJ               |
| Aroclor-1242       | UG/KG              | 20 U       | 20 U       | 20 U                | 19 UJ      | 19 UJ      | 19 UJ               |
| Aroclor-1248       | UG/KG              | 20 U       | 20 U       | 20 U                | 19 U       | 19 U       | 19 U                |
| Aroclor-1254       | UG/KG              | 20 UJ      | 20 UJ      | 20 UJ               | 19 U       | 19 U       | 19 U                |
| Aroclor-1260       | UG/KG              | 20 UJ      | 20 UJ      | 20 UJ               | 19 U       | 19 U       | 19 U                |
| Metals and Cyanide | OG/RG              | 20 03      | 20 03      | 20 63               | 17.0       | 17 0       | 17 6                |
| Aluminum           | MG/KG              | 9700       | 9020       | 9360                | 6480       | 7510       | 6995                |
| Antimony           | MG/KG              | 1.8        | 8.6        | 5.2                 | 3.4        | 2.5        | 3.0                 |
| Arsenic            | MG/KG              | 21.2 J     | 43 J       | 32 J                | 5.2        | 5.2        | 5.2                 |
| Barium             | MG/KG              | 74.3 J     | 83.6 J     | 79.0 J              | 116        | 119        | 118                 |
| Beryllium          | MG/KG              | 0.49       | 0.46       | 0.48                | 0.38 J     | 0.43 J     | 0.41 J              |
| Cadmium            | MG/KG              | 0.14 U     | 0.14 U     | 0.14 U              | 5          | 4.1        | 5                   |
| Calcium            | MG/KG<br>MG/KG     | 30900      | 27800      | 29350               | 166000     | 143000     | 154500              |
| Chromium           | MG/KG              | 25.9 J     | 50 J       | 38 J                | 14.3       | 14.7       | 14.5                |
| Cobalt             | MG/KG<br>MG/KG     | 23.9 J     | 40.6 J     | 32.3 J              | 8.4        | 8.9        | 8.7                 |
| Copper             | MG/KG<br>MG/KG     | 37.5 R     | 66.1 R     | J2.J J              | 24.5 J     | 22.6 J     | 23.6 J              |
| Cyanide, Amenable  | MG/KG<br>MG/KG     | 0.59 U     | 0.6 U      | 0.6 U               | 0.56 UJ    | 0.55 UJ    | 0.56 UJ             |
| Cyanide, Total     | MG/KG<br>MG/KG     | 0.592 U    | 0.595 U    | 0.594 U             | 0.556 UJ   | 0.551 UJ   | 0.554 UJ            |
| Iron               | MG/KG<br>MG/KG     | 27100      | 31500      | 29300               | 17100      | 17600      | 17350               |
| Lead               | MG/KG<br>MG/KG     | 31.3       | 42.1       | 36.7                | 17100      | 16.3       | 18                  |
| Load               | MO/KO              | 31.3       | 42.1       | 30.7                | I 19       | 10.5       | 10                  |

#### **SEAD-121C and SEAD-121I RI REPORT**

#### **Seneca Army Depot Activity**

|                              | Facility      | SEAD-121I  | SEAD-121I  | SEAD-121I           | SEAD-121I  | SEAD-121I  | SEAD-121I           |
|------------------------------|---------------|------------|------------|---------------------|------------|------------|---------------------|
|                              | Location ID   | SB121I-2   | SB121I-2   | SB121I-2            | SS121I-10  | SS121I-10  | SS121I-10           |
|                              | Matrix        | SOIL       | SOIL       | SOIL                | SOIL       | SOIL       | SOIL                |
|                              | Sample ID     | 121I-1043  | 121I-1044  | 121I-1043/121I-1044 | 121I-1006  | 121I-1031  | 121I-1006/121I-1031 |
| Sample Depth to              | Top of Sample | 0          | 0          | 0                   | 0          | 0          | 0                   |
| Sample Depth to Bot          | tom of Sample | 2          | 2          | 2                   | 0.2        | 0.2        | 0.2                 |
|                              | Sample Date   | 10/24/2002 | 10/24/2002 | 10/24/2002          | 10/22/2002 | 10/22/2002 | 10/22/2002          |
|                              | QC Code       | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
|                              | Investigation | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
|                              |               |            |            |                     |            |            |                     |
| Parameter                    | Units         | Value (Q)  | Value (Q)  | Value (Q)           | Value (Q)  | Value (Q)  | Value (Q)           |
| Magnesium                    | MG/KG         | 6110       | 4240       | 5175                | 13500      | 9040       | 11270               |
| Manganese                    | MG/KG         | 33200 J    | 57800 J    | 45500 J             | 786        | 822        | 804                 |
| Mercury                      | MG/KG         | 0.04       | 0.05       | 0.05                | 0.03       | 0.03       | 0.03                |
| Nickel                       | MG/KG         | 38.9 J     | 46.3 J     | 42.6 J              | 26.7       | 26.9       | 26.8                |
| Potassium                    | MG/KG         | 859 J      | 929 J      | 894 J               | 786        | 1150       | 968                 |
| Selenium                     | MG/KG         | 5.1 J      | 17.9 J     | 12 J                | 0.87       | 0.8        | 0.8                 |
| Silver                       | MG/KG         | 1.9 J      | 4.2 J      | 3.1 J               | 1.1 U      | 1.1 U      | 1.1 U               |
| Sodium                       | MG/KG         | 118 U      | 115 U      | 117 U               | 210        | 188        | 199                 |
| Thallium                     | MG/KG         | 3          | 14.4       | 9                   | 1.1 U      | 1.1 U      | 1.1 U               |
| Vanadium                     | MG/KG         | 22.6 J     | 31.6 J     | 27.1 J              | 11.6       | 13.2       | 12.4                |
| Zinc                         | MG/KG         | 85.1 J     | 82 J       | 84 J                | 84 J       | 67.9 J     | 76 J                |
| Other                        |               |            |            |                     |            |            |                     |
| Total Organic Carbon         | MG/KG         | 5600       | 6800       | 6200                | 5600       | 4500       | 5050                |
| Total Petroleum Hydrocarbons | MG/KG         | 47 U       | 48 U       | 48 U                | 44 UJ      | 44 UJ      | 44 UJ               |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

#### **SEAD-121C and SEAD-121I RI REPORT**

| Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I  | SEAD-121I  | SEAD-121I           |
|---|------------|---------------------|
| Location ID SS121I-29 SS121I-29 SS121I-29 SD121I-7  | SD121I-7   | SD121I-7            |
| Matrix SOIL SOIL SOIL DITCHSOIL   | DITCHSOIL  | DITCHSOIL           |
| Sample ID 121I-1025 121I-1030 121I-1025/121I-1030 121I-4005   | 121I-4007  | 121I-4007/121I-4005 |
| Sample Depth to Top of Sample 0 0 0 0   | 0          | 0                   |
| Sample Depth to Bottom of Sample 0.2 0.2 0.2 2  | 2          | 2                   |
| Sample Date 10/23/2002 10/23/2002 10/23/2002 10/23/2002 10/26/2002  | 10/26/2002 | 10/26/2002          |
| 1   |            |                     |
|   | SA         | SA/DU               |
| Investigation PID-RI PID-RI PID-RI PID-RI   | PID-RI     | PID-RI              |
|   | 1          | 1                   |
| Parameter Units Value (Q) Value (Q) Value (Q) Value (Q)   | Value (Q)  | Value (Q)           |
| Volatile Organic Compounds  |            |                     |
| 1,1,1-Trichloroethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| 1,1,2,2-Tetrachloroethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| 1,1,2-Trichloroethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| 1,1-Dichloroethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| 1,1-Dichloroethene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| 1,2-Dichloroethane UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| 1,2-Dichloropropane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Acetone UG/KG 3.1 U 3.6 UJ 3.4 UJ 25 J  | 10 J       | 18 J                |
| Benzene UG/KG 24 57 J 41 J 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Bromodichloromethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Bromoform UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Carbon disulfide UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Carbon tetrachloride UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Carbon reductionate   | 3.2 UJ     | 3.2 UJ              |
|   |            |                     |
| Chlorodibromomethane UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Chloroethane UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Chloroform UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Cis-1,2-Dichloroethene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Cis-1,3-Dichloropropene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Ethyl benzene UG/KG 4.4 9.5 J 7.0 J 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Meta/Para Xylene UG/KG 3.9 8.7 J 6.3 J 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Methyl bromide UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Methyl butyl ketone UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Methyl chloride UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Methyl ethyl ketone UG/KG 1.55 U 67 J 34 J 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Methyl isobutyl ketone UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Methylene chloride UG/KG 3.1 U 3.6 UJ 3.4 UJ 2.5 U  | 1.9 U      | 2.2 U               |
| Ortho Xylene UG/KG 2.1 J 5.1 J 3.6 J 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Styrene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Tetrachloroethene UG/KG 3.1 UJ 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
| Toluene UG/KG 18 43 J 31 J 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |
|   |            |                     |
| Trans-1,2-Dichloroethene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ 3.1 UJ 3.4 UJ 3.4 UJ 3.1 UJ 3.4 UJ | 3.2 UJ     | 3.2 UJ              |
| Trans-1,3-Dichloropropene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Trichloroethene UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ  | 3.2 UJ     | 3.2 UJ              |
| Vinyl chloride UG/KG 3.1 U 3.6 UJ 3.4 UJ 3.1 UJ   | 3.2 UJ     | 3.2 UJ              |

#### **SEAD-121C and SEAD-121I RI REPORT**

|                             | Facility<br>Location ID | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SD121I-7 | SEAD-121I<br>SD121I-7 | SEAD-121I<br>SD121I-7 |
|-----------------------------|-------------------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|
|                             | Matrix                  | SOIL                   | SOIL                   | SOIL                   | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             |
|                             | Sample ID               | 121I-1025              | 121I-1030              | 121I-1025/121I-1030    | 121I-4005             | 121I-4007             | 121I-4007/121I-4005   |
| Sample Depth to             | Top of Sample           | 0                      | 0                      | 0                      | 0                     | 0                     | 0                     |
| Sample Depth to Bo          | • 1                     | 0.2                    | 0.2                    | 0.2                    | 2                     | 2                     | 2                     |
|                             | Sample Date             | 10/23/2002             | 10/23/2002             | 10/23/2002             | 10/26/2002            | 10/26/2002            | 10/26/2002            |
|                             | QC Code                 | SA                     | SA                     | SA/DU                  | SA                    | SA                    | SA/DU                 |
|                             | Investigation           | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                | PID-RI                | PID-RI                |
| _                           |                         |                        |                        |                        | 1                     | 1                     | 1                     |
| Parameter                   | Units                   | Value (Q)              | Value (Q)              | Value (Q)              | Value (Q)             | Value (Q)             | Value (Q)             |
| Semivolatile Organic Compo  | unas<br>UG/KG           | 2100 11                | 2200 11                | 2200 11                | 420 11                | 420 II                | 420 U                 |
| 1,2,4-Trichlorobenzene      |                         | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 |                       |
| 1,2-Dichlorobenzene         | UG/KG                   | 2100 U                 | 2300 U<br>2300 U       | 2200 U<br>2200 U       | 420 U<br>420 U        | 420 U                 | 420 U<br>420 U        |
| 1,3-Dichlorobenzene         | UG/KG                   | 2100 U                 |                        |                        |                       | 420 U                 |                       |
| 1,4-Dichlorobenzene         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2,4,5-Trichlorophenol       | UG/KG                   | 5200 U                 | 5700 U                 | 5450 U                 | 1100 U                | 1100 U                | 1100 U                |
| 2,4,6-Trichlorophenol       | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2,4-Dichlorophenol          | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2,4-Dimethylphenol          | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2,4-Dinitrophenol           | UG/KG                   | 5200 R                 | 5700 UJ                | 5700 UJ                | 1100 U                | 1100 U                | 1100 U                |
| 2,4-Dinitrotoluene          | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2,6-Dinitrotoluene          | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2-Chloronaphthalene         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2-Chlorophenol              | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2-Methylnaphthalene         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 210 U                 | 130 J                 | 170 J                 |
| 2-Methylphenol              | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 2-Nitroaniline              | UG/KG                   | 5200 UJ                | 5700 UJ                | 5450 UJ                | 1100 U                | 1100 U                | 1100 U                |
| 2-Nitrophenol               | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 3 or 4-Methylphenol         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 3,3'-Dichlorobenzidine      | UG/KG                   | 2100 UJ                | 2300 R                 | 2100 UJ                | 210 UJ                | 420 J                 | 315 J                 |
| 3-Nitroaniline              | UG/KG                   | 5200 U                 | 5700 UJ                | 5450 UJ                | 1100 U                | 1100 U                | 1100 U                |
| 4,6-Dinitro-2-methylphenol  | UG/KG                   | 5200 R                 | 5700 UJ                | 5700 UJ                | 1100 U                | 1100 U                | 1100 U                |
| 4-Bromophenyl phenyl ether  | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 4-Chloro-3-methylphenol     | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 4-Chloroaniline             | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 4-Chlorophenyl phenyl ether | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 420 U                 | 420 U                 | 420 U                 |
| 4-Methylphenol              | UG/KG                   |                        |                        |                        |                       |                       |                       |
| 4-Nitroaniline              | UG/KG                   | 5200 U                 | 5700 UJ                | 5450 UJ                | 1100 U                | 1100 U                | 1100 U                |
| 4-Nitrophenol               | UG/KG                   | 5200 U                 | 5700 U                 | 5450 U                 | 1100 U                | 1100 U                | 1100 U                |
| Acenaphthene                | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 280 J                 | 1200                  | 740 J                 |
| Acenaphthylene              | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                 | 70 J                  | 210 U                 | 140 J                 |
| Anthracene                  | UG/KG                   | 330 J                  | 1150 U                 | 740 J                  | 420 J                 | 1900                  | 1160 J                |
| Benzo(a)anthracene          | UG/KG                   | 700 J                  | 260 J                  | 480 J                  | 2200 J                | 5000 J                | 3600 J                |
| Benzo(a)pyrene              | UG/KG                   | 700 J                  | 2300 R                 | 700 J                  | 2800 J                | 5900 J                | 4350 J                |
| Benzo(b)fluoranthene        | UG/KG                   | 720 J                  | 2300 R                 | 720 J                  | 3600 J                | 8100 J                | 5850 J                |
| Benzo(ghi)perylene          | UG/KG                   | 430 J                  | 2300 R                 | 430 J                  | 1400 J                | 3200 J                | 2300 J                |
| Benzo(k)fluoranthene        | UG/KG                   | 720 J                  | 2300 R                 | 720 J                  | 2500 J                | 4900 J                | 3700 J                |

#### **SEAD-121C and SEAD-121I RI REPORT**

|                             | Facility<br>Location ID | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-29      | SEAD-121I<br>SD121I-7  | SEAD-121I<br>SD121I-7  | SEAD-121I<br>SD121I-7            |
|-----------------------------|-------------------------|------------------------|------------------------|-----------------------------|------------------------|------------------------|----------------------------------|
|                             | Matrix<br>Sample ID     | SOIL<br>121I-1025      | SOIL<br>121I-1030      | SOIL<br>121I-1025/121I-1030 | DITCHSOIL<br>121I-4005 | DITCHSOIL<br>121I-4007 | DITCHSOIL<br>121I-4007/121I-4005 |
| Sample Depth to             |                         | 0                      | 0                      | 0                           | 0                      | 0                      | 0                                |
| Sample Depth to B           |                         | 0.2                    | 0.2                    | 0.2                         | 2                      | 2                      | 2                                |
| Sumple Bepair to B          | Sample Date             | 10/23/2002             | 10/23/2002             | 10/23/2002                  | 10/26/2002             | 10/26/2002             | 10/26/2002                       |
|                             | QC Code                 | SA                     | SA                     | SA/DU                       | SA                     | SA                     | SA/DU                            |
|                             | Investigation           | PID-RI                 | PID-RI                 | PID-RI                      | PID-RI                 | PID-RI                 | PID-RI                           |
|                             |                         |                        |                        |                             | 1                      | 1                      | 1                                |
| Parameter                   | Units                   | Value (Q)              | Value (Q)              | Value (Q)                   | Value (Q)              | Value (Q)              | Value (Q)                        |
| Bis(2-Chloroethoxy)methane  | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Bis(2-Chloroethyl)ether     | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 UJ                 | 420 U                  | 420 UJ                           |
| Bis(2-Chloroisopropyl)ether | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Bis(2-Ethylhexyl)phthalate  | UG/KG                   | 1050 U                 | 260 J                  | 655 J                       | 75 J                   | 110 J                  | 93 J                             |
| Butylbenzylphthalate        | UG/KG                   | 2100 U                 | 2300 R                 | 2100 U                      | 420 J                  | 420 J                  | 420 J                            |
| Carbazole                   | UG/KG                   | 340 J                  | 1150 UJ                | 745 J                       | 440                    | 1700                   | 1070                             |
| Chrysene                    | UG/KG                   | 790 J                  | 2300 R                 | 790 J                       | 2400 J                 | 5400 J                 | 3900 J                           |
| Di-n-butylphthalate         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Di-n-octylphthalate         | UG/KG                   | 2100 U                 | 2300 R                 | 2100 U                      | 420 J                  | 420 J                  | 420 J                            |
| Dibenz(a,h)anthracene       | UG/KG                   | 2100 UJ                | 2300 R                 | 2100 UJ                     | 130 J                  | 350 J                  | 240 J                            |
| Dibenzofuran                | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 71 J                   | 640                    | 356 J                            |
| Diethyl phthalate           | UG/KG                   | 1050 U                 | 230 J                  | 640 J                       | 420 U                  | 420 U                  | 420 U                            |
| Dimethylphthalate           | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Fluoranthene                | UG/KG                   | 2500                   | 490 J                  | 1495 J                      | 4400                   | 13000                  | 8700                             |
| Fluorene                    | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 190 J                  | 1100                   | 645 J                            |
| Hexachlorobenzene           | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Hexachlorobutadiene         | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Hexachlorocyclopentadiene   | UG/KG                   | 2100 UJ                | 2300 U                 | 2200 UJ                     | 420 U                  | 420 U                  | 420 U                            |
| Hexachloroethane            | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| Indeno(1,2,3-cd)pyrene      | UG/KG                   | 2100 UJ                | 2300 R                 | 2100 UJ                     | 400 J                  | 1300 J                 | 850 J                            |
| Isophorone                  | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 J                  | 210 U                  | 315 J                            |
| N-Nitrosodiphenylamine      | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 U                  | 420 U                  | 420 U                            |
| N-Nitrosodipropylamine      | UG/KG                   | 2100 U                 | 2300 UJ                | 2200 UJ                     | 420 U                  | 420 U                  | 420 U                            |
| Naphthalene                 | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 210 U                  | 490                    | 350 J                            |
| Nitrobenzene                | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 J                  | 210 U                  | 315 J                            |
| Pentachlorophenol           | UG/KG                   | 5200 UJ                | 5700 U                 | 5450 UJ                     | 1100 U                 | 1100 U                 | 1100 U                           |
| Phenanthrene                | UG/KG                   | 2200                   | 530 J                  | 1365 J                      | 2500                   | 10000                  | 6250                             |
| Phenol                      | UG/KG                   | 2100 U                 | 2300 U                 | 2200 U                      | 420 J                  | 210 U                  | 315 J                            |
| Pyrene                      | UG/KG                   | 2300                   | 1600 J                 | 1950 J                      | 6500 J                 | 17000 J                | 11750 J                          |
| Pesticides/PCBs             |                         |                        |                        |                             |                        |                        |                                  |
| 4,4'-DDD                    | UG/KG                   | 2.2 UJ                 | 2.3 UJ                 | 2.3 UJ                      | 2.2 U                  | 2.2 U                  | 2.2 U                            |
| 4,4'-DDE                    | UG/KG                   | 2.2 U                  | 2.3 U                  | 2.3 U                       | 14 J                   | 1.1 UJ                 | 7.6 J                            |
| 4,4'-DDT                    | UG/KG                   | 2.2 UJ                 | 2.3 UJ                 | 2.3 UJ                      | 2.2 UJ                 | 2.2 UJ                 | 2.2 UJ                           |
| Aldrin                      | UG/KG                   | 2.2 U                  | 2.3 U                  | 2.3 U                       | 2.2 U                  | 2.2 U                  | 2.2 U                            |
| Alpha-BHC                   | UG/KG                   | 2.2 UJ                 | 2.3 UJ                 | 2.3 UJ                      | 2.2 U                  | 2.2 U                  | 2.2 U                            |
| Alpha-Chlordane             | UG/KG                   | 2.2 UJ                 | 2.3 UJ                 | 2.3 UJ                      | 2.2 U                  | 2.2 U                  | 2.2 U                            |
| Beta-BHC                    | UG/KG                   | 2.2 U                  | 2.3 U                  | 2.3 U                       | 2.2 U                  | 2.2 U                  | 2.2 U                            |

#### Table C-10 SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-121I

#### **SEAD-121C and SEAD-121I RI REPORT**

#### **Seneca Army Depot Activity**

|                    | Facility        | SEAD-121I  | SEAD-121I  | SEAD-121I           | SEAD-121I  | SEAD-121I  | SEAD-121I           |
|--------------------|-----------------|------------|------------|---------------------|------------|------------|---------------------|
|                    | Location ID     | SS121I-29  | SS121I-29  | SS121I-29           | SD121I-7   | SD121I-7   | SD121I-7            |
|                    | Matrix          | SOIL       | SOIL       | SOIL                | DITCHSOIL  | DITCHSOIL  | DITCHSOIL           |
|                    | Sample ID       | 121I-1025  | 121I-1030  | 121I-1025/121I-1030 | 121I-4005  | 121I-4007  | 121I-4007/121I-4005 |
|                    | o Top of Sample | 0          | 0          | 0                   | 0          | 0          | 0                   |
| Sample Depth to B  | - 1             | 0.2        | 0.2        | 0.2                 | 2          | 2          | 2                   |
|                    | Sample Date     | 10/23/2002 | 10/23/2002 | 10/23/2002          | 10/26/2002 | 10/26/2002 | 10/26/2002          |
|                    | QC Code         | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
|                    | Investigation   | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
|                    |                 |            |            |                     | 1          | 1          | 1                   |
| Parameter          | Units           | Value (Q)  | Value (Q)  | Value (Q)           | Value (Q)  | Value (Q)  | Value (Q)           |
| Chlordane          | UG/KG           | 22 U       | 23 U       | 23 U                | 22 U       | 22 U       | 22 U                |
| Delta-BHC          | UG/KG           | 2.2 UJ     | 2.3 UJ     | 2.3 UJ              | 2.2 UJ     | 2.2 UJ     | 2.2 UJ              |
| Dieldrin           | UG/KG           | 2.2 UJ     | 2.3 UJ     | 2.3 UJ              | 2.2 UJ     | 2.2 UJ     | 2.2 UJ              |
| Endosulfan I       | UG/KG           | 23         | 1.15 U     | 12 J                | 2.2 U      | 56 R       | 2.2 U               |
| Endosulfan II      | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Endosulfan sulfate | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Endrin             | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 UJ     | 2.2 UJ     | 2.2 UJ              |
| Endrin aldehyde    | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 UJ     | 2.2 UJ     | 2.2 UJ              |
| Endrin ketone      | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Gamma-BHC/Lindane  | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Gamma-Chlordane    | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Heptachlor         | UG/KG           | 2.2 U      | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Heptachlor epoxide | UG/KG           | 17 R       | 2.3 U      | 2.3 U               | 2.2 U      | 2.2 U      | 2.2 U               |
| Methoxychlor       | UG/KG           | 2.2 UJ     | 2.3 UJ     | 2.3 UJ              | 2.2 UJ     | 2.2 UJ     | 2.2 UJ              |
| Toxaphene          | UG/KG           | 22 U       | 23 U       | 23 U                | 22 U       | 22 U       | 22 U                |
| Aroclor-1016       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1221       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1232       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1242       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1248       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1254       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 22 U       | 22 U       | 22 U                |
| Aroclor-1260       | UG/KG           | 21 UJ      | 23 UJ      | 22 UJ               | 11 U       | 17 NJ      | 14 J                |
| Metals and Cyanide |                 |            |            |                     |            |            |                     |
| Aluminum           | MG/KG           | 3730       | 2200       | 2965                | 6950       | 6170       | 6560                |
| Antimony           | MG/KG           | 1.1 U      | 1.2 U      | 1.2 U               | 1.1 U      | 0.99 U     | 1.0 U               |
| Arsenic            | MG/KG           | 349 R      | 239 R      |                     | 7.8        | 6.9        | 7.4                 |
| Barium             | MG/KG           | 87.4 J     | 84.9 J     | 86.2 J              | 72.2       | 58.9       | 65.6                |
| Beryllium          | MG/KG           | 0.16 U     | 0.18 U     | 0.17 U              | 0.48 J     | 0.43 J     | 0.46 J              |
| Cadmium            | MG/KG           | 0.15 U     | 0.16 U     | 0.16 U              | 0.83       | 0.77       | 0.80                |
| Calcium            | MG/KG           | 29900 J    | 46500 J    | 38200 J             | 145000     | 110000     | 127500              |
| Chromium           | MG/KG           | 516        | 362        | 439                 | 14.5       | 13.5       | 14                  |
| Cobalt             | MG/KG           | 237 J      | 174 J      | 206 J               | 11         | 10.5       | 11                  |
| Copper             | MG/KG           | 243        | 175        | 209                 | 33.8 J     | 34.7 J     | 34.3 J              |
| Cyanide, Amenable  | MG/KG           | 0.63 U     | 0.68 U     | 0.66 U              | 0.64 U     | 0.65 U     | 0.65 U              |
| Cyanide, Total     | MG/KG           | 1.26       | 2.73       | 2.00                | 0.644 U    | 0.648 U    | 0.646 U             |
| Iron               | MG/KG           | 69400      | 47400      | 58400               | 15200 J    | 13900 J    | 14550 J             |
| Lead               | MG/KG           | 47.8 J     | 45.9 J     | 46.9 J              | 71.2 J     | 77.4 J     | 74.3 J              |

#### Table C-10 SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-121I

#### **SEAD-121C and SEAD-121I RI REPORT**

#### Seneca Army Depot Activity

| Location ID   Matrix   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   DITCHSOIL   DITC |                              |               |            | -          |                     |            |            |                     |
|--|------------------------------|---------------|------------|------------|---------------------|------------|------------|---------------------|
| Sample Depth to Top of Sample   Date   Soil   Soi |                              | Facility      | SEAD-121I  | SEAD-121I  | SEAD-121I           | SEAD-121I  | SEAD-121I  | SEAD-121I           |
| Sample ID Sample Depth to Top of Sample Sample Depth to Top of Sample Depth to Top of Sample Depth to Top of Sample Depth to Top of Sample Depth to Bottom of Sample Depth to Bottom of Sample Depth to Bottom of Sample Depth to Bottom of Sample Depth to Bottom of Sample Depth to Bottom of Sample Date  |                              | Location ID   | SS121I-29  | SS121I-29  | SS121I-29           | SD121I-7   | SD121I-7   | SD121I-7            |
| Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Date Sample Date Sample Date Sample Date Depth to Bottom of Sample Date Sample Date Depth to Bottom of Sample Date Sample Date Depth to Bottom of Sample Date Depth to Bottom of Sample Date Depth to Bottom of Sample Date Depth to Bottom of Sample Date Date Date Date Date Date Date Dat   |                              | Matrix        | SOIL       | SOIL       | SOIL                | DITCHSOIL  | DITCHSOIL  | DITCHSOIL           |
| Sample Depth to Bottom of Sample   Sample Date   Sample Date   10/23/2002   10/23/2002   10/23/2002   10/26 |                              | Sample ID     | 121I-1025  | 121I-1030  | 121I-1025/121I-1030 | 121I-4005  | 121I-4007  | 121I-4007/121I-4005 |
| Sample Date   10/23/2002   10/23/2002   10/23/2002   10/26/2002   10 | Sample Depth to 7            | Γop of Sample | 0          | 0          | 0                   | 0          | 0          | 0                   |
| QC Code   Investigation   PID-RI   PID-RI   PID-RI   PID-RI   PID-RI   PID-RI   PID-RI   PID-RI I PID-RI   PI | Sample Depth to Bott         | tom of Sample | 0.2        | 0.2        | 0.2                 | 2          | 2          | 2                   |
| Investigation  |                              | Sample Date   | 10/23/2002 | 10/23/2002 | 10/23/2002          | 10/26/2002 | 10/26/2002 | 10/26/2002          |
| Parameter         Units         Value (Q)         Va   |                              | QC Code       | SA         | SA         | SA/DU               | SA         | SA         | SA/DU               |
| Magnesium         MG/KG         2770 J         6090 J         4430 J         11700 J         9890 J         107           Manganese         MG/KG         349000         272000         310500         588 J         541 J         5           Mercury         MG/KG         0.02         0.02         0.02         0.12 UJ         0.11 UJ         0.0           Nickel         MG/KG         394 J         289 J         342 J         27.9 J         26.9 J         2           Potassium         MG/KG         656         612         634         1340 J         1230 J         12           Selenium         MG/KG         160 J         131 J         146 J         0.53 U         0.46 U         0.           Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.3 U         0           Sodium         MG/KG         126 U         135 U         131 U         288         211         2           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc  |                              | Investigation | PID-RI     | PID-RI     | PID-RI              | PID-RI     | PID-RI     | PID-RI              |
| Magnesium         MG/KG         2770 J         6090 J         4430 J         11700 J         9890 J         107           Manganese         MG/KG         349000         272000         310500         588 J         541 J         5           Mercury         MG/KG         0.02         0.02         0.02         0.12 UJ         0.11 UJ         0.0           Nickel         MG/KG         394 J         289 J         342 J         27.9 J         26.9 J         2           Potassium         MG/KG         656         612         634         1340 J         1230 J         12           Selenium         MG/KG         160 J         131 J         146 J         0.53 U         0.46 U         0.           Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.3 U         0           Sodium         MG/KG         126 U         135 U         131 U         288         211         2           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc  |                              |               |            |            |                     | 1          | 1          | 1                   |
| Manganese         MG/KG         349000         272000         310500         588 J         541 J         55           Mercury         MG/KG         0.02         0.02         0.02         0.12 UJ         0.11 UJ         0.0           Nickel         MG/KG         394 J         289 J         342 J         27.9 J         26.9 J         27.0 J </td <td>Parameter</td> <td>Units</td> <td>Value (Q)</td> <td>Value (Q)</td> <td>Value (Q)</td> <td>Value (Q)</td> <td>Value (Q)</td> <td>Value (Q)</td>  | Parameter                    | Units         | Value (Q)  | Value (Q)  | Value (Q)           | Value (Q)  | Value (Q)  | Value (Q)           |
| Mercury         MG/KG         0.02         0.02         0.02         0.12 UJ         0.11 UJ         0.11 UJ         0.02           Nickel         MG/KG         394 J         289 J         342 J         27.9 J         26.9 J         22           Potassium         MG/KG         656         612         634         1340 J         1230 J         12           Selenium         MG/KG         160 J         131 J         146 J         0.53 U         0.46 U         0.5           Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.3 U         0           Sodium         MG/KG         126 U         135 U         131 U         288         211         2           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.0           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other         Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         45   | Magnesium                    | MG/KG         | 2770 J     | 6090 J     | 4430 J              | 11700 J    | 9890 J     | 10795 J             |
| Nickel         MG/KG         394 J         289 J         342 J         27.9 J         26.9 J         22           Potassium         MG/KG         656         612         634         1340 J         1230 J         12           Selenium         MG/KG         160 J         131 J         146 J         0.53 U         0.46 U         0.5           Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.3 U         0           Sodium         MG/KG         126 U         135 U         131 U         288         211         2           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.0           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other           Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         490  | Manganese                    | MG/KG         | 349000     | 272000     | 310500              | 588 J      | 541 J      | 565 J               |
| Potassium         MG/KG         656         612         634         1340 J         1230 J         1230 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1220 J         1230 J         1230 J  | Mercury                      | MG/KG         | 0.02       | 0.02       | 0.02                | 0.12 UJ    | 0.11 UJ    | 0.12 UJ             |
| Selenium         MG/KG         160 J         131 J         146 J         0.53 U         0.46 U         0.5 IV           Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.34 U         0.3 U         0.0 IV           Sodium         MG/KG         126 U         135 U         131 U         288         211         2           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.0           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other           Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         490  | Nickel                       | MG/KG         | 394 J      | 289 J      | 342 J               | 27.9 J     | 26.9 J     | 27.4 J              |
| Silver         MG/KG         24.1 R         18.6 R         0.34 U         0.3 U         0.6 C           Sodium         MG/KG         126 U         135 U         131 U         288         211         22           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.0           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other           Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49  | Potassium                    | MG/KG         | 656        | 612        | 634                 | 1340 J     | 1230 J     | 1285 J              |
| Sodium         MG/KG         126 U         135 U         131 U         288         211         22           Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         00           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other           Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49   | Selenium                     | MG/KG         | 160 J      | 131 J      | 146 J               | 0.53 U     | 0.46 U     | 0.50 U              |
| Thallium         MG/KG         173 J         152 J         163 J         0.71 J         0.17 U         0.0           Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other           Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49  | Silver                       | MG/KG         | 24.1 R     | 18.6 R     |                     | 0.34 U     | 0.3 U      | 0.3 U               |
| Vanadium         MG/KG         217 J         147 J         182 J         20.2 J         18.4 J         19           Zinc         MG/KG         47.7 J         37.8 J         42.8 J         124 J         125 J         1           Other         Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49   | Sodium                       | MG/KG         | 126 U      | 135 U      | 131 U               | 288        | 211        | 250                 |
| Zinc MG/KG 47.7 J 37.8 J 42.8 J 124 J 125 J 1<br>Other  Total Organic Carbon MG/KG 7300 4900 6100 5300 4500 49   | Thallium                     | MG/KG         | 173 J      | 152 J      | 163 J               | 0.71 J     | 0.17 U     | 0.44 J              |
| Other         Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49   | Vanadium                     | MG/KG         | 217 J      | 147 J      | 182 J               | 20.2 J     | 18.4 J     | 19.3 J              |
| Total Organic Carbon         MG/KG         7300         4900         6100         5300         4500         49   | Zinc                         | MG/KG         | 47.7 J     | 37.8 J     | 42.8 J              | 124 J      | 125 J      | 125 J               |
|  | Other                        |               |            |            |                     |            |            |                     |
| Total Petroleum Hydrocarbons         MG/KG         240         1600         920         1000 J         630 J         8   | Total Organic Carbon         | MG/KG         | 7300       | 4900       | 6100                | 5300       | 4500       | 4900                |
|  | Total Petroleum Hydrocarbons | MG/KG         | 240        | 1600       | 920                 | 1000 J     | 630 J      | 815 J               |

#### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                                   |               | <i>u</i>   | ·             |                     |
|-----------------------------------|---------------|------------|---------------|---------------------|
|                                   | Facility      | SEAD-121I  | SEAD-121I     | SEAD-121I           |
|                                   | Location ID   |            | SW121I-7      | SW121I-7            |
|                                   | Matrix        |            | SURFACE WATER | SURFACE WATER       |
|                                   | Sample ID     | 121I-3007  | 121I-3005     | 121I-3007/121I-3005 |
| Sample Depth to T                 | Top of Sample | 0          | 0             | 0                   |
| Sample Depth to Bott              | om of Sample  | N/A        | N/A           | N/A                 |
|                                   | Sample Date   | 10/26/2002 | 10/26/2002    | 10/26/2002          |
|                                   | QC Code       | SA         | SA            | SA/DU               |
|                                   | Investigation | PID-RI     | PID-RI        | PID-RI              |
|                                   |               | 1          | 1             | 1                   |
| Parameter                         | Units         | Value (Q)  | Value (Q)     | Value (Q)           |
| <b>Volatile Organic Compounds</b> |               |            |               |                     |
| 1,1,1-Trichloroethane             | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,1,2,2-Tetrachloroethane         | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,1,2-Trichloroethane             | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,1-Dichloroethane                | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,1-Dichloroethene                | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,2-Dichloroethane                | UG/L          | 5 U        | 5 U           | 5 U                 |
| 1,2-Dichloropropane               | UG/L          | 5 U        | 5 U           | 5 U                 |
| Acetone                           | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Benzene                           | UG/L          | 5 U        | 5 U           | 5 U                 |
| Bromodichloromethane              | UG/L          | 5 U        | 5 U           | 5 U                 |
| Bromoform                         | UG/L          | 5 U        | 5 U           | 5 U                 |
| Carbon disulfide                  | UG/L          | 5 U        | 5 U           | 5 U                 |
| Carbon tetrachloride              | UG/L          | 5 U        | 5 U           | 5 U                 |
| Chlorobenzene                     | UG/L          | 5 U        | 5 U           | 5 U                 |
| Chlorodibromomethane              | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Chloroethane                      | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Chloroform                        | UG/L          | 5 U        | 5 U           | 5 U                 |
| Cis-1,2-Dichloroethene            | UG/L          | 5 U        | 5 U           | 5 U                 |
| Cis-1,3-Dichloropropene           | UG/L          | 5 U        | 5 U           | 5 U                 |
| Ethyl benzene                     | UG/L          | 5 U        | 5 U           | 5 U                 |
| Meta/Para Xylene                  | UG/L          | 5 U        | 5 U           | 5 U                 |
| Methyl bromide                    | UG/L          | 5 U        | 5 U           | 5 U                 |
| Methyl butyl ketone               | UG/L          | 5 U        | 5 U           | 5 U                 |
| Methyl chloride                   | UG/L          | 5 U        | 5 U           | 5 U                 |
| Methyl ethyl ketone               | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Methyl isobutyl ketone            | UG/L          | 5 U        | 5 U           | 5 U                 |
| Methylene chloride                | UG/L          | 5 U        | 5 U           | 5 U                 |
| Ortho Xylene                      | UG/L          | 5 U        | 5 U           | 5 U                 |
| Styrene                           | UG/L          | 5 U        | 5 U           | 5 U                 |
| Tetrachloroethene                 | UG/L          | 5 U        | 5 U           | 5 U                 |
| Toluene                           | UG/L          | 5 U        | 5 U           | 5 U                 |
| Trans-1,2-Dichloroethene          | UG/L          | 5 U        | 5 U           | 5 U                 |
| Trans-1,3-Dichloropropene         | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Trichloroethene                   | UG/L          | 5 U        | 5 U           | 5 U                 |
| Vinyl chloride                    | UG/L          | 5 UJ       | 5 UJ          | 5 UJ                |
| Semivolatile Organic Compou       |               | 2 00       | 2 00          | 2 00                |
| 1,2,4-Trichlorobenzene            | UG/L          | 10 U       | 10 UJ         | 10 UJ               |
| 1,2-Dichlorobenzene               | UG/L          | 10 U       | 10 U          | 10 U                |
| 1,3-Dichlorobenzene               | UG/L          | 10 U       | 10 U          | 10 U                |
| 1,4-Dichlorobenzene               | UG/L          | 10 U       | 10 U          | 10 U                |
| .,. Diemoroconzene                | 00,1          | 10 0       | 10 0          | 10 0                |

 $P:\PIT\Projects\SENECA\PID\ Area\Report\Draft\ Final\Appendix\App-C-1B-H-SADU\ merge\ results.xls\\ 121I\ SW\ SADU\ merge$ 

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                             |               | <b>,</b> , | •             |                     |
|-----------------------------|---------------|------------|---------------|---------------------|
|                             | Facility      | SEAD-121I  | SEAD-121I     | SEAD-121I           |
|                             | Location ID   |            | SW121I-7      | SW121I-7            |
|                             | Matrix        |            | SURFACE WATER | SURFACE WATER       |
|                             | Sample ID     | 121I-3007  | 121I-3005     | 121I-3007/121I-3005 |
| Sample Depth to             |               | 0          | 0             | 0                   |
| Sample Depth to Bot         | tom of Sample | N/A        | N/A           | N/A                 |
|                             | Sample Date   | 10/26/2002 | 10/26/2002    | 10/26/2002          |
|                             | QC Code       | SA         | SA            | SA/DU               |
|                             | Investigation | PID-RI     | PID-RI        | PID-RI              |
|                             |               | 1          | 1             | 1                   |
| Parameter                   | Units         | Value (Q)  | Value (Q)     | Value (Q)           |
| 2,4,5-Trichlorophenol       | UG/L          | 10 U       | 10 R          | 10 U                |
| 2,4,6-Trichlorophenol       | UG/L          | 10 U       | 10 R          | 10 U                |
| 2,4-Dichlorophenol          | UG/L          | 10 U       | 10 R          | 10 U                |
| 2,4-Dimethylphenol          | UG/L          | 10 U       | 10 R          | 10 U                |
| 2,4-Dinitrophenol           | UG/L          | 10 UJ      | 10 R          | 10 UJ               |
| 2,4-Dinitrotoluene          | UG/L          | 10 U       | 10 U          | 10 U                |
| 2,6-Dinitrotoluene          | UG/L          | 10 U       | 10 U          | 10 U                |
| 2-Chloronaphthalene         | UG/L          | 10 U       | 10 U          | 10 U                |
| 2-Chlorophenol              | UG/L          | 10 U       | 10 R          | 10 U                |
| 2-Methylnaphthalene         | UG/L          | 10 U       | 10 U          | 10 U                |
| 2-Methylphenol              | UG/L          | 10 U       | 10 U          | 10 U                |
| 2-Nitroaniline              | UG/L          | 10 UJ      | 10 U          | 10 U                |
| 2-Nitrophenol               | UG/L          | 10 U       | 10 R          | 10 U                |
| 3 or 4-Methylphenol         | UG/L          | 10 U       | 10 UJ         | 10 UJ               |
| 3,3'-Dichlorobenzidine      | UG/L          | 10 U       | 10 R          | 10 U                |
| 3-Nitroaniline              | UG/L          | 10 U       | 10 U          | 10 U                |
| 4,6-Dinitro-2-methylphenol  | UG/L          | 10 U       | 10 R          | 10 U                |
| 4-Bromophenyl phenyl ether  | UG/L          | 10 U       | 10 U          | 10 U                |
| 4-Chloro-3-methylphenol     | UG/L          | 10 U       | 10 R          | 10 U                |
| 4-Chloroaniline             | UG/L          | 10 U       | 10 U          | 10 U                |
| 4-Chlorophenyl phenyl ether | UG/L          | 10 U       | 10 U          | 10 U                |
| 4-Nitroaniline              | UG/L          | 10 U       | 10 U          | 10 U                |
| 4-Nitrophenol               | UG/L          | 10 U       | 10 R          | 10 U                |
| Acenaphthene                | UG/L          | 10 U       | 10 U          | 10 U                |
| Acenaphthylene              | UG/L          | 10 U       | 10 U          | 10 U                |
| Anthracene                  | UG/L          | 10 U       | 10 U          | 10 U                |
| Benzo(a)anthracene          | UG/L          | 10 U       | 10 U          | 10 U                |
| Benzo(a)pyrene              | UG/L          | 10 U       | 10 U          | 10 U                |
| Benzo(b)fluoranthene        | UG/L          | 10 U       | 10 U          | 10 U                |
| Benzo(ghi)perylene          | UG/L          | 10 U       | 10 U          | 10 U                |
| Benzo(k)fluoranthene        | UG/L          | 10 U       | 10 U          | 10 U                |
| Bis(2-Chloroethoxy)methane  | UG/L          | 10 U       | 10 U          | 10 U                |
| Bis(2-Chloroethyl)ether     | UG/L          | 10 UJ      | 10 UJ         | 10 UJ               |
| Bis(2-Chloroisopropyl)ether | UG/L          | 10 U       | 10 U          | 10 U                |
| Bis(2-Ethylhexyl)phthalate  | UG/L          | 10 U       | 10 U          | 10 U                |
| Butylbenzylphthalate        | UG/L          | 10 U       | 10 U          | 10 U                |
| Carbazole                   | UG/L          | 10 U       | 10 U          | 10 U                |
| Chrysene                    | UG/L          | 10 U       | 10 U          | 10 U                |
| Di-n-butylphthalate         | UG/L          | 10 U       | 10 U          | 10 U                |
| Di-n-octylphthalate         | UG/L          | 10 U       | 10 U          | 10 U                |
| Dibenz(a,h)anthracene       | UG/L          | 10 U       | 10 U          | 10 U                |
| 2100112(u,11)ununuucene     | UGIL          | 10 0       | 10 0          | 10 0                |

 $P:\PIT\Projects\SENECA\PID\ Area\Report\Draft\ Final\Appendix\App-C-1B-H-SADU\ merge\ results.xls\\ 121I\ SW\ SADU\ merge$ 

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                           |               | <b>,</b> , | •             |                     |
|---------------------------|---------------|------------|---------------|---------------------|
|                           | -             | SEAD-121I  | SEAD-121I     | SEAD-121I           |
|                           | Location ID   |            | SW121I-7      | SW121I-7            |
|                           | Matrix        |            | SURFACE WATER | SURFACE WATER       |
|                           | Sample ID     | 121I-3007  | 121I-3005     | 121I-3007/121I-3005 |
| Sample Depth to           |               | 0          | 0             | 0                   |
| Sample Depth to Bo        |               |            | N/A           | N/A                 |
|                           | Sample Date   |            | 10/26/2002    | 10/26/2002          |
|                           | QC Code       | SA         | SA            | SA/DU               |
|                           | Investigation | PID-RI     | PID-RI        | PID-RI              |
|                           |               | 1          | 1             | 1                   |
| Parameter                 | Units         | Value (Q)  | Value (Q)     | Value (Q)           |
| Dibenzofuran              | UG/L          | 10 U       | 10 U          | 10 U                |
| Diethyl phthalate         | UG/L          | 10 U       | 10 U          | 10 U                |
| Dimethylphthalate         | UG/L          | 10 U       | 10 U          | 10 U                |
| Fluoranthene              | UG/L          | 10 U       | 10 U          | 10 U                |
| Fluorene                  | UG/L          | 10 U       | 10 U          | 10 U                |
| Hexachlorobenzene         | UG/L          | 10 U       | 10 U          | 10 U                |
| Hexachlorobutadiene       | UG/L          | 10 UJ      | 10 UJ         | 10 UJ               |
| Hexachlorocyclopentadiene | UG/L          | 10 UJ      | 10 UJ         | 10 UJ               |
| Hexachloroethane          | UG/L          | 10 U       | 10 U          | 10 U                |
| Indeno(1,2,3-cd)pyrene    | UG/L          | 10 U       | 10 UJ         | 10 UJ               |
| Isophorone                | UG/L          | 10 UJ      | 10 U          | 10 UJ               |
| N-Nitrosodiphenylamine    | UG/L          | 10 UJ      | 10 UJ         | 10 UJ               |
| N-Nitrosodipropylamine    | UG/L          | 10 U       | 10 U          | 10 U                |
| Naphthalene               | UG/L          | 10 U       | 10 U          | 10 U                |
| Nitrobenzene              | UG/L          | 10 U       | 10 U          | 10 U                |
| Pentachlorophenol         | UG/L          | 10 U       | 10 R          | 10 U                |
| Phenanthrene              | UG/L          | 10 U       | 10 U          | 10 U                |
| Phenol                    | UG/L          | 10 U       | 10 R          | 10 U                |
| Pyrene                    | UG/L          | 10 U       | 10 U          | 10 U                |
| Pesticides/PCBs           |               |            |               |                     |
| 4,4'-DDD                  | UG/L          | 0.01 UJ    | 0.01 UJ       | 0.01 UJ             |
| 4,4'-DDE                  | UG/L          | 0.005 UJ   | 0.005 UJ      | 0.005 UJ            |
| 4,4'-DDT                  | UG/L          | 0.01 UJ    | 0.01 UJ       | 0.01 UJ             |
| Aldrin                    | UG/L          | 0.02 UJ    | 0.02 UJ       | 0.02 UJ             |
| Alpha-BHC                 | UG/L          | 0.01 UJ    | 0.01 UJ       | 0.01 UJ             |
| Alpha-Chlordane           | UG/L          | 0.02 UJ    | 0.02 UJ       | 0.02 UJ             |
| Beta-BHC                  | UG/L          | 0.01 UJ    | 0.01 UJ       | 0.01 UJ             |
| Chlordane                 | UG/L          | 0.13 U     | 0.13 U        | 0.13 U              |
| Delta-BHC                 | UG/L          | 0.004 UJ   | 0.004 UJ      | 0.004 UJ            |
| Dieldrin                  | UG/L          | 0.009 UJ   | 0.009 UJ      | 0.009 UJ            |
| Endosulfan I              | UG/L          | 0.01 UJ    | 0.01 UJ       | 0.01 UJ             |
| Endosulfan II             | UG/L          | 0.01 U     | 0.01 U        | 0.01 U              |
| Endosulfan sulfate        | UG/L          | 0.02 U     | 0.02 U        | 0.02 U              |
| Endrin                    | UG/L          | 0.02 UJ    | 0.02 UJ       | 0.02 UJ             |
| Endrin aldehyde           | UG/L          | 0.02 U     | 0.02 U        | 0.02 U              |
| Endrin ketone             | UG/L          | 0.009 U    | 0.009 U       | 0.009 U             |
| Gamma-BHC/Lindane         | UG/L          | 0.009 UJ   | 0.009 UJ      | 0.009 UJ            |
| Gamma-Chlordane           | UG/L          | 0.007 UJ   | 0.00 UJ       | 0.00 UJ             |
| Heptachlor                | UG/L          | 0.007 UJ   | 0.007 UJ      | 0.007 UJ            |
| Heptachlor epoxide        | UG/L          | 0.007 UJ   | 0.007 UJ      | 0.007 UJ            |
| Methoxychlor              | UG/L          | 0.008 U    | 0.008 U       | 0.008 U             |
| Memorychioi               | UU/L          | 0.000 0    | 0.006 0       | 0.000 0             |

 $P:\PIT\Projects\SENECA\PID\ Area\Report\Draft\ Final\Appendix\App-C-1B-H-SADU\ merge\ results.xls\\ 121I\ SW\ SADU\ merge$ 

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              |               | <b>J</b>      | •             |                     |
|------------------------------|---------------|---------------|---------------|---------------------|
|                              | Facility      | SEAD-121I     | SEAD-121I     | SEAD-121I           |
|                              | Location ID   |               | SW121I-7      | SW121I-7            |
|                              | Matrix        | SURFACE WATER | SURFACE WATER | SURFACE WATER       |
|                              | Sample ID     | 121I-3007     | 121I-3005     | 121I-3007/121I-3005 |
| Sample Depth to 7            |               | 0             | 0             | 0                   |
| Sample Depth to Bott         |               | N/A           | N/A           | N/A                 |
| Sample Depth to Bott         | Sample Date   |               | 10/26/2002    | 10/26/2002          |
|                              | QC Code       | SA            | SA            | SA/DU               |
|                              | Investigation | PID-RI        | PID-RI        | PID-RI              |
|                              | investigation | 1 1D-K1<br>1  | 1 1D-K1<br>1  | 1 1D-R1<br>1        |
| Parameter                    | Units         |               |               |                     |
| Toxaphene                    | UG/L          | Value (Q)     | Value (Q)     | Value (Q)           |
| -                            |               | 0.12 U        | 0.12 U        | 0.12 U              |
| Aroclor-1016                 | UG/L          | 0.5 UJ        | 0.5 UJ        | 0.5 UJ              |
| Aroclor-1221                 | UG/L          | 0.5 U         | 0.5 U         | 0.5 U               |
| Aroclor-1232                 | UG/L          | 0.5 UJ        | 0.5 UJ        | 0.5 UJ              |
| Aroclor-1242                 | UG/L          | 0.5 U         | 0.5 U         | 0.5 U               |
| Aroclor-1248                 | UG/L          | 0.5 U         | 0.5 U         | 0.5 U               |
| Aroclor-1254                 | UG/L          | 0.5 U         | 0.5 U         | 0.5 U               |
| Aroclor-1260                 | UG/L          | 0.5 UJ        | 0.5 UJ        | 0.5 UJ              |
| Metals and Cyanide           |               |               |               |                     |
| Aluminum                     | UG/L          | 45.8          | 46.3          | 46.1                |
| Antimony                     | UG/L          | 3.8 U         | 3.8 U         | 3.8 U               |
| Arsenic                      | UG/L          | 4.5 U         | 4.5 U         | 4.5 U               |
| Barium                       | UG/L          | 9.9 U         | 9.9 U         | 9.9 U               |
| Beryllium                    | UG/L          | 0.1 U         | 0.1 U         | 0.1 U               |
| Cadmium                      | UG/L          | 0.8 U         | 0.8 U         | 0.8 U               |
| Calcium                      | UG/L          | 18300         | 17700         | 18000               |
| Chromium                     | UG/L          | 1.4 U         | 1.4 U         | 1.4 U               |
| Cobalt                       | UG/L          | 0.7 U         | 0.7 U         | 0.7 U               |
| Copper                       | UG/L          | 3.6 U         | 3.6 U         | 3.6 U               |
| Cyanide, Amenable            | MG/L          | 0.01 U        | 0.01 U        | 0.01 U              |
| Cyanide, Total               | MG/L          | 0.01 U        | 0.01 U        | 0.01 U              |
| Iron                         | UG/L          | 41.8 J        | 41.8 J        | 41.8 J              |
| Lead                         | UG/L          | 3 U           | 3 U           | 3 U                 |
| Magnesium                    | UG/L          | 3660          | 3610          | 3635                |
| Manganese                    | UG/L          | 5.3           | 3             | 4                   |
| Mercury                      | UG/L          | 0.2 U         | 0.2 U         | 0.2 U               |
| Nickel                       | UG/L          | 0.2 U         | 0.2 U         | 0.2 U               |
| Potassium                    | UG/L          | 630           | 660           | 645                 |
|                              |               | 3.1 J         | 1.8 J         | 2.5 J               |
| Selenium                     | UG/L          |               |               |                     |
| Silver                       | UG/L          | 3.7 U         | 3.7 U         | 3.7 U               |
| Sodium                       | UG/L          | 2180          | 2300          | 2240                |
| Thallium                     | UG/L          | 5.3 U         | 5.3 U         | 5.3 U               |
| Vanadium                     | UG/L          | 1.4 UJ        | 1.4 UJ        | 1.4 UJ              |
| Zinc                         | UG/L          | 14.7 J        | 13.8 J        | 14.3 J              |
| Other                        |               | 0.445         |               | 0.44 =              |
| Total Petroleum Hydrocarbons | MG/L          | 0.412 UJ      | 0.408 UJ      | 0.410 UJ            |
|                              |               |               |               |                     |

|                              | Facility<br>Location ID |         |           |          |            |                      |             |          |             | SEAD-121C<br>SB121C-2 | SEAD-121C<br>SB121C-1 | SEAD-121C<br>SB121C-1 | SEAD-121C<br>SB121C-3 | SEAD-121C<br>SB121C-4 | SEAD-121C<br>SB121C-4 |
|------------------------------|-------------------------|---------|-----------|----------|------------|----------------------|-------------|----------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                              | Matrix                  |         |           |          |            |                      |             |          |             | SOIL                  | SOIL                  | SOIL                  | SOIL                  | SOIL                  | SOIL                  |
|                              | Sample ID               |         |           |          |            |                      |             |          |             | EB226                 | EB231                 | EB014                 | EB233                 | EB020                 | EB229                 |
| Sample Depth to T            |                         |         |           |          |            |                      |             |          |             | 0                     | 0                     | 0                     | 0                     | 0                     | 0                     |
| Sample Depth to Bott         |                         |         |           |          |            |                      |             |          |             | 0.2                   | 0.2                   | 0.2                   | 0.2                   | 0.2                   | 0.2                   |
|                              | Sample Date             |         |           |          |            |                      |             |          |             | 3/9/1998              | 3/9/1998              | 3/9/1998              | 3/9/1998              | 3/9/1998              | 3/9/1998              |
|                              | QC Code                 |         |           |          |            | Region IX            |             |          |             | SA                    | SA                    | SA                    | SA                    | SA                    | SA                    |
|                              | Study ID                |         | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | EBS                   | EBS                   | EBS                   | EBS                   | EBS                   | EBS                   |
|                              | Stady 12                | Maximum | of        | of Times | of         | Criteria             |             | Criteria |             | 235                   | LDS                   | 225                   | 220                   | 225                   | 225                   |
| Parameter                    | Units                   | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances |          | Exceedances | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| Volatile Organic Compounds   | Cints                   | varue   | Detection | Detected | Allalyses  | v aiue               | Exceedances | value i  | Accedances  | value (Q)             | value (Q)             | value (Q)             | value (Q)             | value (Q)             | value (Q)             |
| 1,1,1-Trichloroethane        | UG/KG                   | 0       | 0%        | 0        | 48         | 1.20E+06             |             | 800      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,1,2,2-Tetrachloroethane    | UG/KG                   | 0       | 0%        | 0        | 48         | 4.08E+02             |             | 600      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,1,2-Trichloroethane        | UG/KG                   | 0       | 0%        | 0        | 48         | 7.29E+02             |             | 000      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,1-Dichloroethane           | UG/KG                   | 0       | 0%        | 0        | 48         | 5.06E+05             |             | 200      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,1-Dichloroethene           | UG/KG                   | 0       | 0%        | 0        | 48         | 1.24E+05             |             | 400      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,2-Dichloroethane           | UG/KG                   | 0       | 0%        | 0        | 48         | 2.78E+02             |             | 100      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
|                              | UG/KG                   | 0       | 0%        | 0        | 48<br>8    | 2.78E+02             |             | 100      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,2-Dichloroethene (total)   | UG/KG                   | 0       | 0%        | 0        | 8<br>48    | 3.42E+02             |             |          |             | 12 UJ                 |                       | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| 1,2-Dichloropropane          |                         |         | 28%       | 13       | 48<br>47   | 3.42E+02<br>1.41E+07 |             | 200      |             | 12 UJ                 | 12 U                  |                       | 11 U                  |                       |                       |
| Acetone                      | UG/KG                   | 13      |           | 13       |            |                      |             | 200      |             |                       | 12 U                  | 12 J                  |                       | 10 J                  | 11 UJ                 |
| Benzene                      | UG/KG                   | 41      | 2%        | 1        | 48         | 6.43E+02             |             | 60       |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Bromodichloromethane         | UG/KG                   | 0       | 0%        | 0        | 48         | 8.24E+02             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Bromoform                    | UG/KG                   | 0       | 0%        | 0        | 48         | 6.16E+04             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Carbon disulfide             | UG/KG                   | 4.7     | 4%        | 2        | 48         | 3.55E+05             |             | 2700     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Carbon tetrachloride         | UG/KG                   | 0       | 0%        | 0        | 48         | 2.51E+02             |             | 600      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Chlorobenzene                | UG/KG                   | 0       | 0%        | 0        | 48         | 1.51E+05             |             | 1700     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Chlorodibromomethane         | UG/KG                   | 0       | 0%        | 0        | 48         | 1.11E+03             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Chloroethane                 | UG/KG                   | 0       | 0%        | 0        | 48         | 3.03E+03             |             | 1900     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Chloroform                   | UG/KG                   | 4.8 4   | 4%        | 2        | 48         | 2.21E+02             |             | 300      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 4 J                   |
| Cis-1,2-Dichloroethene       | UG/KG                   | 0       | 0%        | 0        | 40         | 4.29E+04             |             |          |             |                       |                       |                       |                       |                       |                       |
| Cis-1,3-Dichloropropene      | UG/KG                   | 0       | 0%        | 0        | 48         |                      |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Ethyl benzene                | UG/KG                   | 3300    | 4%        | 2        | 48         | 3.95E+05             |             | 5500     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Meta/Para Xylene             | UG/KG                   | 4400    | 8%        | 3        | 40         |                      |             |          |             |                       |                       |                       |                       |                       |                       |
| Methyl bromide               | UG/KG                   | 0       | 0%        | 0        | 48         | 3.90E+03             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Methyl butyl ketone          | UG/KG                   | 0       | 0%        | 0        | 48         |                      |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Methyl chloride              | UG/KG                   | 0       | 0%        | 0        | 48         | 4.69E+04             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Methyl ethyl ketone          | UG/KG                   | 0       | 0%        | 0        | 48         | 2.23E+07             |             | 300      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Methyl isobutyl ketone       | UG/KG                   | 0       | 0%        | 0        | 48         | 5.28E+06             |             | 1000     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Methylene chloride           | UG/KG                   | 2.6     | 2%        | 1        | 48         | 9.11E+03             |             | 100      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Ortho Xylene                 | UG/KG                   | 16      | 3%        | 1        | 40         |                      |             |          |             |                       |                       |                       |                       |                       |                       |
| Styrene                      | UG/KG                   | 0       | 0%        | 0        | 48         | 1.70E+06             |             |          |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Tetrachloroethene            | UG/KG                   | 0       | 0%        | 0        | 48         | 4.84E+02             |             | 1400     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Toluene                      | UG/KG                   | 28      | 19%       | 9        | 48         | 5.20E+05             |             | 1500     |             | 3 J                   | 2 J                   | 5 J                   | 2 J                   | 12 J                  | 10 J                  |
| Total Xylenes                | UG/KG                   | 0       | 0%        | Ó        | 8          | 2.71E+05             |             | 1200     |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Trans-1,2-Dichloroethene     | UG/KG                   | 0       | 0%        | 0        | 40         | 6.95E+04             |             | 300      |             |                       |                       |                       |                       |                       |                       |
| Trans-1,3-Dichloropropene    | UG/KG                   | 0       | 0%        | 0        | 48         | 0.552101             |             | 300      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Trichloroethene              | UG/KG                   | 0       | 0%        | 0        | 48         | 5.30E+01             |             | 700      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Vinyl chloride               | UG/KG                   | 0       | 0%        | 0        | 48         | 7.91E+01             |             | 200      |             | 12 UJ                 | 12 U                  | 12 U                  | 11 U                  | 11 UJ                 | 11 UJ                 |
| Semivolatile Organic Compoun |                         | 3       | 570       | 3        | 70         | ,.,                  |             | 200      |             | 12.03                 | 12.0                  | 12.0                  | 11.0                  | 11 03                 | 11 03                 |
| 1.2.4-Trichlorobenzene       | UG/KG                   | 0       | 0%        | 0        | 48         | 6.22E+04             |             | 3400     |             | 73 U                  | 78 U                  | 73 U                  | 72 U                  | 72 U                  | 71 U                  |
| 1,2-Dichlorobenzene          | UG/KG                   | 0       | 0%        | 0        | 48         | 6.00E+05             |             | 7900     |             | 73 U                  | 78 U                  | 73 U                  | 72 U                  | 72 U                  | 71 U                  |
| 1,3-Dichlorobenzene          | UG/KG                   | 0       | 0%        | 0        | 48         | 5.31E+05             |             | 1600     |             | 73 U                  | 78 U                  | 73 U                  | 72 U                  | 72 U                  | 71 U                  |
| 1,4-Dichlorobenzene          | UG/KG                   | 0       | 0%        | 0        | 48         | 3.45E+03             |             | 8500     |             | 73 U                  | 78 U                  | 73 U                  | 72 U                  | 72 U                  | 71 U                  |
| <b>■</b> *                   | UG/KG                   | 0       | 0%        | 0        | 48         | 6.11E+06             |             | 100      |             | 180 U                 | 190 U                 | 180 U                 | 180 U                 | 170 U                 | 170 U                 |
| 2,4,5-Trichlorophenol        |                         | -       |           | 0        |            |                      |             | 100      |             | 73 U                  |                       | 73 U                  |                       | 72 U                  | 71 U                  |
| 2,4,6-Trichlorophenol        | UG/KG                   | 0       | 0%        | U        | 48         | 6.11E+03             |             |          |             | /3 U                  | 78 U                  | /3 U                  | 72 U                  | 12 U                  | /1 U                  |

|                                    | Facility<br>Location ID<br>Matrix |                   |                 |                    |              |                      |             |                    |             | SEAD-121C<br>SB121C-2<br>SOIL | SEAD-121C<br>SB121C-1<br>SOIL | SEAD-121C<br>SB121C-1<br>SOIL | SEAD-121C<br>SB121C-3<br>SOIL | SEAD-121C<br>SB121C-4<br>SOIL | SEAD-121C<br>SB121C-4<br>SOIL |
|------------------------------------|-----------------------------------|-------------------|-----------------|--------------------|--------------|----------------------|-------------|--------------------|-------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                    | Sample ID                         |                   |                 |                    |              |                      |             |                    |             | EB226                         | EB231                         | EB014                         | EB233                         | EB020                         | EB229                         |
| Sample Depth to                    |                                   |                   |                 |                    |              |                      |             |                    |             | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sample Depth to Bo                 |                                   |                   |                 |                    |              |                      |             |                    |             | 0.2                           | 0.2                           | 0.2                           | 0.2                           | 0.2                           | 0.2                           |
|                                    | Sample Date                       |                   |                 |                    |              |                      |             |                    |             | 3/9/1998                      | 3/9/1998                      | 3/9/1998                      | 3/9/1998                      | 3/9/1998                      | 3/9/1998                      |
|                                    | QC Code                           |                   | -               | N .                | S. 1         | Region IX            |             | NUCDEC             |             | SA                            | SA                            | SA                            | SA                            | SA                            | SA                            |
|                                    | Study ID                          | Maximum           | Frequency<br>of | Number<br>of Times | Number<br>of | PRG<br>Criteria      |             | NYSDEC<br>Criteria |             | EBS                           | EBS                           | EBS                           | EBS                           | EBS                           | EBS                           |
|                                    |                                   |                   |                 |                    |              |                      |             |                    |             | ****                          |                               |                               |                               |                               |                               |
| Parameter                          | Units                             | Value             | Detection       | Detected           | Analyses     | Value 2              | Exceedances |                    | Exceedances |                               | Value (Q)                     |
| 2,4-Dichlorophenol                 | UG/KG                             | 0                 | 0%              | 0                  | 48           | 1.83E+05             |             | 400                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 2,4-Dimethylphenol                 | UG/KG                             | 0                 | 0%              | 0                  | 48           | 1.22E+06             |             | 200                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 2,4-Dinitrophenol                  | UG/KG                             | 0                 | 0%              | 0                  | 47           | 1.22E+05             |             | 200                |             | 180 U                         | 190 U                         | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| 2,4-Dinitrotoluene                 | UG/KG                             | 45                | 2%              | 1                  | 48           | 1.22E+05             |             | 1000               |             | 45 J                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 2,6-Dinitrotoluene                 | UG/KG                             | 0                 | 0%<br>0%        | 0                  | 48<br>48     | 6.11E+04<br>4.94E+06 |             | 1000               |             | 73 U<br>73 U                  | 78 U                          | 73 U<br>73 U                  | 72 U<br>72 U                  | 72 U<br>72 U                  | 71 U<br>71 U                  |
| 2-Chloronaphthalene                | UG/KG<br>UG/KG                    | 0                 | 0%              | 0                  | 48<br>48     | 4.94E+06<br>6.34E+04 |             | 800                |             | 73 U<br>73 U                  | 78 U<br>78 U                  | 73 U<br>73 U                  | 72 U                          | 72 U                          | 71 U                          |
| 2-Chlorophenol 2-Methylnaphthalene | UG/KG<br>UG/KG                    | 610               | 0%<br>19%       | 9                  | 48<br>48     | 0.54E+U4             |             | 36400              |             | 73 U<br>8.6 J                 | 78 U<br>78 U                  | 4.3 J                         | 72 U<br>5.5 J                 | 72 U<br>72 U                  | 71 U<br>71 U                  |
|                                    | UG/KG                             | 0                 | 0%              | 0                  | 48           | 3.06E+06             |             | 100                |             | 73 U                          | 78 U                          | 4.3 J<br>73 U                 | 5.5 J<br>72 U                 | 72 U                          | 71 U                          |
| 2-Methylphenol<br>2-Nitroaniline   | UG/KG                             | 0                 | 0%              | 0                  | 48<br>48     | 1.83E+05             |             | 430                |             | 180 U                         | 78 U<br>190 U                 | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| 2-Nitrophenol                      | UG/KG                             | 0                 | 0%              | 0                  | 48           | 1.63E+03             |             | 330                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 3 or 4-Methylphenol                | UG/KG                             | 0                 | 0%              | 0                  | 48           |                      |             | 330                |             | /3 0                          | 78 U                          | 73 0                          | 72 0                          | 72 0                          | /1 0                          |
| 3,3'-Dichlorobenzidine             | UG/KG                             | 0                 | 0%              | 0                  | 48           | 1.08E+03             |             |                    |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 3-Nitroaniline                     | UG/KG                             | 0                 | 0%              | 0                  | 48<br>48     | 1.08E+03<br>1.83E+04 |             | 500                |             | 180 U                         | 190 U                         | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| 4,6-Dinitro-2-methylphenol         | UG/KG                             | 0                 | 0%              | 0                  | 48<br>48     | 6.11E+03             |             | 300                |             | 180 U                         | 190 U                         | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| 4-Bromophenyl phenyl ether         | UG/KG                             | 0                 | 0%              | 0                  | 48           | 0.112-05             |             |                    |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 4-Chloro-3-methylphenol            | UG/KG                             | 0                 | 0%              | 0                  | 48<br>48     |                      |             | 240                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 4-Chloroaniline                    | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.44E+05             |             | 220                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 4-Chlorophenyl phenyl ether        | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.44ET03             |             | 220                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 4-Methylphenol                     | UG/KG                             | 0                 | 0%              | 0                  | 8            | 3.06E+05             |             | 900                |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| 4-Nitroaniline                     | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.32E+04             |             | 700                |             | 180 U                         | 190 U                         | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| 4-Nitrophenol                      | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.222.0.             |             | 100                |             | 180 U                         | 190 U                         | 180 U                         | 180 U                         | 170 U                         | 170 U                         |
| Acenaphthene                       | UG/KG                             | 2600              | 23%             | 11                 | 48           | 3.68E+06             |             | 50000              |             | 32 J                          | 78 U                          | 6.8 J                         | 72 U                          | 72 U                          | 71 U                          |
| Acenaphthylene                     | UG/KG                             | 2500              | 21%             | 10                 | 48           | 3.002.00             |             | 41000              |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Anthracene                         | UG/KG                             | 7100              | 42%             | 20                 | 48           | 2.19E+07             |             | 50000              |             | 52 J                          | 78 U                          | 15 J                          | 72 U                          | 72 U                          | 71 U                          |
| Benzo(a)anthracene                 | UG/KG                             | 10000             | 55%             | 26                 | 47           | 6.21E+02             | 4           | 224                | 14          | 180                           | 78 U                          | 76                            | 8.2 J                         | 3.9 J                         | 7 J                           |
| Benzo(a)pyrene                     | UG/KG                             | 8700              | 51%             | 24                 | 47           | 6.21E+01             | 21          | 61                 | 21          | 150                           | 78 U                          | 57 J                          | 8.1 J                         | 72 U                          | 71 U                          |
| Benzo(b)fluoranthene               | UG/KG                             | 12000             | 64%             | 30                 | 47           | 6.21E+02             | 9           | 1100               | 5           | 200                           | 78 U                          | 95                            | 13 J                          | 13 J                          | 71 U                          |
| Benzo(ghi)perylene                 | UG/KG                             | 3150 <sup>4</sup> | 53%             | 25                 | 47           |                      | -           | 50000              | -           | 98                            | 78 U                          | 42 J                          | 11 J                          | 72 U                          | 71 U                          |
| Benzo(k)fluoranthene               | UG/KG                             | 7500              | 47%             | 22                 | 47           | 6.21E+03             | 1           | 1100               | 4           | 150                           | 78 U                          | 67 J                          | 7 J                           | 72 U                          | 71 U                          |
| Bis(2-Chloroethoxy)methane         | UG/KG                             | 0                 | 0%              | 0                  | 48           | 0.211100             |             | 1100               | -           | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Bis(2-Chloroethyl)ether            | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.18E+02             |             |                    |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Bis(2-Chloroisopropyl)ether        | UG/KG                             | 0                 | 0%              | 0                  | 48           | 2.88E+03             |             |                    |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Bis(2-Ethylhexyl)phthalate         | UG/KG                             | 200               | 56%             | 27                 | 48           | 3.47E+04             |             | 50000              |             | 73 U                          | 13 J                          | 73 U                          | 9.2 J                         | 9.3 J                         | 13 J                          |
| Butylbenzylphthalate               | UG/KG                             | 120               | 13%             | 6                  | 48           | 1.22E+07             |             | 50000              |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Carbazole                          | UG/KG                             | 4200              | 35%             | 17                 | 48           | 2.43E+04             |             | 50000              |             | 73 J                          | 78 U                          | 17 J                          | 72 U                          | 72 U                          | 71 U                          |
| Chrysene                           | UG/KG                             | 9100              | 53%             | 25                 | 47           | 6.21E+04             |             | 400                | 10          | 210                           | 78 U                          | 90                            | 11 J                          | 8.8 J                         | 12 J                          |
| Di-n-butylphthalate                | UG/KG                             | 132 4             | 10%             | 5                  | 48           | 6.11E+06             |             | 8100               |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 3.7 J                         |
|                                    | UG/KG                             | 23 4              |                 | 2                  | 48           |                      |             | ı                  |             | ll .                          |                               | 73 U                          | 72 U                          |                               | 71 U                          |
| Di-n-octylphthalate                |                                   |                   | 4%              | _                  | -            | 2.44E+06             |             | 50000              |             | 73 U                          | 9.9 J                         |                               |                               | 72 U                          |                               |
| Dibenz(a,h)anthracene              | UG/KG                             | 470 4             | 26%             | 12                 | 47           | 6.21E+01             | 7           | 14                 | 11          | 43 J                          | 78 U                          | 21 J                          | 72 U                          | 72 U                          | 71 U                          |
| Dibenzofuran                       | UG/KG                             | 1700              | 21%             | 10                 | 48           | 1.45E+05             |             | 6200               |             | 19 J                          | 78 U                          | 5.1 J                         | 72 U                          | 72 U                          | 71 U                          |
| Diethyl phthalate                  | UG/KG                             | 21 4              | 13%             | 6                  | 48           | 4.89E+07             |             | 7100               |             | 73 U                          | 5.8 J                         | 73 U                          | 8.5 J                         | 8.1 J                         | 10 J                          |
| Dimethylphthalate                  | UG/KG                             | 0                 | 0%              | 0                  | 48           | 1.00E+08             |             | 2000               |             | 73 U                          | 78 U                          | 73 U                          | 72 U                          | 72 U                          | 71 U                          |
| Fluoranthene                       | UG/KG                             | 27000             | 73%             | 35                 | 48           | 2.29E+06             |             | 50000              |             | 520                           | 78 U                          | 180                           | 13 J                          | 7.4 J                         | 10 J                          |

|                           | Facility    |                  |                 |                    |              |                 |             |                    |            | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|---------------------------|-------------|------------------|-----------------|--------------------|--------------|-----------------|-------------|--------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                           | Location ID |                  |                 |                    |              |                 |             |                    |            | SB121C-2  | SB121C-1  | SB121C-1  | SB121C-3  | SB121C-4  | SB121C-4  |
|                           | Matrix      |                  |                 |                    |              |                 |             |                    |            | SOIL      | SOIL      | SOIL      | SOIL      | SOIL      | SOIL      |
|                           | Sample ID   |                  |                 |                    |              |                 |             |                    |            | EB226     | EB231     | EB014     | EB233     | EB020     | EB229     |
| Sample Depth to           |             |                  |                 |                    |              |                 |             |                    |            | 0         | 0         | 0         | 0         | 0         | 0         |
| Sample Depth to Be        |             |                  |                 |                    |              |                 |             |                    |            | 0.2       | 0.2       | 0.2       | 0.2       | 0.2       | 0.2       |
|                           | Sample Date |                  |                 |                    |              | D . DV          |             |                    |            | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  |
|                           | QC Code     |                  |                 | <b>N</b> 7 1       | N. 1         | Region IX       |             | NEGDEC             |            | SA        | SA        | SA        | SA        | SA        | SA        |
|                           | Study ID    | Maximum          | Frequency<br>of | Number<br>of Times | Number<br>of | PRG<br>Criteria |             | NYSDEC<br>Criteria |            | EBS       | EBS       | EBS       | EBS       | EBS       | EBS       |
|                           |             |                  |                 |                    |              |                 |             |                    |            |           |           |           |           |           |           |
| Parameter                 | Units       | Value            | Detection       | Detected           | Analyses     | Value 2         | Exceedances |                    | xceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Fluorene                  | UG/KG       | 3500             | 27%             | 13                 | 48           | 2.75E+06        |             | 50000              |            | 32 J      | 78 U      | 8 J       | 72 U      | 72 U      | 71 U      |
| Hexachlorobenzene         | UG/KG       | 8.5              | 2%              | 1                  | 48           | 3.04E+02        |             | 410                |            | 8.5 J     | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Hexachlorobutadiene       | UG/KG       | 0                | 0%              | 0                  | 48           | 6.24E+03        |             |                    |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Hexachlorocyclopentadiene | UG/KG       | 0                | 0%              | 0                  | 48           | 3.65E+05        |             |                    |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Hexachloroethane          | UG/KG       | 0                | 0%              | 0                  | 48           | 3.47E+04        |             |                    |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Indeno(1,2,3-cd)pyrene    | UG/KG       | 970 <sup>4</sup> | 46%             | 22                 | 48           | 6.21E+02        | 3           | 3200               |            | 94        | 78 U      | 41 J      | 8.6 J     | 72 U      | 71 U      |
| Isophorone                | UG/KG       | 0                | 0%              | 0                  | 48           | 5.12E+05        |             | 4400               |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| N-Nitrosodiphenylamine    | UG/KG       | 4.8              | 2%              | 1                  | 48           | 9.93E+04        |             |                    |            | 4.8 J     | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| N-Nitrosodipropylamine    | UG/KG       | 0                | 0%              | 0                  | 48           | 6.95E+01        |             |                    |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Naphthalene               | UG/KG       | 400              | 19%             | 9                  | 48           | 5.59E+04        |             | 13000              |            | 11 J      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Nitrobenzene              | UG/KG       | 0                | 0%              | 0                  | 48           | 1.96E+04        |             | 200                |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Pentachlorophenol         | UG/KG       | 0                | 0%              | 0                  | 48           | 2.98E+03        |             | 1000               |            | 180 U     | 190 UJ    | 180 U     | 180 U     | 170 U     | 170 U     |
| Phenanthrene              | UG/KG       | 29000            | 52%             | 25                 | 48           |                 |             | 50000              |            | 360       | 78 U      | 96        | 8.8 J     | 8.8 J     | 7.6 J     |
| Phenol                    | UG/KG       | 0                | 0%              | 0                  | 48           | 1.83E+07        |             | 30                 |            | 73 U      | 78 U      | 73 U      | 72 U      | 72 U      | 71 U      |
| Pyrene                    | UG/KG       | 34000            | 67%             | 32                 | 48           | 2.32E+06        |             | 50000              |            | 380       | 78 U      | 170       | 13 J      | 8.3 J     | 14 J      |
| Pesticides/PCBs           |             |                  |                 | _                  |              |                 |             |                    |            |           |           |           |           |           |           |
| 4,4'-DDD                  | UG/KG       | 44               | 12%             | 5                  | 43           | 2.44E+03        |             | 2900               |            | 3.7 U     | 3.9 U     | 3.7 U     | 3.6 U     | 3.6 U     | 3.5 U     |
| 4,4'-DDE                  | UG/KG       | 69               | 32%             | 15                 | 47           | 1.72E+03        |             | 2100               |            | 13        | 3.9 U     | 29        | 3.6 U     | 3.8       | 4.5       |
| 4,4'-DDT                  | UG/KG       | 100              | 28%             | 13                 | 47           | 1.72E+03        |             | 2100               |            | 18        | 3.9 U     | 35        | 3.6 U     | 1.9 J     | 2.3 J     |
| Aldrin                    | UG/KG       | 14 4             | 6%              | 3                  | 48           | 2.86E+01        |             | 41                 |            | 1.8 U     | 2 U       | 1.8 U     | 1.9 U     | 1.8 U     | 1.8 U     |
| Alpha-BHC                 | UG/KG       | 0                | 0%              | 0                  | 48           | 9.02E+01        |             | 110                |            | 1.8 U     | 2 U       | 2 R       | 1.9 U     | 1.8 U     | 1.8 U     |
| Alpha-Chlordane           | UG/KG       | 63 <sup>4</sup>  | 8%              | 4                  | 48           |                 |             |                    |            | 1.8 U     | 2 U       | 1.8 U     | 1.9 U     | 1.8 U     | 1.8 U     |
| Beta-BHC                  | UG/KG       | 0                | 0%              | 0                  | 48           | 3.16E+02        |             | 200                |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Chlordane                 | UG/KG       | 0                | 0%              | 0                  | 40           |                 |             |                    |            |           |           |           |           |           |           |
| Delta-BHC                 | UG/KG       | 2                | 6%              | 3                  | 48           |                 |             | 300                |            | 1.8 U     | 2 U       | 0.95 J    | 1.9 U     | 1.8 U     | 1.8 U     |
| Dieldrin                  | UG/KG       | 41 4             | 4%              | 2                  | 48           | 3.04E+01        | 2           | 44                 |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
| Endosulfan I              | UG/KG       | 185 4            | 38%             | 18                 | 48           |                 | _           | 900                |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Endosulfan II             | UG/KG       | 9                | 2%              | 10                 | 47           |                 |             | 900                |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
| Endosulfan sulfate        | UG/KG       | 0                | 0%              | 0                  | 48           |                 |             | 1000               |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
| Endrin Endrin             | UG/KG       | 21.5             | 2%              | 1                  | 47           | 1.83E+04        |             | 1000               |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
| Endrin aldehyde           | UG/KG       | 0                | 0%              | 0                  | 48           | 1.65E+04        |             | 100                |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
|                           |             |                  |                 |                    |              |                 |             |                    |            |           |           |           |           |           |           |
| Endrin ketone             | UG/KG       | 7.5 4            | 6%              | 3                  | 48           | 4.000 00        |             |                    |            | 3.7 U     | 3.9 U     | 3.7 UJ    | 3.6 U     | 3.6 U     | 3.5 U     |
| Gamma-BHC/Lindane         | UG/KG       | 0                | 0%              | 0                  | 48           | 4.37E+02        |             | 60                 |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Gamma-Chlordane           | UG/KG       | 1.2              | 2%              | 1                  | 48           | 1.000.00        |             | 540                |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Heptachlor                | UG/KG       | 14               | 4%              | 2                  | 47           | 1.08E+02        |             | 100                |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Heptachlor epoxide        | UG/KG       | 2.8              | 4%              | 2                  | 46           | 5.34E+01        |             | 20                 |            | 1.8 U     | 2 U       | 1.8 UJ    | 1.9 U     | 1.8 U     | 1.8 U     |
| Methoxychlor              | UG/KG       | 0                | 0%              | 0                  | 48           | 3.06E+05        |             |                    |            | 18 U      | 20 U      | 18 UJ     | 19 U      | 18 U      | 18 U      |
| Toxaphene                 | UG/KG       | 0                | 0%              | 0                  | 48           | 4.42E+02        |             |                    |            | 180 U     | 200 U     | 180 UJ    | 190 U     | 180 U     | 180 U     |
| Aroclor-1016              | UG/KG       | 0                | 0%              | 0                  | 48           | 3.93E+03        |             |                    |            | 37 U      | 39 U      | 37 UJ     | 36 U      | 36 U      | 35 U      |
| Aroclor-1221              | UG/KG       | 0                | 0%              | 0                  | 48           |                 |             |                    |            | 74 U      | 79 U      | 74 UJ     | 74 U      | 73 U      | 72 U      |
| Aroclor-1232              | UG/KG       | 0                | 0%              | 0                  | 48           |                 |             |                    |            | 37 U      | 39 U      | 37 UJ     | 36 U      | 36 U      | 35 U      |
| Aroclor-1242              | UG/KG       | 58               | 2%              | 1                  | 48           |                 |             |                    |            | 37 U      | 39 U      | 37 UJ     | 36 U      | 36 U      | 35 U      |
| Aroclor-1248              | UG/KG       | 0                | 0%              | 0                  | 48           | 0.00E.00        | 2           | 10000              |            | 37 U      | 39 U      | 37 UJ     | 36 U      | 36 U      | 35 U      |
| Aroclor-1254              | UG/KG       | 930              | 19%             | 9                  | 48           | 2.22E+02        | 3           | 10000              |            | 37 U      | 39 U      | 37 UJ     | 36 U      | 36 U      | 35 U      |

|                              | Facility    |         |           |          |            |           |             |          |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                              | Location ID |         |           |          |            |           |             |          |             | SB121C-2  | SB121C-1  | SB121C-1  | SB121C-3  | SB121C-4  | SB121C-4  |
|                              | Matrix      |         |           |          |            |           |             |          |             | SOIL      | SOIL      | SOIL      | SOIL      | SOIL      | SOIL      |
|                              | Sample ID   |         |           |          |            |           |             |          |             | EB226     | EB231     | EB014     | EB233     | EB020     | EB229     |
| Sample Depth to To           |             |         |           |          |            |           |             |          |             | 0         | 0         | 0         | 0         | 0         | 0         |
| Sample Depth to Botto        |             |         |           |          |            |           |             |          |             | 0.2       | 0.2       | 0.2       | 0.2       | 0.2       | 0.2       |
|                              | Sample Date |         |           |          |            |           |             |          |             | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  |
|                              | QC Code     |         |           |          |            | Region IX |             |          |             | SA        | SA        | SA        | SA        | SA        | SA        |
|                              | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | EBS       | EBS       | EBS       | EBS       | EBS       | EBS       |
|                              |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |           |           |           |           |           |           |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Aroclor-1260                 | UG/KG       | 85      | 10%       | 5        | 48         |           |             | 10000    |             | 37 U      | 39 U      | 30 J      | 36 U      | 36 U      | 35 U      |
| Metals and Cyanide           |             |         |           |          |            |           |             |          |             |           |           |           |           |           |           |
| Aluminum                     | MG/KG       | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300    |             | 15100     | 12800     | 14500     | 1730      | 14400     | 13000     |
| Antimony                     | MG/KG       | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9      | 11          | 17.3 J    | 1.1 J     | 19.3 J    | 0.93 J    | 1.7 J     | 0.81 J    |
| Arsenic                      | MG/KG       | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2      | 2           | 6.5       | 5.5       | 6.1       | 3.8       | 5         | 3.7       |
| Barium                       | MG/KG       | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300      | 7           | 1420      | 64.9      | 1600      | 18.1      | 86.6      | 69.6      |
| Beryllium                    | MG/KG       | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1      | 1           | 0.47      | 0.52      | 0.4       | 0.25      | 0.57      | 0.49      |
| Cadmium                      | MG/KG       | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3      | 14          | 2.3       | 0.07 U    | 2.7       | 0.07 U    | 0.07 U    | 0.05 U    |
| Calcium                      | MG/KG       | 296000  | 100%      | 48       | 48         |           |             | 121000   | 6           | 23400     | 2580      | 31300     | 283000    | 17200     | 25500     |
| Chromium                     | MG/KG       | 74.8    | 100%      | 48       | 48         |           |             | 29.6     | 12          | 35.2      | 20.9      | 32.9      | 3.8       | 27.8      | 22.6      |
| Cobalt                       | MG/KG       | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30       |             | 15.7      | 12.8      | 16.5      | 3.5       | 17.6      | 12.5      |
| Copper                       | MG/KG       | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33       | 35          | 9750      | 19.7 J    | 7690      | 8.8 J     | 39.1 J    | 33 J      |
| Cyanide                      | MG/KG       | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35     |             | 0.56 U    | 0.63 U    | 0.59 U    | 0.58 U    | 0.56 U    | 0.61 U    |
| Cyanide, Amenable            | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             |           |           |           |           |           |           |
| Cyanide, Total               | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             |           |           |           |           |           |           |
| Iron                         | MG/KG       | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500    | 5           | 41500     | 25700     | 41100     | 4230      | 32000     | 25900     |
| Lead                         | MG/KG       | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8     | 40          | 5080      | 11.8 J    | 5280      | 11.7 J    | 27.1      | 23.5 J    |
| Magnesium                    | MG/KG       | 20700   | 100%      | 48       | 48         |           |             | 21500    |             | 6810      | 4590      | 6820      | 10200     | 6980      | 5630      |
| Manganese                    | MG/KG       | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060     |             | 525       | 598       | 612       | 213       | 413       | 359       |
| Mercury                      | MG/KG       | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1      | 8           | 0.07      | 0.06 U    | 0.05 U    | 0.04 U    | 0.04 U    | 0.04 U    |
| Nickel                       | MG/KG       | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49       | 9           | 58.5 J    | 40.5      | 54.2 J    | 11.6      | 61.8      | 49.3      |
| Potassium                    | MG/KG       | 1990    | 100%      | 48       | 48         |           |             | 2380     |             | 1990      | 1600      | 1840      | 1150      | 1980      | 1450      |
| Selenium                     | MG/KG       | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2        |             | 1 UJ      | 1.1 U     | 0.92 UJ   | 1 U       | 1 U       | 0.8 U     |
| Silver                       | MG/KG       | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75     | 13          | 0.46 U    | 0.48 U    | 0.41 U    | 0.46 U    | 0.46 U    | 0.36 U    |
| Sodium                       | MG/KG       | 478     | 88%       | 42       | 48         |           |             | 172      | 26          | 392       | 139 U     | 606       | 132 U     | 132 U     | 110       |
| Thallium                     | MG/KG       | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7      | 3           | 1.4 U     | 1.4 UJ    | 1.2 U     | 1.4 UJ    | 1.4 J     | 1.1 UJ    |
| Vanadium                     | MG/KG       | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150      |             | 20.9 J    | 20.8      | 19.5 J    | 5.1       | 21        | 17        |
| Zinc                         | MG/KG       | 3610    | 100%      | 48       | 48         | 2.35E+04  |             | 110      | 28          | 1350      | 80.3      | 1280      | 29.8      | 153       | 196       |
| Other                        |             |         |           |          |            |           |             | l        |             |           |           |           |           |           |           |
| Total Organic Carbon         | MG/KG       | 9000    | 100%      | 40       | 40         |           |             |          |             |           |           |           |           |           |           |
| Total Petroleum Hydrocarbons | MG/KG       | 7600    | 25%       | 10       | 40         |           |             |          |             |           |           |           |           |           |           |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

| Sample Depth to<br>Sample Depth to Bot | tom of Sample<br>Sample Date |         |                 |          |          |                    |             |                    |             | SEAD-121C<br>SBDRMO-10<br>SOIL<br>DRMO-1056<br>0<br>2<br>10/25/2002 | SEAD-121C<br>SBDRMO-11<br>SOIL<br>DRMO-1059<br>0<br>2<br>10/26/2002 | SEAD-121C<br>SBDRMO-12<br>SOIL<br>DRMO-1062<br>0<br>2<br>10/25/2002 | SEAD-121C<br>SBDRMO-13<br>SOIL<br>DRMO-1065<br>0<br>2<br>10/26/2002 | SEAD-121C<br>SBDRMO-14<br>SOIL<br>DRMO-1068<br>0<br>2<br>10/25/2002 | SEAD-121C<br>SBDRMO-15<br>SOIL<br>DRMO-1071<br>0<br>2<br>10/26/2002 |
|--|------------------------------|---------|-----------------|----------|----------|--------------------|-------------|--------------------|-------------|---|---|---|---|---|---|
|  | QC Code                      |         | -               |          |          | Region IX          |             | NIT CORD           |             | SA  | SA  | SA  | SA  | SA  | SA  |
|  | Study ID                     |         | Frequency<br>of | Number   | Number   | PRG                |             | NYSDEC             |             | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  |
|  |                              | Maximum |                 | of Times | of       | Criteria           |             | Criteria           |             |   |   |   |   |   |   |
| Parameter                              | Units                        | Value   | Detection       | Detected | Analyses | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| Volatile Organic Compounds             |                              |         | 001             |          | 40       | 4.000 04           |             |                    |             | 20.777  | 20.77   | 20.777  | 2277  | 2 4 111   | 27.11   |
| 1,1,1-Trichloroethane                  | UG/KG                        | 0       | 0%              | 0        | 48       | 1.20E+06           |             | 800                |             | 2.9 UJ  | 2.8 U   | 2.9 UJ  | 3.3 U   | 2.5 UJ  | 2.7 U   |
| 1,1,2,2-Tetrachloroethane              | UG/KG                        | 0       | 0%              | 0        | 48       | 4.08E+02           |             | 600                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| 1,1,2-Trichloroethane                  | UG/KG                        | 0       | 0%              | 0        | 48       | 7.29E+02           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| 1,1-Dichloroethane                     | UG/KG                        | 0       | 0%              | 0        | 48       | 5.06E+05           |             | 200                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| 1,1-Dichloroethene                     | UG/KG                        | 0       | 0%              | 0        | 48       | 1.24E+05           |             | 400                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| 1,2-Dichloroethane                     | UG/KG                        | 0       | 0%              | 0        | 48       | 2.78E+02           |             | 100                |             | 2.9 UJ  | 2.8 U   | 2.9 UJ  | 3.3 U   | 2.5 UJ  | 2.7 UJ  |
| 1,2-Dichloroethene (total)             | UG/KG                        | 0       | 0%              | 0        | 8        |                    |             |                    |             |   |   |   |   |   |   |
| 1,2-Dichloropropane                    | UG/KG                        | 0       | 0%              | 0        | 48       | 3.42E+02           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Acetone                                | UG/KG                        | 13      | 28%             | 13       | 47       | 1.41E+07           |             | 200                |             | 20 UJ   | 11 J  | 3.2 J   | 3.3 U   | 7.3 UJ  | 2.7 U   |
| Benzene                                | UG/KG                        | 41      | 2%              | 1        | 48       | 6.43E+02           |             | 60                 |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Bromodichloromethane                   | UG/KG                        | 0       | 0%              | 0        | 48       | 8.24E+02           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Bromoform                              | UG/KG                        | 0       | 0%              | 0        | 48       | 6.16E+04           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Carbon disulfide                       | UG/KG                        | 4.7     | 4%              | 2        | 48       | 3.55E+05           |             | 2700               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Carbon tetrachloride                   | UG/KG                        | 0       | 0%              | 0        | 48       | 2.51E+02           |             | 600                |             | 2.9 UJ  | 2.8 UJ  | 2.9 UJ  | 3.3 UJ  | 2.5 UJ  | 2.7 UJ  |
| Chlorobenzene                          | UG/KG                        | 0       | 0%              | 0        | 48       | 1.51E+05           |             | 1700               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Chlorodibromomethane                   | UG/KG                        | 0       | 0%              | 0        | 48       | 1.11E+03           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Chloroethane                           | UG/KG                        | 0       | 0%              | 0        | 48       | 3.03E+03           |             | 1900               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Chloroform                             | UG/KG                        | 4.8 4   | 4%              | 2        | 48       | 2.21E+02           |             | 300                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Cis-1,2-Dichloroethene                 | UG/KG                        | 0       | 0%              | 0        | 40       | 4.29E+04           |             | 300                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Cis-1,3-Dichloropropene                | UG/KG                        | 0       | 0%              | 0        | 48       |                    |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Ethyl benzene                          | UG/KG                        | 3300    | 4%              | 2        | 48       | 3.95E+05           |             | 5500               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Meta/Para Xylene                       | UG/KG                        | 4400    | 8%              | 3        | 40       | 3.552.105          |             | 2200               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Methyl bromide                         | UG/KG                        | 0       | 0%              | 0        | 48       | 3.90E+03           |             |                    |             | 2.9 UJ  | 2.8 UJ  | 2.9 UJ  | 3.3 UJ  | 2.5 UJ  | 2.7 UJ  |
| Methyl butyl ketone                    | UG/KG                        | 0       | 0%              | 0        | 48       | 3.502.103          |             |                    |             | 2.9 UJ  | 2.8 UJ  | 2.9 UJ  | 3.3 UJ  | 2.5 UJ  | 2.7 UJ  |
| Methyl chloride                        | UG/KG                        | 0       | 0%              | 0        | 48       | 4.69E+04           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 UJ  |
| Methyl ethyl ketone                    | UG/KG                        | 0       | 0%              | 0        | 48       | 2.23E+07           |             | 300                |             | 2.9 UJ  | 2.8 UJ  | 2.9 U   | 3.3 UJ  | 2.5 UJ  | 2.7 UJ  |
| Methyl isobutyl ketone                 | UG/KG                        | 0       | 0%              | 0        | 48       | 5.28E+06           |             | 1000               |             | 2.9 UJ  | 2.8 UJ  | 2.9 U   | 3.3 UJ  | 2.5 UJ  | 2.7 U   |
| Methylene chloride                     | UG/KG                        | 2.6     | 2%              | 1        | 48       | 9.11E+03           |             | 100                |             | 2.9 UJ  | 2.7 U   | 2.9 U   | 2.9 U   | 2.5 UJ  | 2.7 U   |
| Ortho Xylene                           | UG/KG                        | 16      | 3%              | 1        | 40       | 9.11L+03           |             | 100                |             | 2.9 UJ  | 2.7 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Styrene                                | UG/KG                        | 0       | 0%              | 0        | 48       | 1.70E+06           |             |                    |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Tetrachloroethene                      | UG/KG                        | 0       | 0%              | 0        | 48       | 4.84E+02           |             | 1400               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Toluene                                | UG/KG                        | 28      | 19%             | 9        | 48       | 5.20E+05           |             | 1500               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Total Xylenes                          | UG/KG<br>UG/KG               | 0       | 0%              | 0        | 48<br>8  | 2.71E+05           |             | 1200               |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 0   |
| 1 -                                    | UG/KG                        | 0       | 0%              | 0        | 8<br>40  | ll .               |             | 300                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Trans-1,2-Dichloroethene               | UG/KG<br>UG/KG               | 0       | 0%              | 0        | 48       | 6.95E+04           |             | 300                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Trans-1,3-Dichloropropene              |                              | -       | 0%              | 0        | 48       | 5 20E - 01         |             | 700                |             |   |   | 2.9 U   |   |   |   |
| Trichloroethene                        | UG/KG                        | 0       | 0%              | 0        |          | 5.30E+01           |             |                    |             | 2.9 UJ  | 2.8 U   |   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Vinyl chloride                         | UG/KG                        | U       | 0%              | U        | 48       | 7.91E+01           |             | 200                |             | 2.9 UJ  | 2.8 U   | 2.9 U   | 3.3 U   | 2.5 UJ  | 2.7 U   |
| Semivolatile Organic Compour           |                              | 0       | 00/             | 0        | 40       | 6 22E : 04         |             | 2400               |             | 200.11  | 420.11  | 200 11  | 420.77  | 260 11  | 260 11  |
| 1,2,4-Trichlorobenzene                 | UG/KG                        | -       | 0%              | -        | 48       | 6.22E+04           |             | 3400               |             | 390 U   | 420 U   | 380 U   | 430 U   | 360 U   | 360 U   |
| 1,2-Dichlorobenzene                    | UG/KG                        | 0       | 0%              | 0        | 48       | 6.00E+05           |             | 7900               |             | 390 U   | 420 U   | 380 U   | 430 U   | 360 U   | 360 U   |
| 1,3-Dichlorobenzene                    | UG/KG                        | 0       | 0%              | 0        | 48       | 5.31E+05           |             | 1600               |             | 390 U   | 420 U   | 380 U   | 430 U   | 360 U   | 360 U   |
| 1,4-Dichlorobenzene                    | UG/KG                        | 0       | 0%              | 0        | 48       | 3.45E+03           |             | 8500               |             | 390 U   | 420 U   | 380 U   | 430 U   | 360 U   | 360 U   |
| 2,4,5-Trichlorophenol                  | UG/KG                        | 0       | 0%              | 0        | 48       | 6.11E+06           |             | 100                |             | 990 U   | 1100 U  | 970 U   | 1100 U  | 910 U   | 890 U   |
| 2,4,6-Trichlorophenol                  | UG/KG                        | 0       | 0%              | 0        | 48       | 6.11E+03           |             |                    |             | 390 U   | 420 U   | 380 U   | 430 U   | 360 U   | 360 U   |

|                             | Facility       |                   |            |          |            |                      |             |              |             | SEAD-121C      | SEAD-121C     | SEAD-121C      | SEAD-121C      | SEAD-121C     | SEAD-121C     |
|-----------------------------|----------------|-------------------|------------|----------|------------|----------------------|-------------|--------------|-------------|----------------|---------------|----------------|----------------|---------------|---------------|
|                             | Location ID    |                   |            |          |            |                      |             |              |             | SBDRMO-10      | SBDRMO-11     | SBDRMO-12      | SBDRMO-13      | SBDRMO-14     | SBDRMO-15     |
|                             | Matrix         |                   |            |          |            |                      |             |              |             | SOIL           | SOIL          | SOIL           | SOIL           | SOIL          | SOIL          |
|                             | Sample ID      |                   |            |          |            |                      |             |              |             | DRMO-1056      | DRMO-1059     | DRMO-1062      | DRMO-1065      | DRMO-1068     | DRMO-1071     |
| Sample Depth to             |                |                   |            |          |            |                      |             |              |             | 0              | 0             | 0              | 0              | 0             | 0             |
| Sample Depth to Bo          |                |                   |            |          |            |                      |             |              |             | 2              | 2             | 2              | 2              | 2             | 2             |
|                             | Sample Date    |                   |            |          |            |                      |             |              |             | 10/25/2002     | 10/26/2002    | 10/25/2002     | 10/26/2002     | 10/25/2002    | 10/26/2002    |
|                             | QC Code        |                   |            |          |            | Region IX            |             |              |             | SA             | SA            | SA             | SA             | SA            | SA            |
|                             | Study ID       |                   | Frequency  | Number   | Number     | PRG                  |             | NYSDEC       | !           | PID-RI         | PID-RI        | PID-RI         | PID-RI         | PID-RI        | PID-RI        |
|                             |                | Maximum           | of         | of Times | of         | Criteria             |             | Criteria     |             |                |               |                |                |               |               |
| Parameter                   | Units          | Value             | Detection  | Detected | Analyses 1 | Value 2              | Exceedances |              | Exceedances |                | Value (Q)     | Value (Q)      | Value (Q)      | Value (Q)     | Value (Q)     |
| 2,4-Dichlorophenol          | UG/KG          | 0                 | 0%         | 0        | 48         | 1.83E+05             |             | 400          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2,4-Dimethylphenol          | UG/KG          | 0                 | 0%         | 0        | 48         | 1.22E+06             |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2,4-Dinitrophenol           | UG/KG          | 0                 | 0%         | 0        | 47         | 1.22E+05             |             | 200          |             | 990 UJ         | 1100 UJ       | 970 R          | 1100 U         | 910 UJ        | 890 UJ        |
| 2,4-Dinitrotoluene          | UG/KG          | 45                | 2%         | 1        | 48         | 1.22E+05             |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2,6-Dinitrotoluene          | UG/KG          | 0                 | 0%         | 0        | 48         | 6.11E+04             |             | 1000         |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2-Chloronaphthalene         | UG/KG          | 0                 | 0%         | 0        | 48         | 4.94E+06             |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2-Chlorophenol              | UG/KG          | 0                 | 0%         | 0        | 48         | 6.34E+04             |             | 800          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2-Methylnaphthalene         | UG/KG          | 610               | 19%        | 9        | 48         |                      |             | 36400        |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2-Methylphenol              | UG/KG          | 0                 | 0%         | 0        | 48         | 3.06E+06             |             | 100          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 2-Nitroaniline              | UG/KG          | 0                 | 0%         | 0        | 48         | 1.83E+05             |             | 430          |             | 990 U          | 1100 U        | 970 UJ         | 1100 UJ        | 910 U         | 890 U         |
| 2-Nitrophenol               | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             | 330          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 3 or 4-Methylphenol         | UG/KG          | 0                 | 0%         | 0        | 40         |                      |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 3,3'-Dichlorobenzidine      | UG/KG          | 0                 | 0%         | 0        | 48         | 1.08E+03             |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 UJ        | 360 UJ        |
| 3-Nitroaniline              | UG/KG          | 0                 | 0%         | 0        | 48         | 1.83E+04             |             | 500          |             | 990 U          | 1100 U        | 970 U          | 1100 U         | 910 U         | 890 U         |
| 4,6-Dinitro-2-methylphenol  | UG/KG          | 0                 | 0%         | 0        | 48         | 6.11E+03             |             |              |             | 990 UJ         | 1100 UJ       | 970 UJ         | 1100 U         | 910 U         | 890 U         |
| 4-Bromophenyl phenyl ether  | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 4-Chloro-3-methylphenol     | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             | 240          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 4-Chloroaniline             | UG/KG          | 0                 | 0%         | 0        | 48         | 2.44E+05             |             | 220          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 4-Chlorophenyl phenyl ether | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| 4-Methylphenol              | UG/KG          | 0                 | 0%         | 0        | 8          | 3.06E+05             |             | 900          |             |                |               |                |                |               |               |
| 4-Nitroaniline              | UG/KG          | 0                 | 0%         | 0        | 48         | 2.32E+04             |             | 400          |             | 990 U          | 1100 U        | 970 U          | 1100 UJ        | 910 U         | 890 U         |
| 4-Nitrophenol               | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             | 100          |             | 990 U          | 1100 U        | 970 UJ         | 1100 U         | 910 U         | 890 U         |
| Acenaphthene                | UG/KG          | 2600              | 23%        | 11       | 48         | 3.68E+06             |             | 50000        |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Acenaphthylene              | UG/KG          | 2500              | 21%        | 10       | 48         | 2.405.05             |             | 41000        |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Anthracene                  | UG/KG<br>UG/KG | 7100<br>10000     | 42%<br>55% | 20<br>26 | 48<br>47   | 2.19E+07<br>6.21E+02 | 4           | 50000<br>224 | 14          | 390 U<br>390 U | 420 U<br>86 J | 380 U<br>380 U | 430 U<br>430 U | 360 U<br>45 J | 66 J<br>140 J |
| Benzo(a)anthracene          |                | 8700              |            | 24       | 47         | ll .                 | 21          |              | 21          | 11             |               |                | 430 U<br>430 U |               | I             |
| Benzo(a)pyrene              | UG/KG          |                   | 51%        | 30       | 47         | 6.21E+01             | 9           | 61<br>1100   | 5           | 390 U          | 84 J          | 380 U          |                | 360 UJ        | 120 J         |
| Benzo(b)fluoranthene        | UG/KG          | 12000             | 64%        |          |            | 6.21E+02             | 9           |              | 5           | 390 U          | 86 J          | 380 U          | 430 U          | 60 J          | 160 J         |
| Benzo(ghi)perylene          | UG/KG          | 3150 <sup>4</sup> | 53%        | 25       | 47         |                      |             | 50000        |             | 390 U          | 72 J          | 380 UJ         | 430 UJ         | 67 J          | 110 J         |
| Benzo(k)fluoranthene        | UG/KG          | 7500              | 47%        | 22       | 47         | 6.21E+03             | 1           | 1100         | 4           | 390 U          | 420 U         | 380 U          | 430 U          | 360 UJ        | 150 J         |
| Bis(2-Chloroethoxy)methane  | UG/KG          | 0                 | 0%         | 0        | 48         |                      |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Bis(2-Chloroethyl)ether     | UG/KG          | 0                 | 0%         | 0        | 48         | 2.18E+02             |             |              |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Bis(2-Chloroisopropyl)ether | UG/KG          | 0                 | 0%         | 0        | 48         | 2.88E+03             |             | #0000        |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Bis(2-Ethylhexyl)phthalate  | UG/KG          | 200               | 56%        | 27       | 48         | 3.47E+04             |             | 50000        |             | 390 U          | 420 U         | 380 U          | 130 J          | 50 J          | 96 J          |
| Butylbenzylphthalate        | UG/KG          | 120               | 13%        | 6        | 48         | 1.22E+07             |             | 50000        |             | 390 U          | 420 U         | 380 U          | 49 J           | 360 UJ        | 48 J          |
| Carbazole                   | UG/KG          | 4200              | 35%        | 17       | 48         | 2.43E+04             |             | 400          |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 49 J          |
| Chrysene                    | UG/KG          | 9100              | 53%        | 25       | 47         | 6.21E+04             |             | 400          | 10          | 390 U          | 96 J          | 380 U          | 430 U          | 60 J          | 200 J         |
| Di-n-butylphthalate         | UG/KG          | 132 4             | 10%        | 5        | 48         | 6.11E+06             |             | 8100         |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Di-n-octylphthalate         | UG/KG          | 23 4              | 4%         | 2        | 48         | 2.44E+06             |             | 50000        |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 UJ        | 360 UJ        |
| Dibenz(a,h)anthracene       | UG/KG          | 470 4             | 26%        | 12       | 47         | 6.21E+01             | 7           | 14           | 11          | 390 U          | 420 U         | 380 UJ         | 430 UJ         | 360 UJ        | 360 UJ        |
| Dibenzofuran                | UG/KG          | 1700              | 21%        | 10       | 48         | 1.45E+05             |             | 6200         |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Diethyl phthalate           | UG/KG          | 21 4              | 13%        | 6        | 48         | 4.89E+07             |             | 7100         |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Dimethylphthalate           | UG/KG          | 0                 | 0%         | 0        | 48         | 1.00E+08             |             | 2000         |             | 390 U          | 420 U         | 380 U          | 430 U          | 360 U         | 360 U         |
| Fluoranthene                | UG/KG          | 27000             | 73%        | 35       | 48         | 2.29E+06             |             | 50000        |             | 390 U          | 180 J         | 75 J           | 430 U          | 76 J          | 310 J         |

|                           | Facility<br>Location ID |                  |           |          |          |           |            |          |             | SEAD-121C<br>SBDRMO-10 | SEAD-121C<br>SBDRMO-11 | SEAD-121C<br>SBDRMO-12 | SEAD-121C<br>SBDRMO-13 | SEAD-121C<br>SBDRMO-14 | SEAD-121C<br>SBDRMO-15 |
|---------------------------|-------------------------|------------------|-----------|----------|----------|-----------|------------|----------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                           | Matrix                  |                  |           |          |          |           |            |          |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   |
|                           | Sample ID               |                  |           |          |          |           |            |          |             | DRMO-1056              | DRMO-1059              | DRMO-1062              | DRMO-1065              | DRMO-1068              | DRMO-1071              |
| Sample Depth to           |                         |                  |           |          |          |           |            |          |             | 0                      | 0                      | 0                      | 0                      | 0                      | 0                      |
| Sample Depth to Bo        |                         |                  |           |          |          |           |            |          |             | 2                      | 2                      | 2                      | 2                      | 2                      | 2                      |
|                           | Sample Date             |                  |           |          |          |           |            |          |             | 10/25/2002             | 10/26/2002             | 10/25/2002             | 10/26/2002             | 10/25/2002             | 10/26/2002             |
|                           | QC Code                 |                  |           |          |          | Region IX |            |          |             | SA                     | SA                     | SA                     | SA                     | SA                     | SA                     |
|                           | Study ID                |                  | Frequency | Number   | Number   | PRG       |            | NYSDEC   |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|                           |                         | Maximum          | of        | of Times | of       | Criteria  |            | Criteria |             |                        |                        |                        |                        |                        |                        |
| Parameter                 | Units                   | Value            | Detection | Detected | Analyses | Value 2   | Exceedance |          | Exceedances |                        | Value (Q)              |
| Fluorene                  | UG/KG                   | 3500             | 27%       | 13       | 48       | 2.75E+06  |            | 50000    |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Hexachlorobenzene         | UG/KG                   | 8.5              | 2%        | 1        | 48       | 3.04E+02  |            | 410      |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Hexachlorobutadiene       | UG/KG                   | 0                | 0%        | 0        | 48       | 6.24E+03  |            |          |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Hexachlorocyclopentadiene | UG/KG                   | 0                | 0%        | 0        | 48       | 3.65E+05  |            |          |             | 390 UJ                 | 420 UJ                 | 380 UJ                 | 430 U                  | 360 UJ                 | 360 UJ                 |
| Hexachloroethane          | UG/KG                   | 0                | 0%        | 0        | 48       | 3.47E+04  |            |          |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Indeno(1,2,3-cd)pyrene    | UG/KG                   | 970 <sup>4</sup> | 46%       | 22       | 48       | 6.21E+02  | 3          | 3200     |             | 390 U                  | 420 U                  | 380 UJ                 | 430 UJ                 | 360 UJ                 | 74 J                   |
| Isophorone                | UG/KG                   | 0                | 0%        | 0        | 48       | 5.12E+05  |            | 4400     |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| N-Nitrosodiphenylamine    | UG/KG                   | 4.8              | 2%        | 1        | 48       | 9.93E+04  |            |          |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| N-Nitrosodipropylamine    | UG/KG                   | 0                | 0%        | 0        | 48       | 6.95E+01  |            |          |             | 390 U                  | 420 U                  | 380 UJ                 | 430 UJ                 | 360 U                  | 360 U                  |
| Naphthalene               | UG/KG                   | 400              | 19%       | 9        | 48       | 5.59E+04  |            | 13000    |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Nitrobenzene              | UG/KG                   | 0                | 0%        | 0        | 48       | 1.96E+04  |            | 200      |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Pentachlorophenol         | UG/KG                   | 0                | 0%        | 0        | 48       | 2.98E+03  |            | 1000     |             | 990 U                  | 1100 U                 | 970 U                  | 1100 U                 | 910 U                  | 890 U                  |
| Phenanthrene              | UG/KG                   | 29000            | 52%       | 25       | 48       |           |            | 50000    |             | 390 U                  | 72 J                   | 380 U                  | 430 U                  | 360 U                  | 240 J                  |
| Phenol                    | UG/KG                   | 0                | 0%        | 0        | 48       | 1.83E+07  |            | 30       |             | 390 U                  | 420 U                  | 380 U                  | 430 U                  | 360 U                  | 360 U                  |
| Pyrene                    | UG/KG                   | 34000            | 67%       | 32       | 48       | 2.32E+06  |            | 50000    |             | 390 U                  | 120 J                  | 67 J                   | 430 UJ                 | 110 J                  | 600 J                  |
| Pesticides/PCBs           |                         |                  |           | _        |          |           |            |          |             |                        |                        |                        |                        |                        |                        |
| 4,4'-DDD                  | UG/KG                   | 44               | 12%       | 5        | 43       | 2.44E+03  |            | 2900     |             | 2 R                    | 2.2 UJ                 | 2 R                    | 2.2 UJ                 | 1.8 R                  | 1.8 UJ                 |
| 4,4'-DDE                  | UG/KG                   | 69               | 32%       | 15       | 47       | 1.72E+03  |            | 2100     |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 20 J                   |
| 4,4'-DDT                  | UG/KG                   | 100              | 28%       | 13       | 47       | 1.72E+03  |            | 2100     |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 11 NJ                  |
| Aldrin                    | UG/KG                   | 14 4             | 6%        | 3        | 48       | 2.86E+01  |            | 41       |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Alpha-BHC                 | UG/KG                   | 0                | 0%        | 0        | 48       | 9.02E+01  |            | 110      |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Alpha-Chlordane           | UG/KG                   | 63 4             | 8%        | 4        | 48       |           |            |          |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Beta-BHC                  | UG/KG                   | 0                | 0%        | 0        | 48       | 3.16E+02  |            | 200      |             | 2 U                    | 2.2 UJ                 | 2 U                    | 2.2 UJ                 | 1.8 U                  | 1.8 UJ                 |
| Chlordane                 | UG/KG                   | 0                | 0%        | 0        | 40       |           |            |          |             | 20 U                   | 22 U                   | 20 U                   | 22 U                   | 18 U                   | 18 U                   |
| Delta-BHC                 | UG/KG                   | 2                | 6%        | 3        | 48       |           |            | 300      |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Dieldrin                  | UG/KG                   | 41 4             | 4%        | 2        | 48       | 3.04E+01  | 2          | 44       |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Endosulfan I              | UG/KG                   | 185 4            | 38%       | 18       | 48       |           |            | 900      |             | 2 U                    | 2.2 U                  | 11                     | 2.2 U                  | 8.7 J                  | 17 J                   |
| Endosulfan II             | UG/KG                   | 9                | 2%        | 1        | 47       |           |            | 900      |             | 2 U                    | 2.2 U                  | 2 U                    | 2.2 U                  | 1.8 U                  | 1.8 U                  |
| Endosulfan sulfate        | UG/KG                   | 0                | 0%        | 0        | 48       |           |            | 1000     |             | 2 U                    | 2.2 U                  | 2 U                    | 2.2 U                  | 1.8 U                  | 1.8 U                  |
| Endrin                    | UG/KG                   | 21.5             | 2%        | 1        | 47       | 1.83E+04  |            | 100      |             | 2 UJ                   | 2.2 U                  | 2 UJ                   | 2.2 U                  | 1.8 UJ                 | 1.8 U                  |
| Endrin aldehyde           | UG/KG                   | 0                | 0%        | 0        | 48       |           |            |          |             | 2 U                    | 2.2 U                  | 2 U                    | 2.2 U                  | 1.8 U                  | 1.8 U                  |
| Endrin ketone             | UG/KG                   | 7.5 4            | 6%        | 3        | 48       |           |            |          |             | 2 U                    | 2.2 U                  | 2 U                    | 2.2 U                  | 1.8 U                  | 1.8 U                  |
| Gamma-BHC/Lindane         | UG/KG                   | 0                | 0%        | 0        | 48       | 4.37E+02  |            | 60       |             | 2 UJ                   | 2.2 UJ                 | 2 UJ                   | 2.2 UJ                 | 1.8 UJ                 | 1.8 UJ                 |
| Gamma-Chlordane           | UG/KG                   | 1.2              | 2%        | 1        | 48       | 4.57E102  |            | 540      |             | 2 U                    | 2.2 UJ                 | 2 U                    | 2.2 UJ                 | 1.8 U                  | 1.8 UJ                 |
| Heptachlor                | UG/KG                   | 14               | 4%        | 2        | 47       | 1.08E+02  |            | 100      |             | 2 U                    | 2.2 UJ                 | 2 U                    | 2.2 UJ                 | 1.8 U                  | 1.8 UJ                 |
| Heptachlor epoxide        | UG/KG                   | 2.8              | 4%        | 2        | 46       | 5.34E+01  |            | 20       |             | 2 U                    | 2.2 UJ                 | 2 U                    | 2.2 UJ                 | 1.8 U                  | 1.8 UJ                 |
| Methoxychlor              | UG/KG                   | 0                | 0%        | 0        | 48       | 3.06E+05  |            |          |             | 2 UJ                   | 2.2 U                  | 2 UJ                   | 2.2 U                  | 1.8 UJ                 | 1.8 U                  |
| Toxaphene                 | UG/KG                   | 0                | 0%        | 0        | 48       | 4.42E+02  |            |          |             | 20 U                   | 22 U                   | 20 U                   | 22 U                   | 18 U                   | 18 U                   |
| Aroclor-1016              | UG/KG                   | 0                | 0%        | 0        | 48       | 3.93E+03  |            |          |             | 20 UJ                  | 22 U                   | 20 UJ                  | 22 U                   | 19 UJ                  | 18 U                   |
| Aroclor-1221              | UG/KG                   | 0                | 0%        | 0        | 48       |           |            |          |             | 20 U                   | 22 U                   | 20 U                   | 22 U                   | 19 U                   | 18 U                   |
| Aroclor-1232              | UG/KG                   | 0                | 0%        | 0        | 48       |           |            |          |             | 20 UJ                  | 22 U                   | 20 UJ                  | 22 U                   | 19 UJ                  | 18 U                   |
| Aroclor-1242              | UG/KG                   | 58               | 2%        | 1        | 48       |           |            |          |             | 20 UJ                  | 22 U                   | 20 UJ                  | 22 U                   | 19 UJ                  | 18 U                   |
| Aroclor-1248              | UG/KG                   | 0                | 0%        | 0        | 48       |           |            |          |             | 20 U                   | 22 U                   | 20 U                   | 22 U                   | 19 U                   | 18 U                   |
| Aroclor-1254              | UG/KG                   | 930              | 19%       | 9        | 48       | 2.22E+02  | 3          | 10000    |             | 20 U                   | 22 U                   | 20 U                   | 22 U                   | 19 U                   | 18 U                   |
| 11100101-1234             | UG/KG                   | 730              | 17/0      | ,        | 40       | 2.22E⊤02  | ,          | 10000    |             |                        | 22 U                   | 20 U                   | 22 U                   | 17 U                   | 10 U                   |

|                              | Facility    |         |           |          |            |           |             |          |             | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|------------|------------|
|                              | Location ID |         |           |          |            |           |             |          |             | SBDRMO-10  | SBDRMO-11  | SBDRMO-12  | SBDRMO-13  | SBDRMO-14  | SBDRMO-15  |
|                              | Matrix      |         |           |          |            |           |             |          |             | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       |
|                              | Sample ID   |         |           |          |            |           |             |          |             | DRMO-1056  | DRMO-1059  | DRMO-1062  | DRMO-1065  | DRMO-1068  | DRMO-1071  |
| Sample Depth to T            |             |         |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0          | 0          |
| Sample Depth to Botto        |             |         |           |          |            |           |             |          |             | 2          | 2          | 2          | 2          | 2          | 2          |
|                              | Sample Date |         |           |          |            |           |             |          |             | 10/25/2002 | 10/26/2002 | 10/25/2002 | 10/26/2002 | 10/25/2002 | 10/26/2002 |
|                              | QC Code     |         |           |          |            | Region IX |             |          |             | SA         | SA         | SA         | SA         | SA         | SA         |
|                              | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                              |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |            |            |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | 2        | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Aroclor-1260                 | UG/KG       | 85      | 10%       | 5        | 48         |           |             | 10000    |             | 20 UJ      | 22 U       | 20 UJ      | 22 U       | 19 UJ      | 18 U       |
| Metals and Cyanide           |             |         |           |          |            |           |             |          |             |            |            |            |            |            |            |
| Aluminum                     | MG/KG       | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300    |             | 11500      | 11200      | 10700      | 11500      | 8570       | 9170       |
| Antimony                     | MG/KG       | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9      | 11          | 1.1 U      | 1.2 U      | 3.6        | 1.2 U      | 1.1        | 6.9        |
| Arsenic                      | MG/KG       | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2      | 2           | 5          | 4.8        | 5.6        | 3.4        | 5.4        | 6          |
| Barium                       | MG/KG       | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300      | 7           | 83.5 J     | 84 J       | 49.2 J     | 71 J       | 39.1 J     | 275 J      |
| Beryllium                    | MG/KG       | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1      | 1           | 0.76       | 0.7        | 0.61       | 0.74       | 0.52 J     | 0.46 J     |
| Cadmium                      | MG/KG       | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3      | 14          | 0.14 U     | 0.3 J      | 0.14 U     | 0.16 U     | 1.3        | 16.3       |
| Calcium                      | MG/KG       | 296000  | 100%      | 48       | 48         |           |             | 121000   | 6           | 4850 J     | 28000 J    | 24800 J    | 8080 J     | 18600 J    | 107000 J   |
| Chromium                     | MG/KG       | 74.8    | 100%      | 48       | 48         |           |             | 29.6     | 12          | 17.6       | 19.6       | 19         | 17.7       | 19.1       | 47.2       |
| Cobalt                       | MG/KG       | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30       |             | 12.4       | 13.3       | 14.2       | 9.9        | 13.3       | 11.3       |
| Copper                       | MG/KG       | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33       | 35          | 16.2 J     | 30.1 J     | 43.8 J     | 18.8 J     | 62.5 J     | 407 J      |
| Cyanide                      | MG/KG       | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35     |             |            |            |            |            |            |            |
| Cyanide, Amenable            | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             | 0.59 U     | 0.65 U     | 0.59 U     | 0.66 U     | 0.55 U     | 0.54 U     |
| Cyanide, Total               | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             | 0.595 U    | 0.653 U    | 0.589 U    | 0.656 U    | 0.548 U    | 0.543 U    |
| Iron                         | MG/KG       | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500    | 5           | 22500      | 23200      | 22300      | 21100      | 21500 *    | 24400      |
| Lead                         | MG/KG       | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8     | 40          | 14.7       | 37.1       | 60.2       | 12.4       | 51.5       | 371        |
| Magnesium                    | MG/KG       | 20700   | 100%      | 48       | 48         |           |             | 21500    |             | 3610       | 5410       | 5350       | 3700       | 4860 *     | 6870       |
| Manganese                    | MG/KG       | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060     |             | 668        | 349        | 484        | 526        | 289        | 403        |
| Mercury                      | MG/KG       | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1      | 8           | 0.05       | 0.03       | 0.04       | 0.04       | 0.04       | 0.08       |
| Nickel                       | MG/KG       | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49       | 9           | 23.9 J     | 31.4 J     | 36.1 J     | 23.9 J     | 38.4 J     | 52.5 J     |
| Potassium                    | MG/KG       | 1990    | 100%      | 48       | 48         |           |             | 2380     |             | 911 J      | 982 J      | 1280 J     | 829 J      | 1000 J     | 1430 J     |
| Selenium                     | MG/KG       | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2        |             | 0.5 U      | 0.55 U     | 0.49 U     | 0.55 U     | 0.46 U     | 0.44 U     |
| Silver                       | MG/KG       | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75     | 13          | 0.32 U     | 0.35       | 0.32 U     | 0.35 U     | 0.29 U     | 18.1       |
| Sodium                       | MG/KG       | 478     | 88%       | 42       | 48         |           |             | 172      | 26          | 132        | 130 U      | 242        | 199        | 143        | 439        |
| Thallium                     | MG/KG       | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7      | 3           | 0.37 U     | 0.4 U      | 0.36 U     | 0.4 U      | 0.34 U     | 0.33 U     |
| Vanadium                     | MG/KG       | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150      |             | 22.4       | 18.9       | 17.9       | 20.2       | 14.7       | 14.1       |
| Zinc                         | MG/KG       | 3610    | 100%      | 48       | 48         | 2.35E+04  |             | 110      | 28          | 67.1       | 133        | 636        | 53.9       | 225        | 3610       |
| Other                        |             |         |           |          |            |           |             |          |             |            |            |            |            |            |            |
| Total Organic Carbon         | MG/KG       | 9000    | 100%      | 40       | 40         |           |             |          |             | 6700       | 6800       | 5100       | 9000       | 3300       | 6200       |
| Total Petroleum Hydrocarbons | MG/KG       | 7600    | 25%       | 10       | 40         |           |             |          |             | 48 UJ      | 52 UJ      | 47 UJ      | 52 UJ      | 44 UJ      | 43 UJ      |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

| Part      | Sample Depth to Sample Depth to Bott |       | Maximum | Frequency<br>of | Number<br>of Times | Number<br>of | Region IX<br>PRG<br>Criteria |             | NYSDEC<br>Criteria |             | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1074<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1080<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-17<br>SOIL<br>DRMO-1077<br>0<br>2<br>10/28/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-18<br>SOIL<br>DRMO-1081<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-19<br>SOIL<br>DRMO-1084<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-20<br>SOIL<br>DRMO-1087<br>0<br>2<br>10/26/2002<br>SA<br>PID-RI |
|--|--------------------------------------|-------|---------|-----------------|--------------------|--------------|------------------------------|-------------|--------------------|-------------|---|---|---|---|---|---|
| 1,1,1-risknowneame   |                                      | Units | Value   | Detection       | Detected           | Analyses 1   | Value 2                      | Exceedances | Value 3            | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| 1.1.2-Trichtorochame   |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| 1,1-Ti-schlorenchame   |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| 1.1-Dechloroschame   |                                      |       |         |                 | -                  |              |                              |             | 600                |             |   |   |   |   |   |   |
|  |                                      |       |         |                 | -                  |              |                              |             |                    |             |   |   |   |   |   | I   |
| 1.2.Dehlororehame (03.04)   UGKG 0   0% 0   48   2788-02   00   0   100   2.6 U   2.8 U   3.1 U   2.6 U   3.0 U   2.6 U   1.2.Dehlororehame (03.04)   UGKG 0   0% 0   48   3.428-602   0   2.6 U   2.8 U   6 U   2.6 U   2.6 U   3.1 U   3.1   |                                      |       | -       |                 | -                  |              |                              |             |                    |             |   |   |   |   |   |   |
| 1.2-Dehibroropene  |                                      |       |         |                 | -                  |              |                              |             |                    |             |   |   |   |   |   |   |
| L2-Dichloropropame   |                                      |       | -       |                 | -                  |              | 2.78E+02                     |             | 100                |             | 2.6 U   | 2.8 U   | 3.1 UJ  | 2.6 UJ  | 3 U   | 2.6 UJ  |
| Acetone  |                                      |       |         |                 | o o                | -            | 2 425 . 02                   |             |                    |             | 2611  | 2011  | 2.1.111   | 2 < 111   | 2.11  | 26111   |
| Benzame  |                                      |       |         |                 |                    |              |                              |             | 200                |             |   |   |   |   |   |   |
| Bromosichhoromethane   UGKG   0   0   48   8,48   40   2   26 U   2.8 U   3.1 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3    |                                      |       |         |                 | 13                 |              |                              |             |                    |             |   |   |   |   |   |   |
| Bomofrom   |                                      |       |         |                 | 1                  |              | ll .                         |             | 60                 |             |   |   |   |   |   | I   |
| Carbon tersholfride   UGKG   47   4%   2   48   3.55E+05   600   2.6 U   2.8 U   3.1 U   2.6 U   3 U   2.6 U   |                                      |       |         |                 | -                  |              |                              |             |                    |             |   |   |   |   |   |   |
| Carbon terrachloride   UGKG   0   0%   0   48   2.51E-02   60   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   1.11E-03   1.700   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   1.11E-03   1.900   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   3.05E-03   1.900   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   2.21E-02   3.00   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   2.21E-02   3.00   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   2.21E-02   3.00   2.6 U   2.8 U   3.1 U   2.6 U   3.U   2.6 U   Choro-chrone   UGKG   0   0%   0   48   3.90E-03   3.90E-03   3.00E-03   3.   |                                      |       |         |                 | -                  |              | ll .                         |             | 2700               |             |   |   |   |   |   | I   |
| Chlorodhemomentame   |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| Chlorodibromomethane   |                                      |       |         |                 | -                  |              |                              |             |                    |             |   |   |   |   |   |   |
| Chloroform   |                                      |       |         |                 | -                  |              |                              |             | 1700               |             |   |   |   |   |   |   |
| Chloroform  UGKG 4.8 d 48 d 48 2 48 2 21E+02 300 2.6 U 2.8 U 3.1 U 2.6 U 3 U 2.6 U Cis-1,2-Dichloropenee UGKG 0 0% 0 40 429E+04 2.6 U 2.8 U 3.1 U 2.6 U 3 U 2.6 U 3.0 U 2.6 U 3.0 U 2.6 U 3.0 U 3.0 U 2.6 U 3.0 U 3. |                                      |       |         |                 |                    |              | ll .                         |             | 1900               |             |   |   |   |   |   | I   |
| Cis-12-Dichloroptenee  |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| Cis-1.3-Dichloropropene  |                                      |       |         |                 |                    |              |                              |             | 300                |             |   |   |   |   |   |   |
| Ethyl benzene  |                                      |       |         |                 |                    |              | 4.29E+04                     |             |                    |             |   |   |   |   |   |   |
| MetaPara Xylene  |                                      |       |         |                 |                    |              | 2.055.05                     |             | 5500               |             |   |   |   |   |   |   |
| Methyl bromide   UG/KG   0   0%   0   48   3.90E+03   2.6 U   2.8 U   3.1 UJ   2.6 UJ   3 U   2.6 UJ   Methyl bryl ketone   UG/KG   0   0%   0   48   4.69E+04   2.6 UJ   2.8 UJ   3.1 UJ   2.6 UJ   3 U   2.6 UJ   3    |                                      |       |         |                 |                    |              | 3.93E+03                     |             | 3300               |             |   |   |   |   |   | I   |
| Methyl buyl ketone   UG/KG   0   0%   0   48   4.69E+04   2.6 U   2.8 U   3.1 U   2.6 U   3 U   2.6 U   Methyl chloride   UG/KG   0   0%   0   48   4.69E+04   2.6 U   2.8 U   3.1 U   2.6 U   3 U   2.6 U   Methyl isobutyl ketone   UG/KG   0   0%   0   48   5.28E+06   1000   2.6 U   2.8 U   3.1 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.6 U   3 U   2.   |                                      |       |         |                 |                    |              | 2 00E : 02                   |             |                    |             |   |   |   |   |   | I   |
| Methyl chloride         UG/KG         0         0%         0         48         4.69E-04         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ           Methyl sobutyl ketone         UG/KG         0         0%         0         48         2.23E+07         300         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Methyl sobutyl ketone         UG/KG         0         0%         0         48         5.28E+06         1000         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 U           Methyl sobutyl ketone         UG/KG         2.6 2%         1         48         9.11E+03         100         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Ortho Xylene         UG/KG         16         3%         1         40         2.6 UJ         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Styrene         UG/KG         0         0%         0         48         4.8E+02         1400         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Total Xylenes         UG/KG         0 <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>3.90E+03</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>  |                                      |       |         |                 | -                  |              | 3.90E+03                     |             |                    |             |   |   |   |   |   |   |
| Methyl ethyl ketone         UG/KG         0         0%         0         48         2.23E+07         300         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Methyl sobutyl ketone         UG/KG         0         0%         0         48         5.28E+06         1000         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Ortho Xylene         UG/KG         1.6         3%         1         40         100         2.6 U         2.8 U         4.1 UJ         2.6 UJ         3 U         2.6 UJ           Styrene         UG/KG         1.6         3%         1         40         1.70E+06         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Tetrachloroethene         UG/KG         0         0%         0         48         4.84E+02         1400         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ           Total Xylenes         UG/KG         0         0%         0         8         2.71E+05         1500         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Trans-1,3-Dichloroethrene<  |                                      |       |         |                 | -                  |              | 4.60E : 04                   |             |                    |             |   |   |   |   |   |   |
| Methyl isobutyl ketone         UG/KG         0         0%         0         48         5.28E+06         1000         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Methyl isobutyl ketone         UG/KG         2.6         2%         1         48         9.11E+03         100         2.6 U         2.8 U         4.1 UJ         2.6 UJ         3 U         2.6 UJ           Ortho Xylene         UG/KG         16         3%         1         40         1.70E+06         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Styrene         UG/KG         0         0%         0         48         4.84E+02         1400         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ           Total Xylenes         UG/KG         0         0%         0         8         2.71E+05         1500         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Total Xylenes         UG/KG         0         0%         0         8         2.71E+05         1500         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3.0 U         2.6 UJ <th< td=""><td>1 -</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>300</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>  | 1 -                                  |       |         |                 | -                  |              |                              |             | 300                |             |   |   |   |   |   |   |
| Methylene chloride         UG/KG         2.6         2%         1         48         9.11E+03         100         2.6 U         2.8 U         4.1 UJ         2.6 UJ         3 U         2.6 UJ           Ortho Xylene         UG/KG         16         3%         1         40         2.6 UJ         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Styrene         UG/KG         0         0%         0         48         1.70E+06         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ           Tetrachloroethene         UG/KG         0         0%         0         48         4.84E+02         1400         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ           Total Xylenes         UG/KG         28         19%         9         48         5.20E+05         1500         2.6 UJ         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Trans-1,2-Dichloroethene         UG/KG         0         0%         0         48         2.71E+05         1200         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Trans-1,3-Dichloropenzene         <  |                                      |       |         |                 | -                  |              | ll .                         |             |                    |             |   |   |   |   |   | I   |
| Ortho Xylene         UG/KG         16         3%         1         40         2.6 UJ         2.8 U         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         2.6 UJ         2.8 UJ         3.1 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ         3 UJ         2.6 UJ  |                                      |       |         |                 | 1                  |              |                              |             |                    |             |   |   |   |   |   |   |
| Styrene  |                                      |       |         |                 | 1                  |              | J.11E103                     |             | 100                |             |   |   |   |   |   |   |
| Tetrachloroethene  |                                      |       |         |                 | 0                  |              | 1.70E+06                     |             |                    |             |   |   |   |   |   |   |
| Toluene  |                                      |       |         |                 | -                  |              |                              |             | 1400               |             |   |   |   |   |   |   |
| Total Xylenes  |                                      |       |         |                 | -                  |              |                              |             |                    |             |   |   |   |   |   |   |
| Trans-1,2-Dichloroethene   |                                      |       |         |                 | Ó                  |              |                              |             |                    |             | 2.0 0   | 2.0 0   | 3.1 03  | 2.0 05  | 5 0   | 2.0 00  |
| Trans-1,3-Dichloropropene   UG/KG   0   0%   0   48   1.0    |                                      |       |         |                 | 0                  |              | ll .                         |             |                    |             | 2.6 U   | 2.8 U   | 3.1 UJ  | 2.6 UJ  | 3 U   | 2.6 UJ  |
| Trichloroethene         UG/KG         0         0%         0         48         5.30E+01         700         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Vinyl chloride         UG/KG         0         0%         0         48         7.91E+01         200         2.6 U         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           Semivolatile Organic Compounds         2         3.1 UJ         2.6 UJ         3 U         2.6 UJ         2.8 U         3.1 UJ         2.6 UJ         3 U         2.6 UJ           1.2.4-Trichlorobenzene         UG/KG         0         0%         0         48         6.2E+04         3400         360 U         360 U         1800 U         350 U         390 U         350 U           1,2-Dichlorobenzene         UG/KG         0         0%         0         48         6.0E+05         7900         360 U         360 U         1800 U         350 U         390 U         350 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         360 U         1800 U         350 U         390 U         350 U         2,4,5-Trichlorophenol <t< td=""><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>   |                                      |       |         |                 | 0                  |              |                              |             |                    |             |   |   |   |   |   |   |
| Vinyl chloride UG/KG 0 0% 0 48 7.91E+01 200 2.6 U 2.8 U 3.1 UJ 2.6 UJ 3 U 2.6 UJ Semivolatile Organic Compounds  1.2.4-Trichlorobenzene UG/KG 0 0% 0 48 6.22E+04 3400 360 U 360 U 1800 U 350 U 390 UJ 350 U 1.2-Dichlorobenzene UG/KG 0 0% 0 48 6.00E+05 7900 360 U 360 U 1800 U 350 U 350 U 390 U 350 U 1.3-Dichlorobenzene UG/KG 0 0% 0 48 5.31E+05 1600 360 U 360 U 1800 U 350 U 350 U 390 U 350 U 1.4-Dichlorobenzene UG/KG 0 0% 0 48 3.45E+03 8500 360 U 360 U 1800 U 350 U 390 U 350 U 2.4.5-Trichlorophenol UG/KG 0 0% 0 48 6.11E+06 100 900 U 900 U 900 U 890 U 890 U 980 U 890 U  |                                      |       |         | 0%              | 0                  |              | 5.30E+01                     |             | 700                |             |   |   |   |   |   | I   |
| Semivolatile Organic Compounds   |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| 1,2,4-Trichlorobenzene         UG/KG         0         0%         0         48         6.22E+04         3400         360 U         360 U         1800 U         350 U         390 UJ         350 U           1,2-Dichlorobenzene         UG/KG         0         0%         0         48         6.00E+05         7900         360 U         360 U         1800 U         350 U         390 U         350 U           1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         360 U         360 U         1800 U         350 U         390 U         350 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         360 U         1800 U         350 U         390 U         350 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+06         100         900 U         900 U         4600 U         890 U         980 U         890 U  |                                      |       |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |
| 1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         360 U         360 U         1800 U         350 U         390 U         350 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         360 U         1800 U         350 U         390 U         390 U         350 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+06         100         900 U         900 U         4600 U         890 U         980 U         890 U  |                                      |       | 0       | 0%              | 0                  | 48           | 6.22E+04                     |             | 3400               |             | 360 U   | 360 U   | 1800 U  | 350 U   | 390 UJ  | 350 U   |
| 1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         360 U         360 U         1800 U         350 U         390 U         350 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         360 U         1800 U         350 U         390 U         390 U         350 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+06         100         900 U         900 U         4600 U         890 U         980 U         890 U  |                                      |       |         | 0%              | 0                  |              |                              |             |                    |             |   |   |   |   |   |   |
| 1,4-Dichlorobenzene     UG/KG     0     0%     0     48     3.45E+03     8500     360 U     360 U     1800 U     350 U     390 U     390 U     350 U       2,4,5-Trichlorophenol     UG/KG     0     0%     0     48     6.11E+06     100     900 U     900 U     4600 U     890 U     980 U     890 U   |                                      | UG/KG | 0       | 0%              | 0                  | 48           | 5.31E+05                     |             | 1600               |             | 360 U   | 360 U   | 1800 U  | 350 U   | 390 U   | 350 U   |
| 2,4,5-Trichlorophenol UG/KG 0 0% 0 48 6.11E+06 100 900 U 900 U 4600 U 890 U 980 U 890 U  |                                      |       | 0       | 0%              | 0                  |              |                              |             |                    |             |   |   |   |   |   |   |
|  |                                      | UG/KG | 0       | 0%              | 0                  | 48           | 6.11E+06                     |             | 100                |             | 900 U   | 900 U   | 4600 U  | 890 U   | 980 U   | 890 U   |
| [2,4,6-Trichlorophenol UG/KG U U% O 48 6.11E+03  | 2,4,6-Trichlorophenol                | UG/KG | 0       | 0%              | 0                  | 48           | 6.11E+03                     |             |                    |             | 360 U   | 360 U   | 1800 U  | 350 U   | 390 U   | 350 U   |

|  | Facility<br>Location ID |                   |                 |          |             |                      |             |          |             | SEAD-121C<br>SBDRMO-16 | SEAD-121C<br>SBDRMO-16 | SEAD-121C<br>SBDRMO-17 | SEAD-121C<br>SBDRMO-18 | SEAD-121C<br>SBDRMO-19 | SEAD-121C<br>SBDRMO-20 |
|--|-------------------------|-------------------|-----------------|----------|-------------|----------------------|-------------|----------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  | Matrix<br>Sample ID     |                   |                 |          |             |                      |             |          |             | SOIL<br>DRMO-1074      | SOIL<br>DRMO-1080      | SOIL<br>DRMO-1077      | SOIL<br>DRMO-1081      | SOIL<br>DRMO-1084      | SOIL<br>DRMO-1087      |
| Sample Depth to                            |                         |                   |                 |          |             |                      |             |          |             | DRMO-1074<br>0         | 0 DRMO-1080            | 0 DRMO-1077            | 0 DKMO-1081            | DRMO-1084<br>0         | DRMO-1087<br>0         |
| Sample Depth to B                          |                         |                   |                 |          |             |                      |             |          |             | 2                      | 2                      | 2                      | 2                      | 2                      | 2                      |
| Sample Deput to B                          | Sample Date             |                   |                 |          |             |                      |             |          |             | 10/27/2002             | 10/27/2002             | 10/28/2002             | 10/27/2002             | 10/27/2002             | 10/26/2002             |
|  | OC Code                 |                   |                 |          |             | Region IX            |             |          |             | SA                     | SA                     | SA                     | SA                     | SA                     | SA                     |
|  | Study ID                |                   | Frequency       | Number   | Number      | PRG                  |             | NYSDEC   |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|  | Study ID                | Maximum           | of              | of Times | of          | Criteria             |             | Criteria |             | TID-KI                 | I ID-KI                | TID-KI                 | I ID-KI                | TID-KI                 | I ID-KI                |
| D  | Units                   | Value             |                 |          |             | Value 2              | F           |          | E           | Value (Q)              |
| Parameter 2,4-Dichlorophenol               | Units<br>UG/KG          | 0<br>0            | Detection<br>0% | Detected | Analyses 48 | 1.83E+05             | Exceedances | 400      | Exceedances | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2,4-Dientorophenol                         | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.83E+05<br>1.22E+06 |             | 400      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2,4-Dinitrophenol                          | UG/KG                   | 0                 | 0%              | 0        | 47          | 1.22E+06<br>1.22E+05 |             | 200      |             | 900 U                  | 900 UJ                 | 4600 U                 | 890 U                  | 980 UJ                 | 890 UJ                 |
| 2,4-Dinitrophenoi 2,4-Dinitrotoluene       | UG/KG<br>UG/KG          | 45                | 2%              | 1        | 47          | 1.22E+05<br>1.22E+05 |             | 200      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2,6-Dinitrotoluene                         | UG/KG                   | 0                 | 0%              | 0        | 48          | 6.11E+04             |             | 1000     |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2-Chloronaphthalene                        | UG/KG                   | 0                 | 0%              | 0        | 48          | 4.94E+06             |             | 1000     |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2-Chlorophenol                             | UG/KG                   | 0                 | 0%              | 0        | 48          | 6.34E+04             |             | 800      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 UJ                 | 350 U                  |
| 2-Methylnaphthalene                        | UG/KG                   | 610               | 19%             | 9        | 48          | 0.54E+04             |             | 36400    |             | 200 J                  | 210 J                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2-Methylphenol                             | UG/KG                   | 0                 | 0%              | 0        | 48          | 3.06E+06             |             | 100      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 2-Nitroaniline                             | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.83E+05             |             | 430      |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 U                  | 890 U                  |
| 2-Nitrophenol                              | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.65E+05             |             | 330      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 3 or 4-Methylphenol                        | UG/KG                   | 0                 | 0%              | 0        | 40          |                      |             | 330      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 3,3'-Dichlorobenzidine                     | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.08E+03             |             |          |             | 360 U                  | 360 UJ                 | 1800 UJ                | 350 U                  | 390 U                  | 350 UJ                 |
| 3-Nitroaniline                             | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.83E+04             |             | 500      |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 U                  | 890 U                  |
| 4,6-Dinitro-2-methylphenol                 | UG/KG                   | 0                 | 0%              | 0        | 48          | 6.11E+03             |             | 300      |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 UJ                 | 890 U                  |
| 4-Bromophenyl phenyl ether                 | UG/KG                   | 0                 | 0%              | 0        | 48          | 0.11E+03             |             |          |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 4-Chloro-3-methylphenol                    | UG/KG                   | 0                 | 0%              | 0        | 48          |                      |             | 240      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 4-Chloroaniline                            | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.44E+05             |             | 220      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 4-Chlorophenyl phenyl ether                | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.44E+03             |             | 220      |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| 4-Methylphenol                             | UG/KG                   | 0                 | 0%              | 0        | 8           | 3.06E+05             |             | 900      |             | 300 0                  | 300 0                  | 1800 U                 | 330 0                  | 390 0                  | 330 0                  |
| 4-Nitroaniline                             | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.32E+04             |             | 300      |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 U                  | 890 U                  |
| 4-Nitrophenol                              | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.32E+04             |             | 100      |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 U                  | 890 U                  |
| Acenaphthene                               | UG/KG                   | 2600              | 23%             | 11       | 48          | 3.68E+06             |             | 50000    |             | 160 J                  | 170 J                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Acenaphthylene                             | UG/KG                   | 2500              | 21%             | 10       | 48          | 3.00E100             |             | 41000    |             | 1100                   | 750                    | 1800 U                 | 350 U                  | 390 U                  | 95 J                   |
| Anthracene                                 | UG/KG                   | 7100              | 42%             | 20       | 48          | 2.19E+07             |             | 50000    |             | 1100                   | 950                    | 1800 U                 | 81 J                   | 390 U                  | 86 J                   |
| Benzo(a)anthracene                         | UG/KG                   | 10000             | 55%             | 26       | 47          | 6.21E+02             | 4           | 224      | 14          | 5500 J                 | 2900 J                 | 1800 UJ                | 380                    | 390 U                  | 170 J                  |
| Benzo(a)pyrene                             | UG/KG                   | 8700              | 51%             | 24       | 47          | 6.21E+01             | 21          | 61       | 21          | 4800 J                 | 2700 J                 | 1800 R                 | 330 J                  | 390 U                  | 410 J                  |
| Benzo(b)fluoranthene                       | UG/KG                   | 12000             | 64%             | 30       | 47          | 6.21E+02             | 9           | 1100     | 5           | 6600 J                 | 3700 J                 | 1800 R                 | 410                    | 390 U                  | 310 J                  |
| 1 ' '                                      | UG/KG                   | 3150 <sup>4</sup> | 53%             | 25       | 47          | 0.212102             |             | 50000    | 5           | 1700 J                 | 740 J                  | 1800 R                 | 160 J                  | 390 UJ                 | 460 J                  |
| Benzo(ghi)perylene<br>Benzo(k)fluoranthene | UG/KG<br>UG/KG          | 7500              | 33%<br>47%      | 23       | 47          | 6.21E+03             | 1           | 1100     | 4           | 3000 J                 | 1700 J                 | 1800 R<br>1800 R       | 250 J                  | 390 U                  | 490 J                  |
| Bis(2-Chloroethoxy)methane                 | UG/KG<br>UG/KG          | 0                 | 0%              | 0        | 47          | 0.21E+03             | 1           | 1100     | 4           | 360 U                  | 360 U                  | 1800 K<br>1800 U       | 350 U                  | 390 UJ                 | 350 U                  |
| Bis(2-Chloroethyl)ether                    | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.18E+02             |             |          |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Bis(2-Chloroisopropyl)ether                | UG/KG                   | 0                 | 0%              | 0        | 48          | 2.18E+02<br>2.88E+03 |             |          |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Bis(2-Ethylhexyl)phthalate                 | UG/KG                   | 200               | 56%             | 27       | 48          | 3.47E+04             |             | 50000    |             | 97 J                   | 74 J                   | 1800 UJ                | 160 J                  | 390 U                  | 98 J                   |
| Butylbenzylphthalate                       | UG/KG                   | 120               | 13%             | 6        | 48          | 1.22E+07             |             | 50000    |             | 360 U                  | 360 UJ                 | 1800 UJ                | 350 U                  | 390 U                  | 350 UJ                 |
| Carbazole                                  | UG/KG                   | 4200              | 35%             | 17       | 48          | 2.43E+04             |             | 30000    |             | 170 J                  | 130 J                  | 1800 U                 | 56 J                   | 390 U                  | 350 U                  |
| Chrysene                                   | UG/KG                   | 9100              | 53%             | 25       | 47          | 6.21E+04             |             | 400      | 10          | 5000 J                 | 2700 J                 | 1800 UJ                | 430                    | 390 U                  | 410 J                  |
| 1 '  |                         |                   |                 |          |             |                      |             |          | 10          | l                      |                        |                        |                        |                        |                        |
| Di-n-butylphthalate                        | UG/KG                   | 132 4             | 10%             | 5        | 48          | 6.11E+06             |             | 8100     |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Di-n-octylphthalate                        | UG/KG                   | 23 4              | 4%              | 2        | 48          | 2.44E+06             |             | 50000    |             | 360 U                  | 360 UJ                 | 1800 UJ                | 350 U                  | 390 UJ                 | 350 UJ                 |
| Dibenz(a,h)anthracene                      | UG/KG                   | 470 4             | 26%             | 12       | 47          | 6.21E+01             | 7           | 14       | 11          | 250 J                  | 100 J                  | 1800 R                 | 350 U                  | 390 UJ                 | 89 J                   |
| Dibenzofuran                               | UG/KG                   | 1700              | 21%             | 10       | 48          | 1.45E+05             |             | 6200     |             | 170 J                  | 190 J                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Diethyl phthalate                          | UG/KG                   | 21 4              | 13%             | 6        | 48          | 4.89E+07             |             | 7100     |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Dimethylphthalate                          | UG/KG                   | 0                 | 0%              | 0        | 48          | 1.00E+08             |             | 2000     |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Fluoranthene                               | UG/KG                   | 27000             | 73%             | 35       | 48          | 2.29E+06             |             | 50000    |             | 8200 J                 | 5100 J                 | 1800 U                 | 610                    | 390 U                  | 150 J                  |

|                              | Facility<br>Location ID |                  |           |          |            |                      |             |             |             | SEAD-121C<br>SBDRMO-16 | SEAD-121C<br>SBDRMO-16 | SEAD-121C<br>SBDRMO-17 | SEAD-121C<br>SBDRMO-18 | SEAD-121C<br>SBDRMO-19 | SEAD-121C<br>SBDRMO-20 |
|------------------------------|-------------------------|------------------|-----------|----------|------------|----------------------|-------------|-------------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                              | Matrix                  |                  |           |          |            |                      |             |             |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   |
|                              | Sample ID               |                  |           |          |            |                      |             |             |             | DRMO-1074              | DRMO-1080              | DRMO-1077              | DRMO-1081              | DRMO-1084              | DRMO-1087              |
| Sample Depth to              |                         |                  |           |          |            |                      |             |             |             | 0 2                    | 0 2                    | 0 2                    | 0 2                    | 0                      | 0                      |
| Sample Depth to Bo           | Sample Date             | ;                |           |          |            |                      |             |             |             | 10/27/2002             | 10/27/2002             | 10/28/2002             | 10/27/2002             | 2<br>10/27/2002        | 2<br>10/26/2002        |
|                              | QC Code                 |                  |           |          |            | Region IX            |             |             |             | 10/27/2002<br>SA       | 10/2//2002<br>SA       | 10/28/2002<br>SA       | 10/2//2002<br>SA       | SA                     | 10/20/2002<br>SA       |
|                              | Study ID                |                  | Frequency | Number   | Number     | PRG                  |             | NYSDEC      | ,           | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|                              | Study 1D                | Maximum          | of        | of Times | of         | Criteria             |             | Criteria    |             | TID-RI                 | TID-KI                 | TID-RI                 | TID-KI                 | TID-KI                 | TID-RI                 |
| Parameter                    | Units                   | Value            | Detection | Detected | Analyses 1 | Value 2              | Exceedances | 2           | Exceedances | Value (O)              | Value (O)              | Value (Q)              | Value (O)              | Value (O)              | Value (O)              |
| Fluorene                     | UG/KG                   | 3500             | 27%       | 13       | 48         | 2.75E+06             | Exceedances | 50000       | Exceedances | 650                    | 690                    | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Hexachlorobenzene            | UG/KG                   | 8.5              | 2%        | 1        | 48         | 3.04E+02             |             | 410         |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Hexachlorobutadiene          | UG/KG                   | 0                | 0%        | 0        | 48         | 6.24E+03             |             |             |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 UJ                 | 350 U                  |
| Hexachlorocyclopentadiene    | UG/KG                   | 0                | 0%        | 0        | 48         | 3.65E+05             |             |             |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 UJ                 |
| Hexachloroethane             | UG/KG                   | 0                | 0%        | 0        | 48         | 3.47E+04             |             |             |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Indeno(1,2,3-cd)pyrene       | UG/KG                   | 970 <sup>4</sup> | 46%       | 22       | 48         | 6.21E+02             | 3           | 3200        |             | 760                    | 330 J                  | 1800 UJ                | 160 J                  | 390 UJ                 | 390 J                  |
| Isophorone                   | UG/KG                   | 0                | 0%        | 0        | 48         | 5.12E+05             | ,           | 4400        |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 UJ                 | 350 U                  |
| N-Nitrosodiphenylamine       | UG/KG                   | 4.8              | 2%        | 1        | 48         | 9.93E+04             |             | 4400        |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| N-Nitrosodipropylamine       | UG/KG                   | 0                | 0%        | 0        | 48         | 6.95E+01             |             |             |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Naphthalene                  | UG/KG                   | 400              | 19%       | 9        | 48         | 5.59E+04             |             | 13000       |             | 100 J                  | 82 J                   | 1800 U                 | 350 U                  | 390 UJ                 | 350 U                  |
| Nitrobenzene                 | UG/KG                   | 0                | 0%        | ó        | 48         | 1.96E+04             |             | 200         |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 UJ                 | 350 U                  |
| Pentachlorophenol            | UG/KG                   | 0                | 0%        | 0        | 48         | 2.98E+03             |             | 1000        |             | 900 U                  | 900 U                  | 4600 U                 | 890 U                  | 980 U                  | 890 U                  |
| Phenanthrene                 | UG/KG                   | 29000            | 52%       | 25       | 48         | 2.902.103            |             | 50000       |             | 4400 J                 | 4000 J                 | 1800 U                 | 340 J                  | 390 U                  | 120 J                  |
| Phenol                       | UG/KG                   | 0                | 0%        | 0        | 48         | 1.83E+07             |             | 30          |             | 360 U                  | 360 U                  | 1800 U                 | 350 U                  | 390 U                  | 350 U                  |
| Pyrene                       | UG/KG                   | 34000            | 67%       | 32       | 48         | 2.32E+06             |             | 50000       |             | 12000 J                | 5300 J                 | 1800 UJ                | 660                    | 390 U                  | 280 J                  |
| Pesticides/PCBs              |                         |                  |           |          |            |                      |             |             |             |                        |                        |                        |                        |                        |                        |
| 4,4'-DDD                     | UG/KG                   | 44               | 12%       | 5        | 43         | 2.44E+03             |             | 2900        |             | 1.8 UJ                 | 6 J                    | 0.22 U                 | 44 J                   | 2 UJ                   | 1.8 UJ                 |
| 4,4'-DDE                     | UG/KG                   | 69               | 32%       | 15       | 47         | 1.72E+03             |             | 2100        |             | 1.8 UJ                 | 41 R                   | 0.22 UJ                | 83 R                   | 2 UJ                   | 11 J                   |
| 4,4'-DDT                     | UG/KG                   | 100              | 28%       | 13       | 47         | 1.72E+03             |             | 2100        |             | 19 J                   | 21 J                   | 0.22 UJ                | 73 R                   | 2 UJ                   | 1.8 UJ                 |
| Aldrin                       | UG/KG                   | 14 4             | 6%        | 3        | 48         | 2.86E+01             |             | 41          |             | 9.9 J                  | 19 NJ                  | 0.11 U                 | 11 J                   | 2 UJ                   | 1.8 UJ                 |
| Alpha-BHC                    | UG/KG                   | 0                | 0%        | 0        | 48         | 9.02E+01             |             | 110         |             | 1.8 UJ                 | 1.8 UJ                 | 1.3 U                  | 1.8 UJ                 | 2 UJ                   | 1.8 UJ                 |
| Alpha-Chlordane              | UG/KG                   | 63 4             | 8%        | 4        | 48         |                      |             |             |             | 63 J                   | 71 R                   | 0.34 U                 | 21 NJ                  | 2 UJ                   | 1.8 UJ                 |
| Beta-BHC                     | UG/KG                   | 0                | 0%        | 0        | 48         | 3.16E+02             |             | 200         |             | 1.8 UJ                 | 1.8 UJ                 | 0.11 U                 | 1.8 UJ                 | 2 UJ                   | 1.8 UJ                 |
| Chlordane                    | UG/KG                   | 0                | 0%        | 0        | 40         | 3.10E102             |             | 200         |             | 18 U                   | 18 U                   | 2.1 U                  | 18 U                   | 20 U                   | 18 U                   |
| Delta-BHC                    | UG/KG                   | 2                | 6%        | 3        | 48         |                      |             | 300         |             | 1.8 UJ                 | 1.8 UJ                 | 0.22 UJ                | 1.8 UJ                 | 2 UJ                   | 1.8 UJ                 |
| Dieldrin                     | UG/KG                   | 41 4             | 4%        | 2        | 48         | 3.04E+01             | 2           | 44          |             | 41 J                   | 32 R                   | 0.11 UJ                | 39 J                   | 2 UJ                   | 1.8 UJ                 |
|                              |                         |                  |           | _        |            | 5.04E+01             | 2           |             |             | II .                   |                        |                        |                        |                        |                        |
| Endosulfan I                 | UG/KG                   | 185 4            | 38%       | 18       | 48         |                      |             | 900         |             | 65                     | 69 J                   | 0.56 U                 | 27                     | 2 U                    | 18 J                   |
| Endosulfan II                | UG/KG                   | 9                | 2%        | 1        | 47         |                      |             | 900         |             | 1.8 U                  | 1.8 U                  | 0.34 U                 | 16 R                   | 2 U                    | 1.8 U                  |
| Endosulfan sulfate<br>Endrin | UG/KG                   | 0                | 0%<br>2%  | 0        | 48<br>47   | 1.83E+04             |             | 1000<br>100 |             | 1.8 U<br>17 J          | 1.8 U<br>26 J          | 0.67 U<br>0.9 UJ       | 1.8 U<br>26 R          | 2 U<br>2 UJ            | 1.8 U<br>1.8 U         |
|                              | UG/KG<br>UG/KG          | 21.5<br>0        | 0%        | 0        | 47         | 1.83E+04             |             | 100         |             | 1.8 U                  |                        | 0.9 UJ                 | 26 K<br>1.8 U          | 2 U                    |                        |
| Endrin aldehyde              |                         |                  |           |          |            |                      |             |             |             | II .                   | 1.8 U                  |                        |                        |                        | 1.8 U                  |
| Endrin ketone                | UG/KG                   | 7.5 4            | 6%        | 3        | 48         |                      |             |             |             | 7.5 J                  | 10 R                   | 0.11 U                 | 3.4 NJ                 | 2 U                    | 1.8 U                  |
| Gamma-BHC/Lindane            | UG/KG                   | 0                | 0%        | 0        | 48         | 4.37E+02             |             | 60          |             | 1.8 UJ                 | 1.8 UJ                 | 0.11 U                 | 1.8 UJ                 | 2 UJ                   | 1.8 UJ                 |
| Gamma-Chlordane              | UG/KG                   | 1.2<br>14        | 2%<br>4%  | 1        | 48<br>47   | 4 000 00             |             | 540         |             | 1.8 UJ                 | 1.8 UJ                 | 0.34 U                 | 1.8 UJ                 | 2 UJ                   | 1.8 UJ                 |
| Heptachlor                   | UG/KG                   |                  |           | 2        |            | 1.08E+02             |             | 100         |             | 1.8 UJ                 | 1.8 UJ                 | 1.1 U                  | 14 J                   | 2 UJ                   | 5.5 R                  |
| Heptachlor epoxide           | UG/KG                   | 2.8              | 4%        | 2        | 46         | 5.34E+01             |             | 20          |             | 20 R                   | 1.8 UJ                 | 0.34 U                 | 27 R                   | 2 UJ                   | 1.8 UJ                 |
| Methoxychlor                 | UG/KG<br>UG/KG          | 0                | 0%<br>0%  | 0        | 48<br>48   | 3.06E+05<br>4.42E+02 |             |             |             | 1.8 U<br>18 U          | 1.8 U<br>18 U          | 0.11 U<br>3.6 U        | 1.8 U<br>18 U          | 2 U<br>20 U            | 1.8 U<br>18 U          |
| Toxaphene<br>Aroclor-1016    | UG/KG<br>UG/KG          | 0                | 0%        | 0        | 48<br>48   | 4.42E+02<br>3.93E+03 |             |             |             | 18 U<br>18 UJ          | 18 U<br>18 UJ          | 5.8 UJ                 | 18 U<br>18 UJ          | 20 U<br>20 UJ          | 18 U                   |
| Aroclor-1016<br>Aroclor-1221 | UG/KG<br>UG/KG          | 0                | 0%        | 0        | 48<br>48   | 3.93E+03             |             |             |             | 18 UJ<br>18 U          | 18 UJ<br>18 U          | 5.8 UJ<br>1.5 U        | 18 UJ<br>18 U          | 20 UJ<br>20 U          | 18 U                   |
| Aroclor-1221<br>Aroclor-1232 | UG/KG                   | 0                | 0%        | 0        | 48         |                      |             |             |             | 18 UJ                  | 18 UJ                  | 8.9 UJ                 | 18 UJ                  | 20 UJ                  | 18 U                   |
| Aroclor-1232<br>Aroclor-1242 | UG/KG                   | 58               | 2%        | 1        | 48         |                      |             |             |             | 18 UJ<br>18 UJ         | 18 UJ                  | 2.5 U                  | 18 UJ                  | 20 U                   | 18 U                   |
| Aroclor-1248                 | UG/KG                   | 0                | 0%        | 0        | 48         |                      |             |             |             | 18 U                   | 18 U                   | 6.1 U                  | 18 U                   | 20 U                   | 18 U                   |
| Aroclor-1248<br>Aroclor-1254 | UG/KG                   | 930              | 19%       | 9        | 48         | 2.22E+02             | 3           | 10000       |             | 18 UJ                  | 18 UJ                  | 12 UJ                  | 930                    | 20 U                   | 130                    |
| 1100101-1257                 | OG/RG                   | 750              | 17/0      |          | 40         | 2.220102             | ,           | 10000       |             | 10 UJ                  | 10 UJ                  | 12 UJ                  | 730                    | 20 U                   | 130                    |

|                              | Facility       |         |           |          |            |           |             |           |             | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  |
|------------------------------|----------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|------------|------------|------------|------------|------------|------------|
|                              | Location ID    |         |           |          |            |           |             |           |             | SBDRMO-16  | SBDRMO-16  | SBDRMO-17  | SBDRMO-18  | SBDRMO-19  | SBDRMO-20  |
|                              | Matrix         |         |           |          |            |           |             |           |             | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       |
|                              | Sample ID      |         |           |          |            |           |             |           |             | DRMO-1074  | DRMO-1080  | DRMO-1077  | DRMO-1081  | DRMO-1084  | DRMO-1087  |
| Sample Depth to              | Top of Sample  |         |           |          |            |           |             |           |             | 0          | 0          | 0          | 0          | 0          | 0          |
| Sample Depth to Bot          | ttom of Sample |         |           |          |            |           |             |           |             | 2          | 2          | 2          | 2          | 2          | 2          |
|                              | Sample Date    |         |           |          |            |           |             |           |             | 10/27/2002 | 10/27/2002 | 10/28/2002 | 10/27/2002 | 10/27/2002 | 10/26/2002 |
|                              | QC Code        |         |           |          |            | Region IX |             |           |             | SA         | SA         | SA         | SA         | SA         | SA         |
|                              | Study ID       |         | Frequency | Number   | Number     | PRG       |             | NYSDEC    |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                              |                | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             |            |            |            |            |            |            |
| Parameter                    | Units          | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | s Value 3 | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Aroclor-1260                 | UG/KG          | 85      | 10%       | 5        | 48         |           |             | 10000     |             | 22 J       | 35 J       | 2.2 UJ     | 18 UJ      | 20 U       | 18 U       |
| Metals and Cyanide           |                |         |           |          |            |           |             |           |             |            |            |            |            |            |            |
| Aluminum                     | MG/KG          | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300     |             | 3100       | 3760       | 10100 J    | 7610       | 12000      | 10100      |
| Antimony                     | MG/KG          | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9       | 11          | 0.98 U     | 0.99       | 2.7 J      | 12.3       | 1.1 U      | 5.1        |
| Arsenic                      | MG/KG          | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2       | 2           | 4.8        | 5.5        | 4.4 J      | 7.8        | 4.8        | 5.2        |
| Barium                       | MG/KG          | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300       | 7           | 42         | 45.6       | 56 J       | 320        | 89         | 191 J      |
| Beryllium                    | MG/KG          | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1       | 1           | 0.26 J     | 0.32 J     | 0.6 J      | 0.32 J     | 0.75       | 0.55       |
| Cadmium                      | MG/KG          | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3       | 14          | 0.56       | 0.49 J     | 0.06 U     | 19         | 0.14 U     | 10         |
| Calcium                      | MG/KG          | 296000  | 100%      | 48       | 48         |           |             | 121000    | 6           | 199000     | 157000     | 84500 J    | 167000     | 3790       | 38300 J    |
| Chromium                     | MG/KG          | 74.8    | 100%      | 48       | 48         |           |             | 29.6      | 12          | 13         | 13.8       | 33.1 J     | 74.8       | 19.7       | 47.4       |
| Cobalt                       | MG/KG          | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30        |             | 5.9        | 6.1        | 11.5 J     | 13.3       | 10.6       | 13.5       |
| Copper                       | MG/KG          | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33        | 35          | 28.8       | 34.3       | 33.8 J     | 456        | 14.8       | 301 J      |
| Cyanide                      | MG/KG          | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35      |             |            |            |            |            |            |            |
| Cyanide, Amenable            | MG/KG          | 0       | 0%        | 0        | 40         |           |             |           |             | 0.54 U     | 0.55 U     | 0.56 U     | 0.54 U     | 0.61 U     | 0.54 U     |
| Cyanide, Total               | MG/KG          | 0       | 0%        | 0        | 40         |           |             |           |             | 0.542 U    | 0.545 U    | 0.559 U    | 0.536 U    | 0.605 U    | 0.539 U    |
| Iron                         | MG/KG          | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500     | 5           | 8710       | 10500      | 17000 J    | 51700      | 24900      | 36400      |
| Lead                         | MG/KG          | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8      | 40          | 89.3       | 94.5       | 30.9 J     | 720        | 19.7       | 305        |
| Magnesium                    | MG/KG          | 20700   | 100%      | 48       | 48         |           |             | 21500     |             | 17900      | 13000      | 8370 J     | 14800      | 3740       | 6400       |
| Manganese                    | MG/KG          | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060      |             | 425        | 390        | 487 J      | 567        | 529        | 424        |
| Mercury                      | MG/KG          | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1       | 8           | 0.07       | 0.07       | 0.04       | 0.47       | 0.07       | 0.13       |
| Nickel                       | MG/KG          | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49        | 9           | 19.4 J     | 22.1 J     | 32.5 J     | 77.7       | 25.9 J     | 53.5 J     |
| Potassium                    | MG/KG          | 1990    | 100%      | 48       | 48         |           |             | 2380      |             | 934 J      | 882 J      | 1780 J     | 1300 J     | 904 J      | 1560 J     |
| Selenium                     | MG/KG          | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2         |             | 0.46 U     | 0.45 U     | 0.36 U     | 0.45 U     | 0.5 U      | 0.44 U     |
| Silver                       | MG/KG          | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75      | 13          | 0.29 U     | 0.29 U     | 0.41 U     | 2.9        | 0.32 U     | 5.2        |
| Sodium                       | MG/KG          | 478     | 88%       | 42       | 48         |           |             | 172       | 26          | 276        | 232        | 152        | 273        | 121        | 268        |
| Thallium                     | MG/KG          | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7       | 3           | 0.34 U     | 0.33 U     | 0.64 U     | 0.33 U     | 0.37 U     | 0.32 U     |
| Vanadium                     | MG/KG          | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150       |             | 11 J       | 10.7 J     | 18.1 J     | 14.3 J     | 22.4 J     | 18.8       |
| Zinc                         | MG/KG          | 3610    | 100%      | 48       | 48         | 2.35E+04  |             | 110       | 28          | 130 J      | 135 J      | 93.7 J     | 1590 J     | 85.1 J     | 1750       |
| Other                        |                |         |           |          |            |           |             |           |             |            |            |            |            |            |            |
| Total Organic Carbon         | MG/KG          | 9000    | 100%      | 40       | 40         |           |             |           |             | 5200       | 5300       | 4600       | 3900       | 3900       | 6900       |
| Total Petroleum Hydrocarbons | MG/KG          | 7600    | 25%       | 10       | 40         |           |             |           |             | 2800 J     | 6200 J     | 7600 J     | 710 J      | 48 UJ      | 43 UJ      |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

| Sample Depth to '<br>Sample Depth to Bot | tom of Sample<br>Sample Date<br>QC Code |         |           |          |          | Region IX            |             |                    |             | SEAD-121C<br>SBDRMO-21<br>SOIL<br>DRMO-1090<br>0<br>2<br>10/27/2002<br>SA | SEAD-121C<br>SBDRMO-22<br>SOIL<br>DRMO-1091<br>0<br>2<br>10/27/2002<br>SA | SEAD-121C<br>SBDRMO-23<br>SOIL<br>DRMO-1095<br>0<br>2<br>10/28/2002<br>SA | SEAD-121C<br>SBDRMO-24<br>SOIL<br>DRMO-1098<br>0<br>2<br>10/28/2002<br>SA | SEAD-121C<br>SBDRMO-5<br>SOIL<br>DRMO-1040<br>0<br>2<br>10/27/2002<br>SA | SEAD-121C<br>SBDRMO-6<br>SOIL<br>DRMO-1043<br>0<br>2<br>10/25/2002<br>SA |
|--|---|---------|-----------|----------|----------|----------------------|-------------|--------------------|-------------|---|---|---|---|--|--|
|  | Study ID                                |         | Frequency | Number   | Number   | PRG                  |             | NYSDEC             | :           | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI   | PID-RI   |
|  |   | Maximum | of        | of Times | of       | Criteria             |             | Criteria           |             |   |   |   |   |  |  |
| Parameter                                | Units                                   | Value   | Detection | Detected | Analyses | Value <sup>2</sup>   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)  | Value (Q)  |
| Volatile Organic Compounds               | HORO                                    | 0       | 00/       | 0        | 40       | 1.205.06             |             | 000                |             | 21.11   | 2.11  | 2011  | 27.11   | 27.11  | 26 111   |
| 1,1,1-Trichloroethane                    | UG/KG                                   | 0       | 0%        | 0        | 48       | 1.20E+06             |             | 800                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,1,2,2-Tetrachloroethane                | UG/KG                                   | 0       | 0%        | 0        | 48       | 4.08E+02             |             | 600                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,1,2-Trichloroethane                    | UG/KG                                   | 0       | 0%        | 0        | 48       | 7.29E+02             |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,1-Dichloroethane                       | UG/KG                                   | 0       | 0%        | 0        | 48       | 5.06E+05             |             | 200                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,1-Dichloroethene                       | UG/KG                                   | 0       | 0%        | 0        | 48       | 1.24E+05             |             | 400                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,2-Dichloroethane                       | UG/KG                                   | 0       | 0%        | 0        | 48       | 2.78E+02             |             | 100                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| 1,2-Dichloroethene (total)               | UG/KG                                   | 0       | 0%        | 0        | 8        |                      |             |                    |             |   |   |   |   |  |  |
| 1,2-Dichloropropane                      | UG/KG                                   | 0       | 0%        | 0        | 48       | 3.42E+02             |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Acetone                                  | UG/KG                                   | 13      | 28%       | 13       | 47       | 1.41E+07             |             | 200                |             | 3.1 U   | 3 UJ  | 16 UJ   | 3.4 UJ  | 8.8 J  | 2.6 UJ   |
| Benzene                                  | UG/KG                                   | 41      | 2%        | 1        | 48       | 6.43E+02             |             | 60                 |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Bromodichloromethane                     | UG/KG                                   | 0       | 0%        | 0        | 48       | 8.24E+02             |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Bromoform                                | UG/KG                                   | 0       | 0%        | 0        | 48       | 6.16E+04             |             |                    |             | 3.1 U   | 3 UJ  | 2.8 UJ  | 2.7 UJ  | 2.7 UJ   | 2.6 UJ   |
| Carbon disulfide                         | UG/KG                                   | 4.7     | 4%        | 2        | 48       | 3.55E+05             |             | 2700               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Carbon tetrachloride                     | UG/KG                                   | 0       | 0%        | 0        | 48       | 2.51E+02             |             | 600                |             | 3.1 UJ  | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Chlorobenzene                            | UG/KG                                   | 0       | 0%        | 0        | 48       | 1.51E+05             |             | 1700               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Chlorodibromomethane                     | UG/KG                                   | 0       | 0%        | 0        | 48       | 1.11E+03             |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Chloroethane                             | UG/KG                                   | 0       | 0%        | 0        | 48       | 3.03E+03             |             | 1900               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
|  |   | 4.8 4   |           |          |          |                      |             |                    |             |   |   |   |   |  |  |
| Chloroform                               | UG/KG                                   |         | 4%        | 2        | 48       | 2.21E+02             |             | 300                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Cis-1,2-Dichloroethene                   | UG/KG                                   | 0       | 0%        | 0        | 40       | 4.29E+04             |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Cis-1,3-Dichloropropene                  | UG/KG                                   | 0       | 0%        | 0        | 48       | 2055 05              |             | ##00               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Ethyl benzene                            | UG/KG                                   | 3300    | 4%        | 2        | 48       | 3.95E+05             |             | 5500               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 0.66 J   |
| Meta/Para Xylene                         | UG/KG                                   | 4400    | 8%        | 3        | 40       |                      |             |                    |             | 2 J   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 4.1 J  |
| Methyl bromide                           | UG/KG                                   | 0       | 0%        | 0        | 48       | 3.90E+03             |             |                    |             | 3.1 UJ  | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Methyl butyl ketone                      | UG/KG                                   | 0       | 0%        | 0        | 48       |                      |             |                    |             | 3.1 UJ  | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Methyl chloride                          | UG/KG                                   | 0       | 0%        | 0        | 48       | 4.69E+04             |             |                    |             | 3.1 U   | 3 UJ  | 2.8 UJ  | 2.7 UJ  | 2.7 UJ   | 2.6 UJ   |
| Methyl ethyl ketone                      | UG/KG                                   | 0       | 0%        | 0        | 48       | 2.23E+07             |             | 300                |             | 3.1 UJ  | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Methyl isobutyl ketone                   | UG/KG                                   | 0       | 0%        | 0        | 48       | 5.28E+06             |             | 1000               |             | 3.1 UJ  | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Methylene chloride                       | UG/KG                                   | 2.6     | 2%        | 1        | 48       | 9.11E+03             |             | 100                |             | 2.9 UJ  | 3 U   | 3.9 UJ  | 3.7 UJ  | 2.7 U  | 2.6 UJ   |
| Ortho Xylene                             | UG/KG                                   | 16      | 3%        | 1        | 40       |                      |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Styrene                                  | UG/KG                                   | 0       | 0%        | 0        | 48       | 1.70E+06             |             |                    |             | 3.1 U   | 3 UJ  | 2.8 UJ  | 2.7 UJ  | 2.7 UJ   | 2.6 UJ   |
| Tetrachloroethene                        | UG/KG                                   | 0       | 0%        | 0        | 48       | 4.84E+02             |             | 1400               |             | 3.1 U   | 3 UJ  | 2.8 UJ  | 2.7 UJ  | 2.7 UJ   | 2.6 UJ   |
| Toluene                                  | UG/KG                                   | 28      | 19%       | 9        | 48       | 5.20E+05             |             | 1500               |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Total Xylenes                            | UG/KG                                   | 0       | 0%        | 0        | 8        | 2.71E+05             |             | 1200               |             |   |   |   |   |  |  |
| Trans-1,2-Dichloroethene                 | UG/KG                                   | 0       | 0%        | 0        | 40       | 6.95E+04             |             | 300                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Trans-1,3-Dichloropropene                | UG/KG                                   | 0       | 0%        | 0        | 48       |                      |             |                    |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Trichloroethene                          | UG/KG                                   | 0       | 0%        | 0        | 48       | 5.30E+01             |             | 700                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Vinyl chloride                           | UG/KG                                   | 0       | 0%        | 0        | 48       | 7.91E+01             |             | 200                |             | 3.1 U   | 3 U   | 2.8 UJ  | 2.7 UJ  | 2.7 U  | 2.6 UJ   |
| Semivolatile Organic Compour             |   | o       | 070       | o        | 40       | 7.511101             |             | 200                |             | 3.1 0   | 3.0   | 2.0 03  | 2.7 03  | 2.7 0  | 2.0 03   |
| 1,2,4-Trichlorobenzene                   | UG/KG                                   | 0       | 0%        | 0        | 48       | 6.22E+04             |             | 3400               |             | 410 U   | 400 U   | 390 U   | 350 U   | 360 U  | 340 U  |
| 1 * *                                    | UG/KG                                   | 0       | 0%        | 0        | 48       | 6.22E+04<br>6.00E+05 |             | 7900               |             |   | 400 U   | 390 U   | 350 U   | 360 U  | 340 U  |
| 1,2-Dichlorobenzene                      |   |         |           |          |          | ll .                 |             |                    |             | 410 U   |   |   |   |  |  |
| 1,3-Dichlorobenzene                      | UG/KG                                   | 0       | 0%        | 0        | 48       | 5.31E+05             |             | 1600               |             | 410 U   | 400 U   | 390 U   | 350 U   | 360 U  | 340 U  |
| 1,4-Dichlorobenzene                      | UG/KG                                   | 0       | 0%        | 0        | 48       | 3.45E+03             |             | 8500               |             | 410 U   | 400 U   | 390 U   | 350 U   | 360 U  | 340 U  |
| 2,4,5-Trichlorophenol                    | UG/KG                                   | 0       | 0%        | 0        | 48       | 6.11E+06             |             | 100                |             | 1000 U  | 1000 U  | 980 U   | 890 U   | 900 U  | 870 U  |
| 2,4,6-Trichlorophenol                    | UG/KG                                   | 0       | 0%        | 0        | 48       | 6.11E+03             |             |                    |             | 410 U   | 400 U   | 390 U   | 350 U   | 360 U  | 340 U  |

|  | Facility<br>Location ID |                   |                 |                    |              |                      |             |                    |             | SEAD-121C<br>SBDRMO-21 | SEAD-121C<br>SBDRMO-22 | SEAD-121C<br>SBDRMO-23 | SEAD-121C<br>SBDRMO-24 | SEAD-121C<br>SBDRMO-5 | SEAD-121C<br>SBDRMO-6 |
|--|-------------------------|-------------------|-----------------|--------------------|--------------|----------------------|-------------|--------------------|-------------|------------------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|
|  | Matrix                  |                   |                 |                    |              |                      |             |                    |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                  | SOIL                  |
|  | Sample ID               |                   |                 |                    |              |                      |             |                    |             | DRMO-1090              | DRMO-1091              | DRMO-1095              | DRMO-1098              | DRMO-1040             | DRMO-1043             |
| Sample Depth to                        |                         |                   |                 |                    |              |                      |             |                    |             | 0                      | 0                      | 0                      | 0                      | 0                     | 0                     |
| Sample Depth to Bo                     |                         |                   |                 |                    |              |                      |             |                    |             | 2                      | 2                      | 2                      | 2                      | 2                     | 2                     |
|  | Sample Date             |                   |                 |                    |              | n · m                |             |                    |             | 10/27/2002             | 10/27/2002             | 10/28/2002             | 10/28/2002             | 10/27/2002            | 10/25/2002            |
|  | QC Code                 |                   |                 |                    |              | Region IX            |             | MAGDEC             |             | SA                     | SA                     | SA                     | SA                     | SA                    | SA                    |
|  | Study ID                | Maximum           | Frequency<br>of | Number<br>of Times | Number<br>of | PRG<br>Criteria      |             | NYSDEC<br>Criteria |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                | PID-RI                |
|  |                         |                   |                 |                    |              |                      |             |                    |             |                        |                        |                        |                        |                       |                       |
| Parameter                              | Units                   | Value             | Detection       | Detected           | Analyses     | Value 2              | Exceedances |                    | Exceedances | Value (Q)<br>410 U     | Value (Q)<br>400 U     | Value (Q)<br>390 U     | Value (Q)<br>350 U     | Value (Q)<br>360 U    | Value (Q)<br>340 U    |
| 2,4-Dichlorophenol                     | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.83E+05             |             | 400                |             |                        |                        |                        |                        |                       |                       |
| 2,4-Dimethylphenol                     | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.22E+06             |             | ***                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 2,4-Dinitrophenol                      | UG/KG                   | 0<br>45           | 0%<br>2%        | 0                  | 47<br>48     | 1.22E+05<br>1.22E+05 |             | 200                |             | 1000 U                 | 1000 U                 | 980 UJ<br>390 U        | 890 U<br>350 U         | 900 U<br>360 U        | 870 R                 |
| 2,4-Dinitrotoluene                     | UG/KG<br>UG/KG          | 0                 | 2%<br>0%        | 0                  | 48           | 6.11E+04             |             | 1000               |             | 410 U                  | 400 U<br>400 U         | 390 U                  | 350 U                  | 360 U                 | 340 U<br>340 U        |
| 2,6-Dinitrotoluene 2-Chloronaphthalene | UG/KG<br>UG/KG          | 0                 | 0%              | 0                  | 48<br>48     | 6.11E+04<br>4.94E+06 |             | 1000               |             | 410 U<br>410 U         | 400 U<br>400 U         | 390 U<br>390 U         | 350 U<br>350 U         | 360 U<br>360 U        | 340 U<br>340 U        |
|  | UG/KG                   | 0                 | 0%              | 0                  | 48           | 6.34E+04             |             | 800                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 2-Chlorophenol 2-Methylnaphthalene     | UG/KG                   | 610               | 19%             | 9                  | 48           | 0.34E+04             |             | 36400              |             | 410 U                  | 400 U                  | 390 U                  | 69 J                   | 360 U                 | 340 U                 |
| 2-Methylphenol                         | UG/KG                   | 0                 | 0%              | 0                  | 48           | 3.06E+06             |             | 100                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 2-Nitroaniline                         | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.83E+05             |             | 430                |             | 1000 UJ                | 1000 U                 | 980 U                  | 890 U                  | 900 U                 | 870 UJ                |
| 2-Nitrophenol                          | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.65E+05             |             | 330                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 3 or 4-Methylphenol                    | UG/KG                   | 0                 | 0%              | 0                  | 40           |                      |             | 330                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 3,3'-Dichlorobenzidine                 | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.08E+03             |             |                    |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 UJ                |
| 3-Nitroaniline                         | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.83E+04             |             | 500                |             | 1000 U                 | 1000 U                 | 980 U                  | 890 U                  | 900 U                 | 870 U                 |
| 4,6-Dinitro-2-methylphenol             | UG/KG                   | 0                 | 0%              | 0                  | 48           | 6.11E+03             |             | 300                |             | 1000 U                 | 1000 U                 | 980 U                  | 890 U                  | 900 U                 | 870 UJ                |
| 4-Bromophenyl phenyl ether             | UG/KG                   | 0                 | 0%              | 0                  | 48           | 0.11E+03             |             |                    |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 4-Chloro-3-methylphenol                | UG/KG                   | 0                 | 0%              | 0                  | 48           |                      |             | 240                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 4-Chloroaniline                        | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.44E+05             |             | 220                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 4-Chlorophenyl phenyl ether            | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.44E+03             |             | 220                |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 4-Methylphenol                         | UG/KG                   | 0                 | 0%              | 0                  | 8            | 3.06E+05             |             | 900                |             | 410 0                  | 400 0                  | 390 0                  | 330 0                  | 300 0                 | 340 0                 |
| 4-Nitroaniline                         | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.32E+04             |             | 700                |             | 1000 UJ                | 1000 U                 | 980 U                  | 890 U                  | 900 U                 | 870 U                 |
| 4-Nitrophenol                          | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.322104             |             | 100                |             | 1000 U                 | 1000 U                 | 980 U                  | 890 U                  | 900 U                 | 870 UJ                |
| Acenaphthene                           | UG/KG                   | 2600              | 23%             | 11                 | 48           | 3.68E+06             |             | 50000              |             | 410 U                  | 400 U                  | 390 U                  | 190 J                  | 360 U                 | 340 U                 |
| Acenaphthylene                         | UG/KG                   | 2500              | 21%             | 10                 | 48           | 5.002.00             |             | 41000              |             | 410 U                  | 400 U                  | 390 U                  | 2500                   | 360 U                 | 340 U                 |
| Anthracene                             | UG/KG                   | 7100              | 42%             | 20                 | 48           | 2.19E+07             |             | 50000              |             | 410 U                  | 400 U                  | 390 U                  | 1200                   | 90 J                  | 340 U                 |
| Benzo(a)anthracene                     | UG/KG                   | 10000             | 55%             | 26                 | 47           | 6.21E+02             | 4           | 224                | 14          | 410 U                  | 400 U                  | 390 U                  |                        | 410                   | 340 U                 |
| Benzo(a)pyrene                         | UG/KG                   | 8700              | 51%             | 24                 | 47           | 6.21E+01             | 21          | 61                 | 21          | 410 U                  | 400 U                  | 390 U                  | 6800                   | 320 J                 | 340 UJ                |
| Benzo(b)fluoranthene                   | UG/KG                   | 12000             | 64%             | 30                 | 47           | 6.21E+02             | 9           | 1100               | 5           | 410 U                  | 400 U                  | 390 U                  | 8000                   | 400                   | 50 J                  |
| Benzo(ghi)perylene                     | UG/KG                   | 3150 <sup>4</sup> | 53%             | 25                 | 47           |                      |             | 50000              |             | 410 UJ                 | 400 UJ                 | 390 U                  | 2100 J                 | 180 J                 | 110 J                 |
| Benzo(k)fluoranthene                   | UG/KG                   | 7500              | 47%             | 22                 | 47           | 6.21E+03             | 1           | 1100               | 4           | 410 U                  | 400 U                  | 390 U                  | 2700 J                 | 200 J                 | 340 UJ                |
| Bis(2-Chloroethoxy)methane             | UG/KG                   | 0                 | 0%              | 0                  | 48           | 0.21E+03             | 1           | 1100               | 4           | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Bis(2-Chloroethyl)ether                | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.18E+02             |             |                    |             | 410 U                  | 400 UJ                 | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Bis(2-Chloroisopropyl)ether            | UG/KG                   | 0                 | 0%              | 0                  | 48           | 2.88E+03             |             |                    |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Bis(2-Ethylhexyl)phthalate             | UG/KG                   | 200               | 56%             | 27                 | 48           | 3.47E+04             |             | 50000              |             | 410 UJ                 | 400 U                  | 390 U                  | 66 J                   | 53 J                  | 340 UJ                |
| Butylbenzylphthalate                   | UG/KG                   | 120               | 13%             | 6                  | 48           | 1.22E+07             |             | 50000              |             | 410 UJ                 | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 UJ                |
| Carbazole                              | UG/KG                   | 4200              | 35%             | 17                 | 48           | 2.43E+04             |             | 30000              |             | 410 U                  | 400 U                  | 390 U                  | 88 J                   | 360 U                 | 340 U                 |
| Chrysene                               | UG/KG                   | 9100              | 53%             | 25                 | 47           | 6.21E+04             |             | 400                | 10          | 410 U                  | 400 U                  | 390 U                  | 00 5                   | 400                   | 340 UJ                |
| Di-n-butylphthalate                    | UG/KG                   | 132 4             | 10%             | 5                  | 48           | 6.11E+06             |             | 8100               |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| 1                                      |                         | 23 4              |                 |                    |              |                      |             |                    |             |                        |                        |                        |                        |                       |                       |
| Di-n-octylphthalate                    | UG/KG                   |                   | 4%              | 2                  | 48           | 2.44E+06             |             | 50000              |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 UJ                |
| Dibenz(a,h)anthracene                  | UG/KG                   | 470 4             | 26%             | 12                 | 47           | 6.21E+01             | 7           | 14                 | 11          | 410 UJ                 | 400 UJ                 | 390 U                  | 210 J                  | 360 U                 | 340 UJ                |
| Dibenzofuran                           | UG/KG                   | 1700              | 21%             | 10                 | 48           | 1.45E+05             |             | 6200               |             | 410 U                  | 400 U                  | 390 U                  | 140 J                  | 360 U                 | 340 U                 |
| Diethyl phthalate                      | UG/KG                   | 21 4              | 13%             | 6                  | 48           | 4.89E+07             |             | 7100               |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Dimethylphthalate                      | UG/KG                   | 0                 | 0%              | 0                  | 48           | 1.00E+08             |             | 2000               |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Fluoranthene                           | UG/KG                   | 27000             | 73%             | 35                 | 48           | 2.29E+06             |             | 50000              |             | 410 U                  | 400 U                  | 390 U                  | 7700                   | 670                   | 53 J                  |

|                           | Facility<br>Location ID |               |                  |                    |            |                                |             |               |             | SEAD-121C<br>SBDRMO-21 | SEAD-121C<br>SBDRMO-22 | SEAD-121C<br>SBDRMO-23 | SEAD-121C<br>SBDRMO-24 | SEAD-121C<br>SBDRMO-5 | SEAD-121C<br>SBDRMO-6 |
|---------------------------|-------------------------|---------------|------------------|--------------------|------------|--------------------------------|-------------|---------------|-------------|------------------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|
|                           | Matrix                  |               |                  |                    |            |                                |             |               |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                  | SOIL                  |
|                           | Sample ID               |               |                  |                    |            |                                |             |               |             | DRMO-1090              | DRMO-1091              | DRMO-1095              | DRMO-1098              | DRMO-1040             | DRMO-1043             |
| Sample Depth to           |                         |               |                  |                    |            |                                |             |               |             | 0                      | 0 2                    | 0                      | 0 2                    | 0                     | 0                     |
| Sample Depth to Be        |                         | •             |                  |                    |            |                                |             |               |             | _                      | _                      | 2                      | _                      | 2                     | 2<br>10/25/2002       |
|                           | Sample Date<br>OC Code  |               |                  |                    |            | Region IX                      |             |               |             | 10/27/2002<br>SA       | 10/27/2002<br>SA       | 10/28/2002<br>SA       | 10/28/2002<br>SA       | 10/27/2002<br>SA      | 10/25/2002<br>SA      |
|                           | Study ID                |               | F                | N                  | Number     | PRG                            |             | NYSDEC        | ,           | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                | PID-RI                |
|                           | Study ID                | Maximum       | Frequency<br>of  | Number<br>of Times | of         | Criteria                       |             | Criteria      |             | PID-KI                 | PID-KI                 | PID-KI                 | PID-KI                 | PID-KI                | PID-KI                |
| <b>.</b>                  | ** *.                   |               |                  |                    |            | _                              |             |               |             |                        | ***                    |                        | *** (0)                | ***                   | ***                   |
| Parameter<br>Fluorene     | Units<br>UG/KG          | Value<br>3500 | Detection<br>27% | Detected<br>13     | Analyses 1 | Value <sup>2</sup><br>2.75E+06 | Exceedances | Value 3 50000 | Exceedances | Value (Q)<br>410 U     | Value (Q)<br>400 U     | Value (Q)<br>390 U     | Value (Q)<br>560       | Value (Q)<br>360 U    | Value (Q)<br>340 U    |
| Hexachlorobenzene         | UG/KG<br>UG/KG          | 8.5           | 21%              |                    | 48         | 3.04E+02                       |             | 410           |             | 410 U                  | 400 U<br>400 U         | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Hexachlorobutadiene       | UG/KG<br>UG/KG          | 8.5<br>0      | 0%               | 1                  | 48         | 6.24E+02                       |             | 410           |             | 410 U                  | 400 U<br>400 U         | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| Hexachlorocyclopentadiene | UG/KG<br>UG/KG          | 0             | 0%               | 0                  | 48         | 3.65E+05                       |             |               |             | 410 U                  | 400 U<br>400 U         | 390 U                  | 350 UJ                 | 360 U                 | 340 UJ                |
| Hexachloroethane          | UG/KG                   | 0             | 0%               | 0                  | 48         | 3.47E+04                       |             |               |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
|                           |                         |               |                  |                    |            |                                |             | 2200          |             |                        |                        |                        |                        |                       |                       |
| Indeno(1,2,3-cd)pyrene    | UG/KG                   | 970 4         | 46%              | 22                 | 48         | 6.21E+02                       | 3           | 3200          |             | 410 UJ                 | 400 UJ                 | 390 U                  | 740                    | 170 J                 | 60 J                  |
| Isophorone                | UG/KG                   | 0             | 0%               | 0                  | 48         | 5.12E+05                       |             | 4400          |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| N-Nitrosodiphenylamine    | UG/KG                   | 4.8           | 2%               | 1                  | 48         | 9.93E+04                       |             |               |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 U                 |
| N-Nitrosodipropylamine    | UG/KG                   | 0             | 0%               | 0                  | 48         | 6.95E+01                       |             | 12000         |             | 410 U                  | 400 U                  | 390 U                  | 350 U                  | 360 U                 | 340 UJ                |
| Naphthalene               | UG/KG                   | 400<br>0      | 19%<br>0%        | 9                  | 48<br>48   | 5.59E+04                       |             | 13000         |             | 410 U                  | 400 U                  | 390 U<br>390 U         | 59 J<br>350 U          | 360 U                 | 340 U<br>340 U        |
| Nitrobenzene              | UG/KG                   | 0             |                  | 0                  | 48<br>48   | 1.96E+04                       |             | 200<br>1000   |             | 410 U                  | 400 U                  | 390 U<br>980 U         | 350 U<br>890 U         | 360 U<br>900 U        | 340 U<br>870 U        |
| Pentachlorophenol         | UG/KG                   | 29000         | 0%<br>52%        | 25                 | 48<br>48   | 2.98E+03                       |             | 50000         |             | 1000 U                 | 1000 U<br>400 U        | 980 U<br>390 U         | 4400<br>4400           | 900 U<br>440          | 340 U                 |
| Phenanthrene              | UG/KG                   | 29000         | 0%               | 0                  | 48         | 1.025 .07                      |             |               |             | 410 U                  |                        |                        |                        | 360 U                 |                       |
| Phenol<br>Pyrene          | UG/KG<br>UG/KG          | 34000         | 0%<br>67%        | 32                 | 48<br>48   | 1.83E+07<br>2.32E+06           |             | 30<br>50000   |             | 410 U<br>410 UJ        | 400 U<br>400 U         | 390 U<br>390 U         | 350 U<br>16000         | 700                   | 340 U<br>130 J        |
| Pesticides/PCBs           | UG/KG                   | 34000         | 07%              | 32                 | 48         | 2.32E+00                       |             | 30000         |             | 410 UJ                 | 400 U                  | 390 0                  | 10000                  | 700                   | 150 J                 |
| 4,4'-DDD                  | UG/KG                   | 44            | 120/             | 5                  | 43         | 2.44E+03                       |             | 2900          |             | 2.1 UJ                 | 2 UJ                   | 0.24 U                 | 0.22 U                 | 1.8 UJ                | 1.8 R                 |
| 4,4'-DDE                  | UG/KG<br>UG/KG          | 69            | 12%<br>32%       | 15                 | 43         | 1.72E+03                       |             | 2100          |             | 2.1 UJ<br>2.1 UJ       | 2 UJ                   | 0.24 U<br>0.24 UJ      | 0.22 UJ                | 47 J                  | 6.1 J                 |
| 4,4'-DDE<br>4,4'-DDT      | UG/KG                   | 100           | 28%              | 13                 | 47         | 1.72E+03<br>1.72E+03           |             | 2100          |             | 2.1 UJ                 | 2 UJ                   | 0.24 UJ                | 0.22 UJ                | 27 J                  | 1.8 UJ                |
|                           |                         |               |                  |                    |            |                                |             | ll .          |             |                        |                        |                        |                        |                       | 1                     |
| Aldrin                    | UG/KG                   | 14 4          | 6%               | 3                  | 48         | 2.86E+01                       |             | 41            |             | 2.1 UJ                 | 2 UJ                   | 0.12 U                 | 0.11 U                 | 1.8 UJ                | 1.8 UJ                |
| Alpha-BHC                 | UG/KG                   | 0             | 0%               | 0                  | 48         | 9.02E+01                       |             | 110           |             | 2.1 UJ                 | 2 UJ                   | 1.4 U                  | 1.3 U                  | 1.8 UJ                | 1.8 UJ                |
| Alpha-Chlordane           | UG/KG                   | 63 4          | 8%               | 4                  | 48         |                                |             |               |             | 2.1 UJ                 | 2 UJ                   | 0.35 U                 | 0.32 U                 | 1.8 UJ                | 6.1 J                 |
| Beta-BHC                  | UG/KG                   | 0             | 0%               | 0                  | 48         | 3.16E+02                       |             | 200           |             | 2.1 UJ                 | 2 UJ                   | 0.12 U                 | 0.11 U                 | 1.8 UJ                | 1.8 U                 |
| Chlordane                 | UG/KG                   | 0             | 0%               | 0                  | 40         |                                |             |               |             | 21 U                   | 20 U                   | 2.2 U                  | 2.1 U                  | 18 U                  | 18 U                  |
| Delta-BHC                 | UG/KG                   | 2             | 6%               | 3                  | 48         |                                |             | 300           |             | 2.1 UJ                 | 2 UJ                   | 0.24 UJ                | 0.22 UJ                | 1.8 UJ                | 1.8 UJ                |
| Dieldrin                  | UG/KG                   | 41 4          | 4%               | 2                  | 48         | 3.04E+01                       | 2           | 44            |             | 2.1 UJ                 | 2 UJ                   | 0.12 UJ                | 0.11 UJ                | 1.8 UJ                | 1.8 UJ                |
| Endosulfan I              | UG/KG                   | 185 4         | 38%              | 18                 | 48         |                                |             | 900           |             | 2.1 U                  | 2 U                    | 0.59 U                 | 0.54 U                 | 14 J                  | 6.1                   |
| Endosulfan II             | UG/KG                   | 9             | 2%               | 1                  | 47         |                                |             | 900           |             | 2.1 U                  | 2 U                    | 0.35 U                 | 9                      | 1.8 U                 | 1.8 U                 |
| Endosulfan sulfate        | UG/KG                   | 0             | 0%               | 0                  | 48         |                                |             | 1000          |             | 2.1 U                  | 2 U                    | 0.71 U                 | 0.65 U                 | 1.8 U                 | 1.8 U                 |
| Endrin                    | UG/KG                   | 21.5          | 2%               | 1                  | 47         | 1.83E+04                       |             | 100           |             | 2.1 U                  | 2 UJ                   | 0.94 UJ                | 0.86 UJ                | 1.8 UJ                | 1.8 UJ                |
| Endrin aldehyde           | UG/KG                   | 0             | 0%               | 0                  | 48         |                                |             |               |             | 2.1 U                  | 2 U                    | 0.94 UJ                | 0.86 UJ                | 1.8 U                 | 1.8 U                 |
| Endrin ketone             | UG/KG                   | 7.5 4         | 6%               | 3                  | 48         |                                |             |               |             | 2.1 U                  | 2 U                    | 0.12 U                 | 0.11 U                 | 1.8 U                 | 1.8 U                 |
| Gamma-BHC/Lindane         | UG/KG                   | 0             | 0%               | 0                  | 48         | 4.37E+02                       |             | 60            |             | 2.1 UJ                 | 2 UJ                   | 0.12 U                 | 0.11 U                 | 1.8 UJ                | 1.8 UJ                |
| Gamma-Chlordane           | UG/KG                   | 1.2           | 2%               | 1                  | 48         |                                |             | 540           |             | 2.1 UJ                 | 2 UJ                   | 0.35 U                 | 0.32 U                 | 1.8 UJ                | 1.8 U                 |
| Heptachlor                | UG/KG                   | 14            | 4%               | 2                  | 47         | 1.08E+02                       |             | 100           |             | 2.1 UJ                 | 2 UJ                   | 1.2 U                  | 1.1 U                  | 1.8 UJ                | 1.8 U                 |
| Heptachlor epoxide        | UG/KG                   | 2.8           | 4%               | 2                  | 46         | 5.34E+01                       |             | 20            |             | 2.1 UJ                 | 2 UJ                   | 0.35 U                 | 0.32 U                 | 18 R                  | 1.8 U                 |
| Methoxychlor              | UG/KG                   | 0             | 0%               | 0                  | 48         | 3.06E+05                       |             |               |             | 2.1 U                  | 2 U                    | 0.12 U                 | 0.11 U                 | 1.8 U                 | 1.8 UJ                |
| Toxaphene                 | UG/KG                   | 0             | 0%               | 0                  | 48         | 4.42E+02                       |             |               |             | 21 U                   | 20 U                   | 3.8 U                  | 3.5 U                  | 18 U                  | 18 U                  |
| Aroclor-1016              | UG/KG                   | 0             | 0%               | 0                  | 48         | 3.93E+03                       |             |               |             | 21 UJ                  | 20 UJ                  | 6.1 UJ                 | 5.6 UJ                 | 18 UJ                 | 18 U                  |
| Aroclor-1221              | UG/KG                   | 0             | 0%               | 0                  | 48         |                                |             |               |             | 21 U                   | 20 U                   | 1.5 U                  | 1.4 U                  | 18 U                  | 18 U                  |
| Aroclor-1232              | UG/KG                   | 0             | 0%               | 0                  | 48         |                                |             |               |             | 21 UJ                  | 20 UJ                  | 9.5 UJ                 | 8.6 UJ                 | 18 UJ                 | 18 U                  |
| Aroclor-1242              | UG/KG                   | 58            | 2%               | 1                  | 48         |                                |             |               |             | 21 UJ                  | 20 UJ                  | 2.6 U                  | 2.4 U                  | 18 U                  | 18 U                  |
| Aroclor-1248              | UG/KG                   | 0             | 0%               | 0                  | 48         |                                |             |               |             | 21 U                   | 20 U                   | 6.5 U                  | 5.9 U                  | 18 U                  | 18 U                  |
| Aroclor-1254              | UG/KG                   | 930           | 19%              | 9                  | 48         | 2.22E+02                       | 3           | 10000         |             | 21 U                   | 20 UJ                  | 13 UJ                  | 11 UJ                  | 570                   | 18 U                  |

| Sample Depth to To<br>Sample Depth to Botto |       | Maximum<br>Value | Frequency<br>of<br>Detection | Number<br>of Times<br>Detected | Number<br>of<br>Analyses <sup>1</sup> | Region IX<br>PRG<br>Criteria<br>Value <sup>2</sup> | Exceedances | NYSDEC<br>Criteria<br>Value <sup>3</sup> | Exceedances | SEAD-121C<br>SBDRMO-21<br>SOIL<br>DRMO-1090<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121C<br>SBDRMO-22<br>SOIL<br>DRMO-1091<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121C<br>SBDRMO-23<br>SOIL<br>DRMO-1095<br>0<br>2<br>10/28/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121C<br>SBDRMO-24<br>SOIL<br>DRMO-1098<br>0<br>2<br>10/28/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121C<br>SBDRMO-5<br>SOIL<br>DRMO-1040<br>0<br>2<br>10/27/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121C<br>SBDRMO-6<br>SOIL<br>DRMO-1043<br>0<br>2<br>10/25/2002<br>SA<br>PID-RI<br>Value (Q) |
|---|-------|------------------|------------------------------|--------------------------------|---------------------------------------|--|-------------|--|-------------|--|--|--|--|---|---|
| Aroclor-1260                                | UG/KG | 85               | 10%                          | 5                              | 48                                    | V alue   | Exceedances | 10000                                    | Exceedances | 21 UJ  | 9 J  | 2.4 UJ   | 2.1 UJ   | 18 U  | 18 U  |
| Metals and Cyanide                          | CO/RO | 05               | 1070                         | 5                              | 40                                    |  |             | 10000                                    |             | 21 03  | ,,   | 2.4 03   | 2.1 03   | 10 0  | 10 0  |
| Aluminum                                    | MG/KG | 17000            | 100%                         | 48                             | 48                                    | 7.61E+04   |             | 19300                                    |             | 11800  | 11500  | 9940 J   | 8510 J   | 8650  | 8030  |
| Antimony                                    | MG/KG | 236              | 81%                          | 39                             | 48                                    | 3.13E+01   | 2           | 5.9                                      | 11          | 1.1 U  | 1.1 U  | 0.65 J   | 8.5 J  | 67.3  | 1.5   |
| Arsenic                                     | MG/KG | 11.6             | 100%                         | 48                             | 48                                    | 3.90E-01   | 48          | 8.2                                      | 2           | 4.1  | 7.3  | 3.7 J  | 5 J  | 6.1   | 3.7   |
| Barium                                      | MG/KG | 2030             | 100%                         | 48                             | 48                                    | 5.37E+03   |             | 300                                      | 7           | 134 J  | 103  | 105 J  | 1680   | 273   | 37.9 J  |
| Beryllium                                   | MG/KG | 1.2              | 100%                         | 48                             | 48                                    | 1.54E+02   |             | 1.1                                      | 1           | 0.73   | 0.68   | 0.57 J   | 0.46 J   | 0.46 J  | 0.44 J  |
| Cadmium                                     | MG/KG | 29.1             | 60%                          | 29                             | 48                                    | 3.70E+01   |             | 2.3                                      | 14          | 0.15 U   | 0.14 U   | 0.06 U   | 17.9 J   | 10.7  | 0.2 Ј   |
| Calcium                                     | MG/KG | 296000           | 100%                         | 48                             | 48                                    |  |             | 121000                                   | 6           | 29400 J  | 37700  | 56300 J  | 114000 J   | 97900   | 36500 J   |
| Chromium                                    | MG/KG | 74.8             | 100%                         | 48                             | 48                                    |  |             | 29.6                                     | 12          | 16.3   | 19.3   | 16.4 J   | 37.7 J   | 20.4  | 38.8  |
| Cobalt                                      | MG/KG | 17               | 100%                         | 35                             | 35                                    | 9.03E+02   |             | 30                                       |             | 9.3  | 12.5   | 7.8 J  | 14 J   | 11.7  | 9.5   |
| Copper                                      | MG/KG | 9750             | 100%                         | 48                             | 48                                    | 3.13E+03   | 3           | 33                                       | 35          | 18.9 J   | 26   | 21.7 J   | 347 J  | 168   | 34.6 J  |
| Cyanide                                     | MG/KG | 0                | 0%                           | 0                              | 8                                     | 1.22E+06   |             | 0.35                                     |             |  |  |  |  |   |   |
| Cyanide, Amenable                           | MG/KG | 0                | 0%                           | 0                              | 40                                    |  |             |  |             | 0.62 U   | 0.6 U  | 0.59 U   | 0.54 U   | 0.54 U  | 0.52 U  |
| Cyanide, Total                              | MG/KG | 0                | 0%                           | 0                              | 40                                    |  |             |  |             | 0.62 U   | 0.603 U  | 0.594 U  | 0.544 U  | 0.542 U   | 0.525 U   |
| Iron  | MG/KG | 51700            | 100%                         | 48                             | 48                                    | 2.35E+04   | 23          | 36500                                    | 5           | 19300  | 23500  | 14900 J  | 25100 J  | 22900   | 18300   |
| Lead  | MG/KG | 18900            | 100%                         | 48                             | 48                                    | 4.00E+02   | 7           | 24.8                                     | 40          | 12.8   | 28.5   | 17.5 J   | 399 J  | 2690  | 66.9  |
| Magnesium                                   | MG/KG | 20700            | 100%                         | 48                             | 48                                    |  |             | 21500                                    |             | 13100  | 8150   | 15600 J  | 9010 J   | 8170  | 5080  |
| Manganese                                   | MG/KG | 858              | 100%                         | 48                             | 48                                    | 1.76E+03   |             | 1060                                     |             | 472  | 536  | 419 J  | 728 J  | 369   | 348   |
| Mercury                                     | MG/KG | 0.47             | 92%                          | 44                             | 48                                    | 2.35E+01   |             | 0.1                                      | 8           | 0.05   | 0.07   | 0.04   | 0.06   | 0.08  | 0.04  |
| Nickel                                      | MG/KG | 224              | 100%                         | 48                             | 48                                    | 1.56E+03   |             | 49                                       | 9           | 22.5 J   | 29.8 J   | 22 J   | 37 J   | 35.8 J  | 31.8 J  |
| Potassium                                   | MG/KG | 1990             | 100%                         | 48                             | 48                                    |  |             | 2380                                     |             | 1020 J   | 1030 J   | 1510 J   | 1530 J   | 1490 J  | 1220 J  |
| Selenium                                    | MG/KG | 1.3              | 21%                          | 10                             | 48                                    | 3.91E+02   |             | 2  |             | 0.52 U   | 0.51 U   | 0.39 U   | 0.36 U   | 0.44 U  | 0.44 U  |
| Silver                                      | MG/KG | 21.8             | 38%                          | 18                             | 48                                    | 3.91E+02   |             | 0.75                                     | 13          | 0.33 U   | 0.33 U   | 0.44 UJ  | 0.55 J   | 0.85 J  | 0.28 U  |
| Sodium                                      | MG/KG | 478              | 88%                          | 42                             | 48                                    |  |             | 172                                      | 26          | 137  | 120 U  | 157  | 241  | 240   | 223   |
| Thallium                                    | MG/KG | 1.1              | 21%                          | 10                             | 48                                    | 5.16E+00   |             | 0.7                                      | 3           | 0.38 U   | 0.37 U   | 0.68 U   | 1.1 J  | 0.33 U  | 0.33 U  |
| Vanadium                                    | MG/KG | 25.4             | 100%                         | 48                             | 48                                    | 7.82E+01   |             | 150                                      |             | 20   | 20.8 J   | 16.9 J   | 12.2 J   | 17.1 J  | 12.9  |
| Zinc  | MG/KG | 3610             | 100%                         | 48                             | 48                                    | 2.35E+04   |             | 110                                      | 28          | 63.9   | 89.6 J   | 55.3 J   | 786 J  | 541 J   | 123   |
| Other                                       |       |                  |                              |                                |                                       |  |             |  |             |  |  |  |  |   |   |
| Total Organic Carbon                        | MG/KG | 9000             | 100%                         | 40                             | 40                                    |  |             |  |             | 6300   | 5800   | 2800   | 4900   | 4200  | 3300  |
| Total Petroleum Hydrocarbons                | MG/KG | 7600             | 25%                          | 10                             | 40                                    | l  |             |  |             | 50 UJ  | 48 UJ  | 48 UJ  | 44 UJ  | 520 J   | 42 UJ   |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

|                                   | Facility Location ID Matrix Sample ID |            |                 |                    |          |                      |             |                    | SEAD-121C<br>SBDRMO-6<br>SOIL<br>DRMO-1050 | SEAD-121C<br>SBDRMO-7<br>SOIL<br>DRMO-1046 | SEAD-121C<br>SBDRMO-8<br>SOIL<br>DRMO-1049 | SEAD-121C<br>SBDRMO-9<br>SOIL<br>DRMO-1053 | SEAD-121C<br>SS121C-1<br>SOIL<br>EB235 | SEAD-121C<br>SS121C-2<br>SOIL<br>EB236 |
|-----------------------------------|---------------------------------------|------------|-----------------|--------------------|----------|----------------------|-------------|--------------------|--|--|--|--|--|--|
| Sample Depth to                   |                                       |            |                 |                    |          |                      |             |                    |  | 0 2  | 0  | 0  |  | 0                                      |
| Sample Depth to Bott              |                                       |            |                 |                    |          |                      |             |                    | 2  | _  | 2  | 2  | 0.2                                    | 0.2<br>3/9/1998                        |
|                                   | Sample Date<br>QC Code                |            |                 |                    |          | Region IX            |             |                    | 10/25/2002<br>SA                           | 10/27/2002<br>SA                           | 10/25/2002<br>SA                           | 10/25/2002<br>SA                           | 3/9/1998<br>SA                         | 3/9/1998<br>SA                         |
|                                   | Study ID                              |            | E               | Normalia and       | Number   | PRG                  |             | NYSDEC             | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | EBS                                    | EBS                                    |
|                                   | Study ID                              | Maximum    | Frequency<br>of | Number<br>of Times | of       | Criteria             |             | Criteria           | PID-KI                                     | PID-KI                                     | PID-KI                                     | PID-KI                                     | EBS                                    | EBS                                    |
| _                                 |                                       |            |                 |                    |          |                      |             |                    |  |  |  |  |  |  |
| Parameter                         | Units                                 | Value      | Detection       | Detected           | Analyses | Value 2              | Exceedances | Value 3 Exceedance | es Value (Q)                               | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                              | Value (Q)                              |
| Volatile Organic Compounds        |                                       |            | 001             |                    | 40       | 4.000 04             |             | 000                | 2.7.1                                      | 2011                                       | 2277                                       | 2 ***                                      |  |  |
| 1,1,1-Trichloroethane             | UG/KG                                 | 0          | 0%              | 0                  | 48       | 1.20E+06             |             | 800                | 2.7 U                                      | 2.8 U                                      | 3.3 UJ                                     | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,1,2,2-Tetrachloroethane         | UG/KG                                 | 0          | 0%              | 0                  | 48       | 4.08E+02             |             | 600                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,1,2-Trichloroethane             | UG/KG                                 | 0          | 0%              | 0                  | 48       | 7.29E+02             |             |                    | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,1-Dichloroethane                | UG/KG                                 | 0          | 0%              | 0                  | 48       | 5.06E+05             |             | 200                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,1-Dichloroethene                | UG/KG                                 | 0          | 0%              | 0                  | 48       | 1.24E+05             |             | 400                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,2-Dichloroethane                | UG/KG                                 | 0          | 0%              | 0                  | 48       | 2.78E+02             |             | 100                | 2.7 UJ                                     | 2.8 U                                      | 3.3 UJ                                     | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| 1,2-Dichloroethene (total)        | UG/KG                                 | 0          | 0%              | 0                  | 8        |                      |             |                    |  |  |  |  | 11 UJ                                  | 11 UJ                                  |
| 1,2-Dichloropropane               | UG/KG                                 | 0          | 0%              | 0                  | 48       | 3.42E+02             |             |                    | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Acetone                           | UG/KG                                 | 13         | 28%             | 13                 | 47       | 1.41E+07             |             | 200                | 4.6 U                                      | 8.5 J                                      | 11 J                                       | 3 UJ                                       | 10 J                                   | 11 UJ                                  |
| Benzene                           | UG/KG                                 | 41         | 2%              | 1                  | 48       | 6.43E+02             |             | 60                 | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 41   | 11 UJ                                  | 11 UJ                                  |
| Bromodichloromethane              | UG/KG                                 | 0          | 0%              | 0                  | 48       | 8.24E+02             |             |                    | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Bromoform                         | UG/KG                                 | 0          | 0%              | 0                  | 48       | 6.16E+04             |             |                    | 2.7 U                                      | 2.8 UJ                                     | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Carbon disulfide                  | UG/KG                                 | 4.7        | 4%              | 2                  | 48       | 3.55E+05             |             | 2700               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 4.7  | 11 UJ                                  | 11 UJ                                  |
| Carbon tetrachloride              | UG/KG                                 | 0          | 0%              | 0                  | 48       | 2.51E+02             |             | 600                | 2.7 UJ                                     | 2.8 U                                      | 3.3 UJ                                     | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Chlorobenzene                     | UG/KG                                 | 0          | 0%              | 0                  | 48       | 1.51E+05             |             | 1700               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Chlorodibromomethane              | UG/KG                                 | 0          | 0%              | 0                  | 48       | 1.11E+03             |             |                    | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Chloroethane                      | UG/KG                                 | 0          | 0%              | 0                  | 48       | 3.03E+03             |             | 1900               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Chloroform                        | UG/KG                                 | $4.8^{-4}$ | 4%              | 2                  | 48       | 2.21E+02             |             | 300                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Cis-1,2-Dichloroethene            | UG/KG                                 | 0          | 0%              | 0                  | 40       | 4.29E+04             |             | 300                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 05                                  | 11 05                                  |
| Cis-1,3-Dichloropropene           | UG/KG                                 | 0          | 0%              | 0                  | 48       |                      |             |                    | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Ethyl benzene                     | UG/KG                                 | 3300       | 4%              | 2                  | 48       | 3.95E+05             |             | 5500               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3300 J                                     | 11 UJ                                  | 11 UJ                                  |
| Meta/Para Xylene                  | UG/KG                                 | 4400       | 8%              | 3                  | 40       | 3.552.105            |             | 5500               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 4400 J                                     | 11 05                                  | 11 05                                  |
| Methyl bromide                    | UG/KG                                 | 0          | 0%              | 0                  | 48       | 3.90E+03             |             |                    | 2.7 UJ                                     | 2.8 U                                      | 3.3 UJ                                     | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Methyl butyl ketone               | UG/KG                                 | 0          | 0%              | 0                  | 48       | 3.502.103            |             |                    | 2.7 UJ                                     | 2.8 U                                      | 3.3 UJ                                     | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Methyl chloride                   | UG/KG                                 | 0          | 0%              | 0                  | 48       | 4.69E+04             |             |                    | 2.7 UJ                                     | 2.8 UJ                                     | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Methyl ethyl ketone               | UG/KG                                 | 0          | 0%              | 0                  | 48       | 2.23E+07             |             | 300                | 2.7 UJ                                     | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Methyl isobutyl ketone            | UG/KG                                 | 0          | 0%              | 0                  | 48       | 5.28E+06             |             | 1000               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Methylene chloride                | UG/KG                                 | 2.6        | 2%              | 1                  | 48       | 9.11E+03             |             | 100                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Ortho Xylene                      | UG/KG                                 | 16         | 3%              | 1                  | 40       | 9.11L+03             |             | 100                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 16   | 11 03                                  | 11 03                                  |
| Styrene                           | UG/KG                                 | 0          | 0%              | 0                  | 48       | 1.70E+06             |             |                    | 2.7 U                                      | 2.8 UJ                                     | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Tetrachloroethene                 | UG/KG                                 | 0          | 0%              | 0                  | 48       | 4.84E+02             |             | 1400               | 2.7 U                                      | 2.8 UJ                                     | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
| Toluene                           | UG/KG                                 | 28         | 19%             | 9                  | 48       | 5.20E+05             |             | 1500               | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 4.9  | 9 J                                    | 28 J                                   |
| Total Xylenes                     | UG/KG                                 | 0          | 0%              | 0                  | 8        | 2.71E+05             |             | 1200               | 2.7 0                                      | 2.0 U                                      | 3.3 0                                      | 4.9  | 11 UJ                                  | 11 UJ                                  |
| Trans-1,2-Dichloroethene          | UG/KG                                 | 0          | 0%              | 0                  | 40       | 6.95E+04             |             | 300                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 03                                  | 11 03                                  |
| Trans-1,3-Dichloropropene         | UG/KG<br>UG/KG                        | 0          | 0%              | 0                  | 48       | 0.93E+04             |             | 300                | 2.7 U                                      | 2.8 U                                      | 3.3 U                                      | 3 UJ                                       | 11 UJ                                  | 11 UJ                                  |
|                                   |                                       | 0          | 0%              | 0                  |          | 5 20E : 01           |             | 700                |  |  |  |  |  | 11 UJ                                  |
| Trichloroethene<br>Vinyl chloride | UG/KG<br>UG/KG                        | 0          | 0%              | 0                  | 48<br>48 | 5.30E+01<br>7.91E+01 | l           | 200                | 2.7 U<br>2.7 U                             | 2.8 U<br>2.8 U                             | 3.3 U<br>3.3 U                             | 3 UJ<br>3 UJ                               | 11 UJ<br>11 UJ                         | 11 UJ<br>11 UJ                         |
|                                   |                                       | U          | 0%              | U                  | 48       | 7.91E+01             |             | 200                | 2.7 0                                      | 2.8 U                                      | 3.3 U                                      | 3 03                                       | 11 UJ                                  | 11 UJ                                  |
| Semivolatile Organic Compoun      |                                       | 0          | 00/             | 0                  | 48       | C 22E / 04           | l           | 3400               | 350 U                                      | 270 11                                     | 400.77                                     | 390 U                                      | 72 U                                   | 69 U                                   |
| 1,2,4-Trichlorobenzene            | UG/KG                                 | -          | 0%              | 0                  |          | 6.22E+04             | l           |                    |  | 370 U                                      | 400 U                                      |  |  |  |
| 1,2-Dichlorobenzene               | UG/KG                                 | 0          | 0%              | -                  | 48       | 6.00E+05             | l           | 7900               | 350 U                                      | 370 U                                      | 400 U                                      | 390 U                                      | 72 U                                   | 69 U                                   |
| 1,3-Dichlorobenzene               | UG/KG                                 | 0          | 0%              | 0                  | 48       | 5.31E+05             | l           | 1600               | 350 U                                      | 370 U                                      | 400 U                                      | 390 U                                      | 72 U                                   | 69 U                                   |
| 1,4-Dichlorobenzene               | UG/KG                                 | 0          | 0%              | 0                  | 48       | 3.45E+03             | l           | 8500               | 350 U                                      | 370 U                                      | 400 U                                      | 390 U                                      | 72 U                                   | 69 U                                   |
| 2,4,5-Trichlorophenol             | UG/KG                                 | 0          | 0%              | 0                  | 48       | 6.11E+06             | l           | 100                | 880 U                                      | 920 U                                      | 1000 U                                     | 990 U                                      | 180 U                                  | 170 U                                  |
| 2,4,6-Trichlorophenol             | UG/KG                                 | 0          | 0%              | 0                  | 48       | 6.11E+03             |             |                    | 350 U                                      | 370 U                                      | 400 U                                      | 390 U                                      | 72 U                                   | 69 U                                   |

|                             | Facility<br>Location ID<br>Matrix |                   |           |          |            |           |             |            |              | SEAD-121C<br>SBDRMO-6<br>SOIL | SEAD-121C<br>SBDRMO-7<br>SOIL | SEAD-121C<br>SBDRMO-8<br>SOIL | SEAD-121C<br>SBDRMO-9<br>SOIL | SEAD-121C<br>SS121C-1<br>SOIL | SEAD-121C<br>SS121C-2<br>SOIL |
|-----------------------------|-----------------------------------|-------------------|-----------|----------|------------|-----------|-------------|------------|--------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                             | Sample ID                         |                   |           |          |            |           |             |            |              | DRMO-1050                     | DRMO-1046                     | DRMO-1049                     | DRMO-1053                     | EB235                         | EB236                         |
| Sample Depth to             |                                   |                   |           |          |            |           |             |            |              | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sample Depth to Bo          |                                   |                   |           |          |            |           |             |            |              | 2                             | 2                             | 2                             | 2                             | 0.2                           | 0.2                           |
|                             | Sample Date                       |                   |           |          |            |           |             |            |              | 10/25/2002                    | 10/27/2002                    | 10/25/2002                    | 10/25/2002                    | 3/9/1998                      | 3/9/1998                      |
|                             | QC Code                           |                   |           |          |            | Region IX |             |            |              | SA                            | SA                            | SA                            | SA                            | SA                            | SA                            |
|                             | Study ID                          |                   | Frequency | Number   | Number     | PRG       |             | NYSDEC     |              | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        | EBS                           | EBS                           |
|                             |                                   | Maximum           | of        | of Times | of         | Criteria  |             | Criteria   |              |                               |                               |                               |                               |                               |                               |
| Parameter                   | Units                             | Value             | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3    | Exceedances  | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     |
| 2,4-Dichlorophenol          | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.83E+05  | Baccedunces | 400        | Baccedunices | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2,4-Dimethylphenol          | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.22E+06  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2,4-Dinitrophenol           | UG/KG                             | 0                 | 0%        | 0        | 47         | 1.22E+05  |             | 200        |              | 880 UJ                        | 920 U                         | 1000 U                        | 990 UJ                        | 180 U                         | 170 U                         |
| 2.4-Dinitrotoluene          | UG/KG                             | 45                | 2%        | 1        | 48         | 1.22E+05  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2,6-Dinitrotoluene          | UG/KG                             | 0                 | 0%        | 0        | 48         | 6.11E+04  |             | 1000       |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2-Chloronaphthalene         | UG/KG                             | 0                 | 0%        | 0        | 48         | 4.94E+06  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2-Chlorophenol              | UG/KG                             | 0                 | 0%        | 0        | 48         | 6.34E+04  |             | 800        |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2-Methylnaphthalene         | UG/KG                             | 610               | 19%       | 9        | 48         |           |             | 36400      |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2-Methylphenol              | UG/KG                             | 0                 | 0%        | 0        | 48         | 3.06E+06  |             | 100        |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 2-Nitroaniline              | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.83E+05  |             | 430        |              | 880 U                         | 920 U                         | 1000 UJ                       | 990 U                         | 180 U                         | 170 U                         |
| 2-Nitrophenol               | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             | 330        |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 3 or 4-Methylphenol         | UG/KG                             | 0                 | 0%        | 0        | 40         |           |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         |                               |                               |
| 3,3'-Dichlorobenzidine      | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.08E+03  |             |            |              | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 3-Nitroaniline              | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.83E+04  |             | 500        |              | 880 U                         | 920 U                         | 1000 U                        | 990 U                         | 180 U                         | 170 U                         |
| 4,6-Dinitro-2-methylphenol  | UG/KG                             | 0                 | 0%        | 0        | 48         | 6.11E+03  |             |            |              | 880 UJ                        | 920 U                         | 1000 U                        | 990 U                         | 180 U                         | 170 U                         |
| 4-Bromophenyl phenyl ether  | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 4-Chloro-3-methylphenol     | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             | 240        |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 4-Chloroaniline             | UG/KG                             | 0                 | 0%        | 0        | 48         | 2.44E+05  |             | 220        |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 4-Chlorophenyl phenyl ether | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| 4-Methylphenol              | UG/KG                             | 0                 | 0%        | 0        | 8          | 3.06E+05  |             | 900        |              |                               |                               |                               |                               | 72 U                          | 69 U                          |
| 4-Nitroaniline              | UG/KG                             | 0                 | 0%        | 0        | 48         | 2.32E+04  |             |            |              | 880 U                         | 920 U                         | 1000 UJ                       | 990 U                         | 180 U                         | 170 U                         |
| 4-Nitrophenol               | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             | 100        |              | 880 U                         | 920 U                         | 1000 U                        | 990 U                         | 180 U                         | 170 U                         |
| Acenaphthene                | UG/KG                             | 2600              | 23%       | 11       | 48         | 3.68E+06  |             | 50000      |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 6.5 J                         |
| Acenaphthylene              | UG/KG                             | 2500              | 21%       | 10       | 48         |           |             | 41000      |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Anthracene                  | UG/KG                             | 7100              | 42%       | 20       | 48         | 2.19E+07  |             | 50000      |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 6.5 J                         |
| Benzo(a)anthracene          | UG/KG                             | 10000             | 55%       | 26       | 47         | 6.21E+02  | 4           | 224        | 14           | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 30 J                          |
| Benzo(a)pyrene              | UG/KG                             | 8700              | 51%       | 24       | 47         | 6.21E+01  | 21          | 61         | 21           | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 28 J                          |
| Benzo(b)fluoranthene        | UG/KG                             | 12000             | 64%       | 30       | 47         | 6.21E+02  | 9           | 1100       | 5            | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 40 J                          |
| Benzo(ghi)perylene          | UG/KG                             | 3150 <sup>4</sup> | 53%       | 25       | 47         |           |             | 50000      |              | 57 J                          | 370 U                         | 400 UJ                        | 390 U                         | 72 U                          | 15 J                          |
| Benzo(k)fluoranthene        | UG/KG                             | 7500              | 47%       | 22       | 47         | 6.21E+03  | 1           | 1100       | 4            | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 29 J                          |
| Bis(2-Chloroethoxy)methane  | UG/KG                             | 0                 | 0%        | 0        | 48         |           |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Bis(2-Chloroethyl)ether     | UG/KG                             | 0                 | 0%        | 0        | 48         | 2.18E+02  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Bis(2-Chloroisopropyl)ether | UG/KG                             | 0                 | 0%        | 0        | 48         | 2.88E+03  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Bis(2-Ethylhexyl)phthalate  | UG/KG                             | 200               | 56%       | 27       | 48         | 3.47E+04  |             | 50000      |              | 350 UJ                        | 370 U                         | 49 J                          | 46 J                          | 7.2 J                         | 9.2 J                         |
| Butylbenzylphthalate        | UG/KG                             | 120               | 13%       | 6        | 48         | 1.22E+07  |             | 50000      |              | 350 UJ                        | 370 U                         | 400 UJ                        | 390 U                         | 72 U                          | 7.8 J                         |
| Carbazole                   | UG/KG                             | 4200              | 35%       | 17       | 48         | 2.43E+04  |             |            |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 14 J                          |
| Chrysene                    | UG/KG                             | 9100              | 53%       | 25       | 47         | 6.21E+04  |             | 400        | 10           | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 35 J                          |
| Di-n-butylphthalate         | UG/KG                             | 132 4             | 10%       | 5        | 48         | 6.11E+06  |             | 8100       |              | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 8.2 J                         | 69 U                          |
| Di-n-octylphthalate         | UG/KG                             | 23 4              | 4%        | 2        | 48         | 2.44E+06  |             | 50000      | I            | 350 UJ                        | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 3.8 J                         |
|                             |                                   | 470 <sup>4</sup>  |           | _        | -          |           | -           |            |              |                               |                               |                               |                               |                               |                               |
| Dibenz(a,h)anthracene       | UG/KG                             |                   | 26%       | 12<br>10 | 47<br>48   | 6.21E+01  | 7           | 14<br>6200 | 11           | 350 UJ                        | 370 U                         | 400 UJ                        | 390 U                         | 72 U                          | 7.6 J                         |
| Dibenzofuran                | UG/KG                             | 1700              | 21%       |          |            | 1.45E+05  |             |            | l            | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Diethyl phthalate           | UG/KG                             | 21 4              | 13%       | 6        | 48         | 4.89E+07  |             | 7100       | l            | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 11 J                          | 9.4 J                         |
| Dimethylphthalate           | UG/KG                             | 0                 | 0%        | 0        | 48         | 1.00E+08  |             | 2000       | l            | 350 U                         | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 69 U                          |
| Fluoranthene                | UG/KG                             | 27000             | 73%       | 35       | 48         | 2.29E+06  |             | 50000      |              | 38 J                          | 370 U                         | 400 U                         | 390 U                         | 72 U                          | 65 J                          |

| Semilar   Semi   |                        | Facility<br>Location ID |                  |           |          |            |           |             |                   | SEAD-121C<br>SBDRMO-6 | SEAD-121C<br>SBDRMO-7 | SEAD-121C<br>SBDRMO-8 | SEAD-121C<br>SBDRMO-9 | SEAD-121C<br>SS121C-1 | SEAD-121C<br>SS121C-2 |
|--|------------------------|-------------------------|------------------|-----------|----------|------------|-----------|-------------|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Part   |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Sample Depuls Tour Sample Nember Sample Nemb |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Sample Debt  | Sample Depth to        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Parameter   Para   | * *                    |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Part   |                        |                         |                  |           |          |            |           |             |                   | 10/25/2002            | 10/27/2002            | 10/25/2002            | 10/25/2002            | 3/9/1998              | 3/9/1998              |
| Parameter  |                        |                         |                  |           |          |            | Region IX |             |                   | SA                    | SA                    | SA                    | SA                    | SA                    | SA                    |
| Parameter   Units   Value   Oscillation   Septem   Septem   Septem   Value   Oscillation   Value   Val   |                        | Study ID                |                  | Frequency | Number   | Number     | PRG       |             | NYSDEC            | PID-RI                | PID-RI                | PID-RI                | PID-RI                | EBS                   | EBS                   |
| Flacenes    UGKG   S50   27%   13   48   2755-69   50000   350 U   370 U   460 U   390 U   72 U   53 U     Hexachborhoultudines   UGKG   8.5   2.5   1   4.8   3046-62   410   350 U   370 U   460 U   390 U   72 U   69 U     Hexachborhoultudines   UGKG   0   0   0   4.8   3464-64   350 U   370 U   460 U   390 U   72 U   69 U     Hexachborhoultudines   UGKG   0   0   0   4.8   3464-64   350 U   370 U   460 U   390 U   72 U   69 U     Hexachborhoultudines   UGKG   0   0   0   4.8   3464-64   350 U   370 U   460 U   390 U   72 U   69 U     Hexachborhoultudines   UGKG   0   0   0   4.8   3464-64   350 U   370 U   460 U   390 U   72 U   69 U     Hexachborhoultudines   UGKG   0   0   0   4.8   3454-64   3.5 U   370 U   460 U   390 U   72 U   69 U     Niscondiphenylamine   UGKG   0   0   0   4.8   6.556-61   3.5 U   370 U   460 U   390 U   72 U   69 U     Niscondiphenylamine   UGKG   0   0   0   4.8   6.556-61   3.5 U   370 U   460 U   390 U   72 U   69 U     Niscondiphenylamine   UGKG   0   0   0   4.8   6.556-61   3.5 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U   370 U   460 U   390 U   72 U   69 U     Nightaines   UGKG   0   0   0   4.8   6.556-61   3.0 U    |                        |                         | Maximum          | of        | of Times | of         | Criteria  |             | Criteria          |                       |                       |                       |                       |                       |                       |
| Heacachine-braneme   | Parameter              | Units                   | Value            | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3 Exceedanc | es Value (Q)          | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| Heaca-thorosyberaledine   UGKG   0   0%   0   48   3.5Et   5   5   5   5   5   5   5   5   5   | Fluorene               | UG/KG                   | 3500             | 27%       | 13       | 48         | 2.75E+06  |             | 50000             | 350 U                 | 370 U                 | 400 U                 | 390 U                 | 72 U                  | 5 J                   |
| Heachforesyclegenalenee   UGKG   0   0%   0   48   3.65E-05   359 U   370 U   400 U   390 U   72 U   69 U     Heachforesyclegenalenee   UGKG   0   0%   0   48   3.45E-05   3   3200   359 U   370 U   400 U   390 U   72 U   09 U     Heachforesyclegenalenee   UGKG   0   0%   0   48   5.5E-05   4400   339 U   370 U   400 U   390 U   72 U   09 U     N. Niscondiplenylamine   UGKG   0   0%   0   48   5.5E-05   4400   339 U   370 U   400 U   390 U   72 U   09 U     N. Niscondiplenylamine   UGKG   0   0%   0   48   5.5E-05   4400   339 U   370 U   400 U   390 U   72 U   09 U     N. Niscondiplenylamine   UGKG   0   0%   0   48   5.5E-05   4400   339 U   370 U   400 U   390 U   72 U   09 U     N. Niscondiplenylamine   UGKG   0   0%   0   48   5.5E-05   48   47   5.5E-05   49   49   49   49   49   49   49   4   | Hexachlorobenzene      | UG/KG                   | 8.5              | 2%        | 1        | 48         | 3.04E+02  |             | 410               | 350 U                 | 370 U                 | 400 U                 | 390 U                 | 72 U                  | 69 U                  |
| Heacehord-bare   GKKG   0   0   0   48   3.47E-04   350 U   370 U   400 U   390 U   72 U   69 U   Incoloral (2.3-clipyme   GKKG   90 s   46   22 s   48   6.15E-05   440   350 U   370 U   400 U   390 U   72 U   69 U   N-100   100 U   100   |                        |                         |                  |           | -        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Independ 2.3-callyprome   Graff of   46%   22   48   6.2   50   3   3300   350 U   370 U   400 U   390 U   72 U   71   Independence   Graff of   6   6   6   72 U   6   9 U   72 U   6 U   72 U   6 U   72 U   6 U   72 U    |                        |                         | -                |           | -        |            | I         |             |                   |                       |                       |                       |                       |                       |                       |
| Image   Imag   | Hexachloroethane       | UG/KG                   |                  | 0%        |          |            | 3.47E+04  |             |                   | 350 U                 |                       |                       |                       |                       |                       |
| N-Nirro-odipheryslamine   UGKG   4.8   2%   1   4.8   9.95E-04   350 U   370 U   400 U   390 U   72 U   69 U   Nophinalise   UGKG   40   | Indeno(1,2,3-cd)pyrene | UG/KG                   | 970 <sup>4</sup> | 46%       |          | 48         | 6.21E+02  | 3           | 3200              | 350 UJ                | 370 U                 | 400 UJ                | 390 U                 | 72 U                  |                       |
| N-Nirrodeproplymine   UGKG   0   0   0   48   6.95E-01   350 U   370 U   400 U   390 U   72 U   4 J   Nirrobenzere   UGKG   0   0   0   48   1.96E+04   200   350 U   370 U   400 U   390 U   72 U   4 J   Nirrobenzere   UGKG   0   0   0   48   1.96E+04   200   350 U   370 U   400 U   390 U   72 U   4 J   Nirrobenzere   UGKG   0   0   0   48   1.96E+04   200   350 U   370 U   400 U   390 U   72 U   69 U   170 U   Plenanthrene   UGKG   2000   52%   25   48   50000   350 U   370 U   400 U   390 U   72 U   69 U   170 U   Plenanthrene   UGKG   0   0   0   48   1.36E+06   50000   350 U   370 U   400 U   390 U   72 U   38 J   30 U   30 U   370 U   400 U   390 U   72 U   38 J   30 U   30 U   370 U   400 U   390 U   72 U   38 J   30 U   30 U   370 U   400 U   390 U   72 U   38 J   30 U    | Isophorone             | UG/KG                   | 0                | 0%        | 0        |            | 5.12E+05  |             | 4400              | 350 U                 |                       | 400 U                 |                       | 72 U                  | 69 U                  |
| Naphthalene  |                        |                         |                  | 2%        | 1        |            | 9.93E+04  |             |                   |                       |                       |                       |                       |                       |                       |
| Nirobeaneere   UG/KG   0   0%   0   48   196E-104   200   350 U   370 U   400 U   390 U   72 U   69 U     Phenathchrophenol   UG/KG   20000   52%   25   48     Phenol   UG/KG   20000   52%   25   48     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   350 U   370 U   400 U   390 U   72 U   38 J     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   78 J   370 U   400 U   390 U   72 U   53 J     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   78 J   370 U   400 U   390 U   72 U   53 J     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   78 J   370 U   400 U   390 U   72 U   53 J     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   78 J   370 U   400 U   390 U   72 U   53 J     Pyrene   UG/KG   34000   07%   32   48   2.32E-105   50000   78 J   370 U   400 U   390 U   72 U   35 J     Pyrene   UG/KG   34   12%   5  | N-Nitrosodipropylamine |                         |                  |           | -        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Pentanthrophenol   GG/KG   GS/KG   CS/KG   C   |                        |                         |                  |           | -        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Phenanthrenee   UGKG   29000   25%   25   48   |                        |                         |                  |           | 0        |            | I         |             |                   |                       |                       |                       |                       |                       |                       |
| Pennol   UG/KG   0   0%   0   48   1.8E-07   30   350 U   370 U   400 U   390 U   72 U   53 J  |                        |                         |                  |           | -        |            | 2.98E+03  |             |                   |                       |                       |                       |                       |                       |                       |
| Pyrene   |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| PestidisePCPs  |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| 44-DDD   |                        | UG/KG                   | 34000            | 67%       | 32       | 48         | 2.32E+06  |             | 50000             | 78 J                  | 370 U                 | 400 UJ                | 390 U                 | 72 0                  | 53 J                  |
| 44-DDE   |                        | HOWG                    | 44               | 120/      | -        | 42         | 2.445.02  |             | 2000              | 10 111                | 10 111                | 2 D                   | 2.0                   | 2 < 11                | 2 5 11                |
| Ad-IDDT  |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Aldrin   |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Alpha-BHC  |                        |                         |                  |           |          |            |           |             |                   | II                    |                       |                       |                       |                       |                       |
| Apha-Chordane  |                        |                         |                  |           |          |            | I         |             |                   |                       |                       |                       |                       |                       |                       |
| Reta BHC   |                        |                         |                  |           | -        |            | 9.02E+01  |             | 110               |                       |                       |                       |                       |                       |                       |
| Chlordane  |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Delta-BHC   UG/KG   2   6%   3   48     3.04E+01   2   44   1.8 U   1.9 U   2 U   2 U   2 U   3.6 U   3.5 U  |                        |                         |                  |           | -        |            | 3.16E+02  |             | 200               |                       |                       |                       |                       | 1.9 U                 | 1.8 U                 |
| Dieldrin   UG/KG   |                        |                         | -                |           | -        |            |           |             | 200               |                       |                       |                       |                       | 10.11                 | 10.17                 |
| Endosulfan I   |                        |                         |                  |           | -        |            |           |             |                   | 1                     |                       |                       |                       |                       |                       |
| Endosulfan II  | Dieldrin               | UG/KG                   |                  | 4%        | 2        | 48         | 3.04E+01  | 2           | 44                | 1.8 UJ                | 1.9 UJ                | 2 UJ                  | 2 UJ                  | 3.6 U                 | 3.5 U                 |
| Endosulfan sulfate UG/KG 0 0% 0 48   |                        |                         |                  |           | 18       |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Endrin   UG/KG   21.5   2%   1   47   1.83E+04   100   1.8 U   1.9 U   2 U   2 U   3.6 U   3.5 U   |                        |                         |                  |           | 1        |            |           |             |                   | II                    |                       |                       |                       |                       |                       |
| Endrin aldehyde  |                        |                         |                  |           | 0        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Endrin ketone UG/KG 7.5 4 6% 3 48 (A3TE+02 60 1.8 UJ 1.9 U 2 U 2 U 3.6 U 3.5 U Gamma-BHC/Lindane UG/KG 0 0% 0 48 4.3TE+02 60 1.8 UJ 1.9 UJ 2 UJ 2 UJ 1.9 U 1.8 U 1.8 U 1.9 UJ 2 UJ 1.9 U 1.8 U 1.8 U 1.9 UJ 2 UJ 1.9 U 1.8 U 1.8 U 1.9 UJ 2 UJ 1.9 U 1.8 U 1.9 UJ 1.8 U 1.9 UJ 2 U 1.9 U 1.8 U 1.9 UJ 1.8 U 1.9 UJ 2 U 1.9 U 1.8 U 1.9 UJ 1.8 U 1.9 UJ 2 U 1.9 U 1.8 U 1.8 U 1.9 UJ 1.9 UJ 1.8 U 1.9 UJ 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1. |                        |                         |                  |           | 1        |            | 1.83E+04  |             | 100               |                       |                       |                       |                       |                       |                       |
| Gamma-BHC/Lindane UG/KG 0 0% 0 48 4.37E+02 60 1.8 UJ 1.9 UJ 2 UJ 2 UJ 1.9 U 1.8 U 540 1.8 UJ 1.9 UJ 2 UJ 2 UJ 1.9 U 1.8 U 540 1.8 UJ 1.9 UJ 2 UJ 2 UJ 1.9 U 1.8 U 1.9 UJ 2 UJ 1.9 U 1.8 U 1.9 UJ 1.8 U 1.9 UJ 2 UJ 1.9 U 1.8 U 1.9 UJ 1.8 U 1.9 UJ 2 UJ 1.9 UJ 1.8 U 1.9 UJ 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 U 1.9 UJ 1.8 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 1.9 UJ 1 | Endrin aldehyde        | UG/KG                   |                  | 0%        | 0        | 48         |           |             |                   | 1                     | 1.9 U                 | 2 U                   | 2 U                   | 3.6 U                 | 3.5 U                 |
| Gamma-Chlordane UG/KG 1.2 2% 1 48   540   1.8 UJ   1.9 UJ   2 U   2 U   1.9 U   1.8 U   Heptachlor UG/KG 14 4% 2 46   5.34E+01   20   1.8 UJ   1.9 UJ   2 U   2 U   1.9 U   1.8 U   Heptachlor epoxide UG/KG 2.8 4% 2 46   5.34E+01   20   1.8 UJ   1.9 UJ   2 U   2 U   1.9 U   1.8 U   Methoxychlor UG/KG 0 0 0% 0 48   3.06E+05   1.8 UJ   1.9 UJ   2 U   2 U   1.9 U   1.8 U   Toxaphene UG/KG 0 0 0% 0 48   4.42E+02   18 U   19 U   20 U   20 U   190 U   180 U   Aroclor-1212 UG/KG 0 0 0% 0 48   3.93E+03   18 U   19 U   20 U   20 U   36 U   35 U   Aroclor-1232 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48   18 U   19 U   20 UJ   20 UJ   20 UJ   36 U   35 U   Aroclor-1248 UG/KG 0 0 0% 0 48 |                        |                         |                  |           |          |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Heptachlor UG/KG 14 4% 2 47 1.08E+02 100 1.8 UJ 1.9 UJ 2 U 2 U 1.9 U 1.8 U Heptachlor epoxide UG/KG 2.8 4% 2 46 5.34E+01 20 1.8 UJ 1.9 UJ 2 U 2 U 1.9 U 1.8 U Methoxychlor UG/KG 0 0% 0 48 3.06E+05 1.8 UJ 1.9 UJ 2 UJ 2 UJ 1.9 U 18 U Toxaphene UG/KG 0 0% 0 48 4.42E+02 18 U 19 U 20 U 20 U 190 U 180 U Aroclor-1016 UG/KG 0 0% 0 48 3.93E+03 18 U 19 U 20 UJ 20 UJ 36 U 35 U Aroclor-1221 UG/KG 0 0% 0 48 18 U 19 U 20 U 20 U 20 U 74 U 70 U Aroclor-1232 UG/KG 0 0% 0 48 18 U 19 U 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 U 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 UJ 19 UJ 20 UJ 20 UJ 36 UJ 35 UJ 18 U |                        |                         |                  |           | 0        |            | 4.37E+02  |             |                   |                       |                       |                       |                       |                       |                       |
| Heptachlor epoxide UG/KG 2.8 4% 2 46 5.34E+01 20 1.8 UJ 1.9 UJ 2 U 2 U 1.9 U 1.8 U Methoxychlor UG/KG 0 0% 0 48 3.06E+05 1.8 U 1.9 U 2 UJ 19 U 18 U 18 U 19 U 20 U 20 U 19 U 18 U 18 U 19 U 20 U 20 U 19 U 18 U 18 U 19 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 36 U 36 U 35 U 18 U 19 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 20 U 36 U 35 U 18 U 19 U 20 U 20 U 20 U 20 U 20 U 20 U 20 U 2  |                        |                         |                  |           | 1        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Methoxychlor         UG/KG         0         0%         0         48         3.06E+05         1.8 U         1.9 U         2 UJ         2 UJ         19 U         18 U           Toxaphene         UG/KG         0         0%         0         48         4.42E+02         18 U         19 U         20 U         20 U         190 U         180 U           Arcolor-121         UG/KG         0         0%         0         48         3.93E+03         18 U         19 U         20 UJ         20 UJ         36 U         35 U           Arcolor-1221         UG/KG         0         0%         0         48         18 U         19 U         20 U         20 U         74 U         70 U           Arcolor-1232         UG/KG         0         0%         0         48         18 U         19 UJ         20 UJ         20 UJ         36 U         35 U           Arcolor-1242         UG/KG         58         2%         1         48         18 U         19 U         20 UJ         20 UJ         36 U         35 U           Arcolor-1248         UG/KG         0         0%         0         48         18 U         19 U         20 U         20 U         36 U         35 U  |                        |                         |                  |           |          |            | I         |             |                   | II                    |                       |                       |                       |                       |                       |
| Toxaphene UG/KG 0 0% 0 48 4.42E+02 18 U 19 U 20 U 20 U 190 U 180 U Aroclor-1016 UG/KG 0 0% 0 48 3.93E+03 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U Aroclor-1221 UG/KG 0 0% 0 48 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 UJ 20 UJ 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 18 U 19 U 20 UJ 36 U 35 U 35 U 18 U 19 U 20 UJ 36 U 35 U 35 U 35 U 35 U 35 U 35 U 35 U  |                        |                         |                  |           |          |            | I         |             | 20                | II                    |                       |                       |                       |                       |                       |
| Aroclor-1016     UG/KG     0     0%     0     48     3.93E+03     18 U     19 UJ     20 UJ     20 UJ     36 U     35 U       Aroclor-1221     UG/KG     0     0%     0     48     18 U     19 U     20 U     20 U     74 U     70 U       Aroclor-1232     UG/KG     0     0%     0     48     18 U     19 UJ     20 UJ     20 UJ     36 U     35 U       Aroclor-1242     UG/KG     58     2%     1     48     18 U     19 U     20 UJ     20 UJ     36 U     35 U       Aroclor-1248     UG/KG     0     0%     0     48     18 U     19 U     20 UJ     20 UJ     36 U     35 U   |                        |                         | -                |           | -        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Arcelor-1221         UG/KG         0         0%         0         48         18 U         19 U         20 U         20 U         74 U         70 U           Arcelor-1232         UG/KG         0         0%         0         48         18 U         19 UJ         20 UJ         20 UJ         36 U         35 U           Arcelor-1242         UG/KG         58         2%         1         48         18 U         19 U         20 UJ         20 UJ         36 U         35 U           Arcelor-1248         UG/KG         0         0%         0         48         18 U         19 U         20 U         20 U         20 U         36 U         35 U   |                        |                         |                  |           | 0        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Aroclor-1232     UG/KG     0     0%     0     48       Aroclor-1242     UG/KG     58     2%     1     48       Aroclor-1248     UG/KG     0     0%     0     48       18 U     19 U     20 UJ     20 UJ     36 U     35 U       18 U     19 U     20 U     20 U     36 U     35 U       18 U     19 U     20 U     20 U     36 U     35 U  |                        |                         | -                |           | -        |            | 5.93E+03  |             |                   |                       |                       |                       |                       |                       |                       |
| Aroclor-1242     UG/KG     58     2%     1     48       Aroclor-1248     UG/KG     0     0%     0     48       18 U     19 U     20 UJ     20 UJ     36 U     35 U       18 U     19 U     20 U     20 U     36 U     35 U   |                        |                         |                  |           | -        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
| Aroclor-1248 UG/KG 0 0% 0 48 18 U 19 U 20 U 20 U 36 U 35 U   |                        |                         | -                |           | 1        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
|  |                        |                         |                  |           | 0        |            |           |             |                   |                       |                       |                       |                       |                       |                       |
|  | Aroclor-1254           | UG/KG                   | 930              | 19%       | 9        | 48<br>48   | 2.22E+02  | 3           | 10000             | 18 U                  | 19 U                  | 20 U                  | 20 U                  | 36 U                  | 35 U                  |

|                              | Facility      |         |           |          |            |           |             |          |             | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C | SEAD-121C |
|------------------------------|---------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|-----------|-----------|
|                              | Location ID   |         |           |          |            |           |             |          |             | SBDRMO-6   | SBDRMO-7   | SBDRMO-8   | SBDRMO-9   | SS121C-1  | SS121C-2  |
|                              | Matrix        |         |           |          |            |           |             |          |             | SOIL       | SOIL       | SOIL       | SOIL       | SOIL      | SOIL      |
|                              | Sample ID     |         |           |          |            |           |             |          |             | DRMO-1050  | DRMO-1046  | DRMO-1049  | DRMO-1053  | EB235     | EB236     |
| Sample Depth to              | Γop of Sample |         |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0         | 0         |
| Sample Depth to Bot          | om of Sample  |         |           |          |            |           |             |          |             | 2          | 2          | 2          | 2          | 0.2       | 0.2       |
|                              | Sample Date   |         |           |          |            |           |             |          |             | 10/25/2002 | 10/27/2002 | 10/25/2002 | 10/25/2002 | 3/9/1998  | 3/9/1998  |
|                              | QC Code       |         |           |          |            | Region IX |             |          |             | SA         | SA         | SA         | SA         | SA        | SA        |
|                              | Study ID      |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | EBS       | EBS       |
|                              | -             | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |           |           |
| Parameter                    | Units         | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q) | Value (Q) |
| Aroclor-1260                 | UG/KG         | 85      | 10%       | 5        | 48         |           |             | 10000    |             | 18 U       | 19 U       | 20 UJ      | 20 UJ      | 36 U      | 35 U      |
| Metals and Cyanide           |               |         |           |          |            |           |             |          |             |            |            |            |            |           |           |
| Aluminum                     | MG/KG         | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300    |             | 11100      | 12600      | 17000      | 11900      | 12800     | 12600     |
| Antimony                     | MG/KG         | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9      | 11          | 0.96 U     | 1.3        | 1.1 U      | 1.1 U      | 2.5 J     | 2.2 J     |
| Arsenic                      | MG/KG         | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2      | 2           | 4.7        | 6.1        | 4.9        | 5.4        | 5.2       | 6.3       |
| Barium                       | MG/KG         | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300      | 7           | 66.7 J     | 101        | 75.1 J     | 82.6 J     | 57.7      | 252       |
| Beryllium                    | MG/KG         | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1      | 1           | 0.6        | 0.74       | 1.2        | 0.68       | 0.56      | 0.48      |
| Cadmium                      | MG/KG         | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3      | 14          | 0.13 U     | 0.13 U     | 0.14 U     | 0.14 U     | 21.1      | 7.1       |
| Calcium                      | MG/KG         | 296000  | 100%      | 48       | 48         |           |             | 121000   | 6           | 41400 J    | 19300      | 2100 J     | 41800 J    | 11800     | 53100     |
| Chromium                     | MG/KG         | 74.8    | 100%      | 48       | 48         |           |             | 29.6     | 12          | 38.6       | 22.5       | 28.4       | 20.8       | 32.9      | 45.7      |
| Cobalt                       | MG/KG         | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30       |             | 14.2       | 15.2       | 17         | 12.7       | 14        | 15.5      |
| Copper                       | MG/KG         | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33       | 35          | 39.6 J     | 35         | 21.4 J     | 26.2 J     | 139 J     | 324 J     |
| Cyanide                      | MG/KG         | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35     |             |            |            |            |            | 0.62 U    | 0.53 U    |
| Cyanide, Amenable            | MG/KG         | 0       | 0%        | 0        | 40         |           |             |          |             | 0.53 U     | 0.56 U     | 0.6 U      | 0.61 U     |           |           |
| Cyanide, Total               | MG/KG         | 0       | 0%        | 0        | 40         |           |             |          |             | 0.535 U    | 0.558 U    | 0.602 U    | 0.606 U    |           |           |
| Iron                         | MG/KG         | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500    | 5           | 24200      | 27900      | 32700      | 22200      | 41300     | 43600     |
| Lead                         | MG/KG         | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8     | 40          | 56.3       | 43.4       | 7.3        | 28.3       | 78.2 J    | 251       |
| Magnesium                    | MG/KG         | 20700   | 100%      | 48       | 48         |           |             | 21500    |             | 6940       | 6510       | 5780       | 6590       | 6220      | 12800     |
| Manganese                    | MG/KG         | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060     |             | 376        | 620        | 444        | 424        | 364       | 403       |
| Mercury                      | MG/KG         | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1      | 8           | 0.03       | 0.06       | 0.03       | 0.03       | 0.05 U    | 0.1       |
| Nickel                       | MG/KG         | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49       | 9           | 44.4 J     | 43.8 J     | 45.9 J     | 34.2 J     | 58.6      | 224       |
| Potassium                    | MG/KG         | 1990    | 100%      | 48       | 48         |           |             | 2380     |             | 1770 J     | 1080 J     | 972 J      | 1650 J     | 1480      | 1890      |
| Selenium                     | MG/KG         | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2        |             | 0.45 U     | 0.47 U     | 0.5 U      | 0.5 U      | 1 U       | 0.99 U    |
| Silver                       | MG/KG         | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75     | 13          | 0.29 U     | 0.3 U      | 0.32 U     | 0.32 U     | 21.8      | 1.3       |
| Sodium                       | MG/KG         | 478     | 88%       | 42       | 48         |           |             | 172      | 26          | 277        | 146        | 154        | 191        | 223       | 196       |
| Thallium                     | MG/KG         | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7      | 3           | 0.33 U     | 0.34 U     | 0.37 U     | 0.37 U     | 1.4 UJ    | 1.3 UJ    |
| Vanadium                     | MG/KG         | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150      |             | 17.9       | 22.5 J     | 25.4       | 20.4       | 18.6      | 20.1      |
| Zinc                         | MG/KG         | 3610    | 100%      | 48       | 48         | 2.35E+04  |             | 110      | 28          | 196        | 91.7 J     | 67.6       | 106        | 585       | 431       |
| Other                        |               |         |           |          |            |           |             |          |             |            |            |            |            |           |           |
| Total Organic Carbon         | MG/KG         | 9000    | 100%      | 40       | 40         |           |             |          |             | 8500       | 3200       | 4200       | 3800       |           |           |
| Total Petroleum Hydrocarbons | MG/KG         | 7600    | 25%       | 10       | 40         | 1         |             |          |             | 43 UJ      | 45 UJ      | 48 UJ      | 600 UJ     |           |           |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

|                              | Facility Location ID Matrix Sample ID |         |           |          |          |           |             |          |             | SEAD-121C<br>SS121C-3<br>SOIL<br>EB237 | SEAD-121C<br>SS121C-4<br>SOIL<br>EB241 | SEAD-121C<br>SSDRMO-10<br>SOIL<br>DRMO-1006 | SEAD-121C<br>SSDRMO-11<br>SOIL<br>DRMO-1007 | SEAD-121C<br>SSDRMO-12<br>SOIL<br>DRMO-1008 | SEAD-121C<br>SSDRMO-13<br>SOIL<br>DRMO-1009 |
|------------------------------|---------------------------------------|---------|-----------|----------|----------|-----------|-------------|----------|-------------|--|--|---|---|---|---|
| Sample Depth to 7            |                                       |         |           |          |          |           |             |          |             | 0                                      | 0                                      | 0   | 0   | 0   | 0   |
| Sample Depth to Bott         |                                       |         |           |          |          |           |             |          |             | 0.2                                    | 0.2                                    | 0.2   | 0.2   | 0.2   | 0.2   |
|                              | Sample Date                           |         |           |          |          |           |             |          |             | 3/9/1998                               | 3/10/1998                              | 10/23/2002                                  | 10/23/2002                                  | 10/23/2002                                  | 10/23/2002                                  |
|                              | QC Code                               |         |           |          |          | Region IX |             |          |             | SA                                     | SA                                     | SA  | SA  | SA  | SA  |
|                              | Study ID                              |         | Frequency | Number   | Number   | PRG       |             | NYSDEC   |             | EBS                                    | EBS                                    | PID-RI                                      | PID-RI                                      | PID-RI                                      | PID-RI                                      |
|                              | Study ID                              | Maximum | of        | of Times | of       | Criteria  |             | Criteria |             | LDS                                    | LDS                                    | TID-KI                                      | TID-RI                                      | TID-KI                                      | TID-KI                                      |
| ъ .                          | T1 *4                                 |         |           |          |          | Value 2   |             |          | ъ .         | W.1. (O)                               | W.I. (0)                               | W.L. (0)                                    | W.I. (0)                                    | W.L. (0)                                    | W.L. (0)                                    |
| Parameter                    | Units                                 | Value   | Detection | Detected | Analyses | v arue    | Exceedances | vaiue    | Exceedances | Value (Q)                              | Value (Q)                              | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   |
| Volatile Organic Compounds   | HOWG                                  | 0       | 0%        | 0        | 48       | 1.20E+06  |             | 800      |             | 11.77                                  | 11.77                                  | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,1,1-Trichloroethane        | UG/KG                                 |         |           | -        |          |           |             |          |             | 11 U                                   | 11 U                                   |   |   |   |   |
| 1,1,2,2-Tetrachloroethane    | UG/KG                                 | 0       | 0%        | 0        | 48       | 4.08E+02  |             | 600      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,1,2-Trichloroethane        | UG/KG                                 | 0       | 0%        | 0        | 48       | 7.29E+02  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,1-Dichloroethane           | UG/KG                                 | 0       | 0%        | 0        | 48       | 5.06E+05  |             | 200      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,1-Dichloroethene           | UG/KG                                 | 0       | 0%        | 0        | 48       | 1.24E+05  |             | 400      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,2-Dichloroethane           | UG/KG                                 | 0       | 0%        | 0        | 48       | 2.78E+02  |             | 100      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| 1,2-Dichloroethene (total)   | UG/KG                                 | 0       | 0%        | 0        | 8        |           |             |          |             | 11 U                                   | 11 U                                   |   |   |   |   |
| 1,2-Dichloropropane          | UG/KG                                 | 0       | 0%        | 0        | 48       | 3.42E+02  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Acetone                      | UG/KG                                 | 13      | 28%       | 13       | 47       | 1.41E+07  |             | 200      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 10 J  | 2.7 UJ                                      | 2.9 UJ                                      |
| Benzene                      | UG/KG                                 | 41      | 2%        | 1        | 48       | 6.43E+02  |             | 60       |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Bromodichloromethane         | UG/KG                                 | 0       | 0%        | 0        | 48       | 8.24E+02  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Bromoform                    | UG/KG                                 | 0       | 0%        | 0        | 48       | 6.16E+04  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Carbon disulfide             | UG/KG                                 | 4.7     | 4%        | 2        | 48       | 3.55E+05  |             | 2700     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.2 J                                       | 2.7 UJ                                      | 2.9 UJ                                      |
| Carbon tetrachloride         | UG/KG                                 | 0       | 0%        | 0        | 48       | 2.51E+02  |             | 600      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Chlorobenzene                | UG/KG                                 | 0       | 0%        | 0        | 48       | 1.51E+05  |             | 1700     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Chlorodibromomethane         | UG/KG                                 | 0       | 0%        | Õ        | 48       | 1.11E+03  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Chloroethane                 | UG/KG                                 | 0       | 0%        | 0        | 48       | 3.03E+03  |             | 1900     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
|                              |                                       | 4.8 4   |           | 2        |          |           |             |          |             |  |  |   |   |   | 2.9 UJ                                      |
| Chloroform                   | UG/KG                                 |         | 4%        | 0        | 48       | 2.21E+02  |             | 300      |             | 11 U                                   | 4 J                                    | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      |   |
| Cis-1,2-Dichloroethene       | UG/KG                                 | 0       | 0%        | -        | 40       | 4.29E+04  |             |          |             | 44.77                                  |  | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Cis-1,3-Dichloropropene      | UG/KG                                 | 0       | 0%        | 0        | 48       | 2055 05   |             | ##00     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Ethyl benzene                | UG/KG                                 | 3300    | 4%        | 2        | 48       | 3.95E+05  |             | 5500     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Meta/Para Xylene             | UG/KG                                 | 4400    | 8%        | 3        | 40       |           |             |          |             |  |  | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methyl bromide               | UG/KG                                 | 0       | 0%        | 0        | 48       | 3.90E+03  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methyl butyl ketone          | UG/KG                                 | 0       | 0%        | 0        | 48       |           |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methyl chloride              | UG/KG                                 | 0       | 0%        | 0        | 48       | 4.69E+04  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methyl ethyl ketone          | UG/KG                                 | 0       | 0%        | 0        | 48       | 2.23E+07  |             | 300      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methyl isobutyl ketone       | UG/KG                                 | 0       | 0%        | 0        | 48       | 5.28E+06  |             | 1000     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Methylene chloride           | UG/KG                                 | 2.6     | 2%        | 1        | 48       | 9.11E+03  |             | 100      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Ortho Xylene                 | UG/KG                                 | 16      | 3%        | 1        | 40       |           |             |          |             |  |  | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Styrene                      | UG/KG                                 | 0       | 0%        | 0        | 48       | 1.70E+06  |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Tetrachloroethene            | UG/KG                                 | 0       | 0%        | 0        | 48       | 4.84E+02  |             | 1400     |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Toluene                      | UG/KG                                 | 28      | 19%       | 9        | 48       | 5.20E+05  |             | 1500     |             | 4 J                                    | 16                                     | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Total Xylenes                | UG/KG                                 | 0       | 0%        | 0        | 8        | 2.71E+05  |             | 1200     |             | 11 U                                   | 11 U                                   |   |   |   |   |
| Trans-1,2-Dichloroethene     | UG/KG                                 | 0       | 0%        | 0        | 40       | 6.95E+04  |             | 300      |             |  |  | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Trans-1,3-Dichloropropene    | UG/KG                                 | 0       | 0%        | 0        | 48       |           |             |          |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Trichloroethene              | UG/KG                                 | 0       | 0%        | 0        | 48       | 5.30E+01  |             | 700      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Vinyl chloride               | UG/KG                                 | 0       | 0%        | 0        | 48       | 7.91E+01  | l           | 200      |             | 11 U                                   | 11 U                                   | 2.9 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      |
| Semivolatile Organic Compoun |                                       | Ü       | 0,0       | v        |          |           | l           | 200      |             | 1                                      | 0                                      | 2., 03                                      | 2.7 03                                      | 2 03  | 2., 00                                      |
| 1.2.4-Trichlorobenzene       | UG/KG                                 | 0       | 0%        | 0        | 48       | 6.22E+04  | l           | 3400     |             | 180 U                                  | 170 U                                  | 380 U                                       | 370 U                                       | 350 U                                       | 360 U                                       |
| 1,2-Dichlorobenzene          | UG/KG                                 | 0       | 0%        | 0        | 48       | 6.00E+05  | l           | 7900     |             | 180 U                                  | 170 U                                  | 380 U                                       | 370 U                                       | 350 U                                       | 360 U                                       |
| 1,3-Dichlorobenzene          | UG/KG<br>UG/KG                        | 0       | 0%        | 0        | 48       | 5.31E+05  | l           | 1600     |             | 180 U                                  | 170 U<br>170 U                         | 380 U                                       | 370 U                                       | 350 U                                       | 360 U                                       |
| 1,4-Dichlorobenzene          | UG/KG<br>UG/KG                        | 0       | 0%        | 0        | 48<br>48 | 3.45E+03  | l           | 8500     |             | 180 U<br>180 U                         | 170 U<br>170 U                         | 380 U<br>380 U                              | 370 U<br>370 U                              | 350 U<br>350 U                              | 360 U<br>360 U                              |
| 1                            |                                       | 0       | 0%        | 0        | 48<br>48 | I         | l           | 100      |             |  |  | 960 U                                       |   |   | 360 U<br>890 U                              |
| 2,4,5-Trichlorophenol        | UG/KG                                 | -       |           | -        |          | 6.11E+06  | l           | 100      |             | 440 U                                  | 420 U                                  |   | 920 U                                       | 890 U                                       |   |
| 2,4,6-Trichlorophenol        | UG/KG                                 | 0       | 0%        | 0        | 48       | 6.11E+03  |             |          |             | 180 U                                  | 170 U                                  | 380 U                                       | 370 U                                       | 350 U                                       | 360 U                                       |

|   | Facility       |               |            |          |            |                      |             |              |             | SEAD-121C    | SEAD-121C      | SEAD-121C       | SEAD-121C        | SEAD-121C       | SEAD-121C      |
|---|----------------|---------------|------------|----------|------------|----------------------|-------------|--------------|-------------|--------------|----------------|-----------------|------------------|-----------------|----------------|
|   | Location ID    |               |            |          |            |                      |             |              |             | SS121C-3     | SS121C-4       | SSDRMO-10       | SSDRMO-11        | SSDRMO-12       | SSDRMO-13      |
|   | Matrix         |               |            |          |            |                      |             |              |             | SOIL         | SOIL           | SOIL            | SOIL             | SOIL            | SOIL           |
| Sample Depth to   | Sample ID      |               |            |          |            |                      |             |              |             | EB237<br>0   | EB241<br>0     | DRMO-1006<br>0  | DRMO-1007<br>0   | DRMO-1008<br>0  | DRMO-1009<br>0 |
| Sample Depth to Bo  |                |               |            |          |            |                      |             |              |             | 0.2          | 0.2            | 0.2             | 0.2              | 0.2             | 0.2            |
| Sample Deput to Bo  | Sample Date    |               |            |          |            |                      |             |              |             | 3/9/1998     | 3/10/1998      | 10/23/2002      | 10/23/2002       | 10/23/2002      | 10/23/2002     |
|   | QC Code        |               |            |          |            | Region IX            |             |              |             | SA           | SA             | SA              | SA               | SA              | SA             |
|   | Study ID       |               | Frequency  | Number   | Number     | PRG                  |             | NYSDEC       |             | EBS          | EBS            | PID-RI          | PID-RI           | PID-RI          | PID-RI         |
|   | Study ID       | Maximum       | of         | of Times | of         | Criteria             |             | Criteria     |             | LDS          | EDS            | I ID-KI         | TID-KI           | TID-KI          | I ID-KI        |
| Parameter   | Units          | Value         | Detection  | Detected | Analyses 1 | Value 2              | Exceedances | 2            | Exceedances | Value (Q)    | Value (Q)      | Value (Q)       | Value (Q)        | Value (Q)       | Value (Q)      |
| 2,4-Dichlorophenol  | UG/KG          | 0             | 0%         | 0        | 48         | 1.83E+05             |             | 400          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2,4-Dimethylphenol  | UG/KG          | 0             | 0%         | 0        | 48         | 1.22E+06             |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2,4-Dinitrophenol   | UG/KG          | 0             | 0%         | 0        | 47         | 1.22E+05             |             | 200          |             | 440 U        | 420 U          | 960 U           | 920 UJ           | 890 U           | 890 U          |
| 2,4-Dinitrotoluene  | UG/KG          | 45            | 2%         | 1        | 48         | 1.22E+05             |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2,6-Dinitrotoluene  | UG/KG          | 0             | 0%         | 0        | 48         | 6.11E+04             |             | 1000         |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2-Chloronaphthalene                                       | UG/KG          | 0             | 0%         | 0        | 48         | 4.94E+06             |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2-Chlorophenol  | UG/KG          | 0             | 0%         | 0        | 48         | 6.34E+04             |             | 800          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2-Methylnaphthalene                                       | UG/KG          | 610           | 19%        | 9        | 48         |                      |             | 36400        |             | 18 J         | 9.9 J          | 380 U           | 370 U            | 610             | 360 U          |
| 2-Methylphenol  | UG/KG          | 0             | 0%         | 0        | 48         | 3.06E+06             |             | 100          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 2-Nitroaniline  | UG/KG          | 0             | 0%         | 0        | 48         | 1.83E+05             |             | 430          |             | 440 U        | 420 U          | 960 U           | 920 U            | 890 U           | 890 U          |
| 2-Nitrophenol   | UG/KG          | 0             | 0%         | 0        | 48         |                      |             | 330          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 3 or 4-Methylphenol                                       | UG/KG          | 0             | 0%         | 0        | 40         |                      |             |              |             |              |                | 380 U           | 370 U            | 350 U           | 360 U          |
| 3,3'-Dichlorobenzidine                                    | UG/KG          | 0             | 0%         | 0        | 48         | 1.08E+03             |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 UJ          | 360 U          |
| 3-Nitroaniline  | UG/KG          | 0             | 0%         | 0        | 48         | 1.83E+04             |             | 500          |             | 440 U        | 420 U          | 960 U           | 920 UJ           | 890 U           | 890 UJ         |
| 4,6-Dinitro-2-methylphenol                                | UG/KG          | 0             | 0%         | 0        | 48         | 6.11E+03             |             |              |             | 440 U        | 420 U          | 960 U           | 920 U            | 890 U           | 890 U          |
| 4-Bromophenyl phenyl ether                                | UG/KG          | 0             | 0%         | 0        | 48         |                      |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 4-Chloro-3-methylphenol                                   | UG/KG          | 0             | 0%         | 0        | 48         |                      |             | 240          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 4-Chloroaniline   | UG/KG          | 0             | 0%         | 0        | 48         | 2.44E+05             |             | 220          |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 4-Chlorophenyl phenyl ether                               | UG/KG          | 0             | 0%         | 0        | 48         |                      |             |              |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| 4-Methylphenol  | UG/KG          | 0             | 0%         | 0        | 8          | 3.06E+05             |             | 900          |             | 180 U        | 170 U          |                 |                  |                 |                |
| 4-Nitroaniline  | UG/KG          | 0             | 0%         | 0        | 48         | 2.32E+04             |             |              |             | 440 U        | 420 U          | 960 U           | 920 U            | 890 U           | 890 U          |
| 4-Nitrophenol   | UG/KG          | 0             | 0%         | 0        | 48         | 0 com 0 c            |             | 100          |             | 440 U        | 420 U          | 960 U           | 920 U            | 890 U           | 890 U          |
| Acenaphthene  | UG/KG          | 2600          | 23%        | 11       | 48         | 3.68E+06             |             | 50000        |             | 50 J         | 52 J           | 380 U           | 370 U            | 2600            | 360 U          |
| Acenaphthylene  | UG/KG          | 2500          | 21%        | 10       | 48<br>48   | 2.105.07             |             | 41000        |             | 180 U        | 170 U          | 380 U<br>380 U  | 370 U            | 61 J            | 360 U          |
| Anthracene<br>Benzo(a)anthracene                          | UG/KG<br>UG/KG | 7100<br>10000 | 42%<br>55% | 20<br>26 | 48<br>47   | 2.19E+07<br>6.21E+02 | 4           | 50000<br>224 | 14          | 96 J<br>420  | 70 J<br>320    | 380 U<br>380 U  | 370 U<br>370 U   | 7100<br>10000 J | 360 U<br>360 U |
|   | UG/KG          | 8700          | 51%        | 24       | 47         | 6.21E+02             | 21          | 61           | 21          | 370          | 260            | 380 U           | 370 U            | 8700 J          | 360 U          |
| Benzo(a)pyrene  | UG/KG          | 12000         | 64%        | 30       | 47         | 6.21E+01<br>6.21E+02 | 9           | 1100         | 5           | 530          | 310            | 47 J            | 40 J             | 12000 J         | 360 U          |
| Benzo(b)fluoranthene                                      |                |               |            |          |            | 0.21E+02             | 9           | ll .         | 3           |              |                |                 |                  |                 |                |
| Benzo(ghi)perylene  | UG/KG          | 3150 4        | 53%        | 25       | 47         |                      |             | 50000        |             | 380          | 190            | 380 U           | 370 UJ           | 2800 J          | 360 UJ         |
| Benzo(k)fluoranthene                                      | UG/KG          | 7500          | 47%        | 22       | 47<br>48   | 6.21E+03             | 1           | 1100         | 4           | 340<br>180 U | 390<br>170 U   | 380 UJ<br>380 U | 370 UJ<br>370 UJ | 7500 J<br>350 U | 360 UJ         |
| Bis(2-Chloroethoxy)methane                                | UG/KG          | 0             | 0%         | 0        | 48<br>48   | 2.105.02             |             |              |             |              | 170 U<br>170 U |                 |                  |                 | 360 UJ         |
| Bis(2-Chloroethyl)ether                                   | UG/KG<br>UG/KG | 0             | 0%<br>0%   | 0        | 48<br>48   | 2.18E+02<br>2.88E+03 |             |              |             | 180 U        |                | 380 U           | 370 UJ           | 350 U           | 360 UJ         |
| Bis(2-Chloroisopropyl)ether<br>Bis(2-Ethylhexyl)phthalate | UG/KG          | 200           | 56%        | 27       | 48<br>48   | 2.88E+03<br>3.47E+04 |             | 50000        |             | 180 U<br>200 | 170 U<br>52 J  | 380 U<br>57 J   | 370 U<br>37 J    | 350 U<br>91 J   | 360 U<br>360 U |
| Butylbenzylphthalate                                      | UG/KG          | 120           | 13%        | 6        | 48         | 1.22E+07             |             | 50000        |             | 200<br>24 J  | 10 J           | 380 UJ          | 370 U            | 350 UJ          | 360 U          |
| Carbazole   | UG/KG          | 4200          | 35%        | 17       | 48<br>48   | 2.43E+04             |             | 30000        |             | 130 J        | 100 J          | 380 U           | 370 U            | 4200            | 360 U          |
| Chrysene  | UG/KG          | 9100          | 53%        | 25       | 47         | 6.21E+04             |             | 400          | 10          | 510          | 360            | 380 U           | 370 U            | 9100 J          | 360 U          |
| Di-n-butylphthalate                                       | UG/KG          | 132 4         | 10%        | 5        | 48         | 6.11E+06             |             | 8100         | 10          | 50 J         | 20 J           | 380 U           | 370 U            | 350 U           | 360 U          |
| Di-n-octylphthalate                                       | UG/KG          | 23 4          | 4%         | 2        | 48         | 2.44E+06             |             | 50000        |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 UJ          | 360 U          |
|   |                |               |            |          |            |                      | _           | ll .         |             |              |                |                 |                  |                 |                |
| Dibenz(a,h)anthracene                                     | UG/KG          | 470 4         | 26%        | 12       | 47         | 6.21E+01             | 7           | 14           | 11          | 150 J        | 79 J           | 380 U           | 370 U            | 370 J           | 360 U          |
| Dibenzofuran  | UG/KG          | 1700          | 21%        | 10       | 48         | 1.45E+05             |             | 6200         |             | 22 J         | 22 J           | 380 U           | 370 U            | 1700            | 360 U          |
| Diethyl phthalate   | UG/KG          | 21 4          | 13%        | 6        | 48         | 4.89E+07             |             | 7100         |             | 11 J         | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| Dimethylphthalate   | UG/KG          | 0             | 0%         | 0        | 48         | 1.00E+08             |             | 2000         |             | 180 U        | 170 U          | 380 U           | 370 U            | 350 U           | 360 U          |
| Fluoranthene  | UG/KG          | 27000         | 73%        | 35       | 48         | 2.29E+06             |             | 50000        |             | 820          | 760            | 83 J            | 56 J             | 27000           | 43 J           |

|                               | Facility Location ID Matrix Sample ID |               |                  |                    |              |                                |             |                    | SEAD-121C<br>SS121C-3<br>SOIL<br>EB237 | SEAD-121C<br>SS121C-4<br>SOIL<br>EB241 | SEAD-121C<br>SSDRMO-10<br>SOIL<br>DRMO-1006 | SEAD-121C<br>SSDRMO-11<br>SOIL | SEAD-121C<br>SSDRMO-12<br>SOIL<br>DRMO-1008 | SEAD-121C<br>SSDRMO-13<br>SOIL<br>DRMO-1009 |
|-------------------------------|---------------------------------------|---------------|------------------|--------------------|--------------|--------------------------------|-------------|--------------------|--|--|---|--------------------------------|---|---|
|                               |                                       |               |                  |                    |              |                                |             |                    |  |  | DKMO-1006<br>0                              | DRMO-1007                      |   | DRMO-1009<br>0                              |
| Sample Depth to               |                                       |               |                  |                    |              |                                |             |                    | 0                                      | 0                                      |   | 0                              | 0   |   |
| Sample Depth to Bot           |                                       | :             |                  |                    |              |                                |             |                    | 0.2<br>3/9/1998                        | 0.2<br>3/10/1998                       | 0.2<br>10/23/2002                           | 0.2<br>10/23/2002              | 0.2<br>10/23/2002                           | 0.2<br>10/23/2002                           |
|                               | Sample Date                           |               |                  |                    |              | D IV                           |             |                    |  |  |   |                                |   |   |
|                               | QC Code                               |               |                  | N: 1               | N. 1         | Region IX                      |             | NEGDEC             | SA                                     | SA                                     | SA  | SA                             | SA  | SA  |
|                               | Study ID                              | Maximum       | Frequency<br>of  | Number<br>of Times | Number<br>of | PRG<br>Criteria                |             | NYSDEC<br>Criteria | EBS                                    | EBS                                    | PID-RI                                      | PID-RI                         | PID-RI                                      | PID-RI                                      |
| _                             |                                       |               |                  |                    |              |                                | _           |                    |  |  |   |                                |   |   |
| Parameter                     | Units<br>UG/KG                        | Value<br>3500 | Detection<br>27% | Detected<br>13     | Analyses     | Value <sup>2</sup><br>2.75E+06 | Exceedances | Value Exceedance   | s Value (Q)<br>41 J                    | Value (Q)<br>43 J                      | Value (Q)<br>380 U                          | Value (Q)<br>370 U             | Value (Q)<br>3500                           | Value (Q)<br>360 U                          |
| Fluorene<br>Hexachlorobenzene | UG/KG<br>UG/KG                        | 3500<br>8.5   | 2/%              | 13                 | 48<br>48     | 2.75E+06<br>3.04E+02           |             | 410                | 180 U                                  | 43 J<br>170 U                          | 380 U<br>380 U                              | 370 U<br>370 U                 | 3500<br>350 U                               | 360 U                                       |
| Hexachlorobutadiene           | UG/KG                                 | 8.5<br>0      | 2%<br>0%         | 0                  | 48<br>48     | 6.24E+02                       |             | 410                | 180 U                                  | 170 U                                  | 380 UJ                                      | 370 UJ                         | 350 UJ                                      | 360 UJ                                      |
| Hexachlorocyclopentadiene     | UG/KG                                 | 0             | 0%               | 0                  | 48<br>48     | 3.65E+05                       |             |                    | 180 U                                  | 170 U                                  | 380 U                                       | 370 UJ<br>370 U                | 350 U                                       | 360 U                                       |
| Hexachloroethane              | UG/KG                                 | 0             | 0%               | 0                  | 48           | 3.47E+04                       |             |                    | 180 U                                  | 170 U                                  | 380 U                                       | 370 U                          | 350 U                                       | 360 U                                       |
|                               |                                       |               |                  |                    |              | ll .                           |             | 2200               | 1                                      |  |   |                                |   |   |
| Indeno(1,2,3-cd)pyrene        | UG/KG                                 | 970 4         | 46%              | 22                 | 48           | 6.21E+02                       | 3           | 3200               | 350                                    | 180                                    | 380 UJ                                      | 370 UJ                         | 740 J                                       | 360 UJ                                      |
| Isophorone                    | UG/KG                                 | 0             | 0%               | 0                  | 48           | 5.12E+05                       |             | 4400               | 180 U                                  | 170 U<br>170 U                         | 380 UJ<br>380 U                             | 370 UJ<br>370 U                | 350 UJ<br>350 U                             | 360 UJ<br>360 U                             |
| N-Nitrosodiphenylamine        | UG/KG                                 | 4.8           | 2%               | 1                  | 48           | 9.93E+04                       |             |                    | 180 U                                  |  |   |                                |   |   |
| N-Nitrosodipropylamine        | UG/KG                                 | 0             | 0%               | 0                  | 48           | 6.95E+01                       |             | 12000              | 180 U                                  | 170 U                                  | 380 U                                       | 370 U                          | 350 U                                       | 360 U                                       |
| Naphthalene                   | UG/KG                                 | 400           | 19%              | 9                  | 48<br>48     | 5.59E+04                       |             | 13000<br>200       | 14 J<br>180 U                          | 12 J<br>170 U                          | 380 U                                       | 370 U<br>370 UJ                | 400   | 360 U                                       |
| Nitrobenzene                  | UG/KG                                 | 0             | 0%               | 0                  |              | 1.96E+04                       |             |                    |  |  | 380 UJ                                      |                                | 350 UJ                                      | 360 UJ                                      |
| Pentachlorophenol             | UG/KG<br>UG/KG                        | 0<br>29000    | 0%<br>52%        | 25                 | 48<br>48     | 2.98E+03                       |             | 1000<br>50000      | 440 U<br>520                           | 420 U<br>440                           | 960 U<br>380 U                              | 920 U<br>370 U                 | 890 U<br>29000                              | 890 U<br>360 U                              |
| Phenanthrene<br>Phenol        | UG/KG<br>UG/KG                        | 29000         | 0%               | 0                  | 48<br>48     | 1.83E+07                       |             | 30                 | 180 U                                  | 440<br>170 U                           | 380 U                                       | 370 U                          | 350 U                                       | 360 U                                       |
|                               | UG/KG                                 | 34000         | 67%              | 32                 | 48<br>48     | 2.32E+06                       |             | 50000              | 820                                    | 580                                    | 61 J  | 42 J                           | 34000 J                                     | 360 U                                       |
| Pyrene Pesticides/PCBs        | UG/KG                                 | 34000         | 0770             | 32                 | 40           | 2.52E+00                       |             | 30000              | 620                                    | 360                                    | 01 J  | 42 J                           | 34000 J                                     | 300 0                                       |
| 4,4'-DDD                      | UG/KG                                 | 44            | 12%              | 5                  | 43           | 2.44E+03                       |             | 2900               | 7.4                                    | 3.5 U                                  | 2 UJ  | 1.9 J                          | 5.5 J                                       | 1.8 UJ                                      |
| 4,4'-DDE                      | UG/KG                                 | 69            | 32%              | 15                 | 47           | 1.72E+03                       |             | 2100               | 69 J                                   | 50                                     | 2 UJ  | 7.1 J                          | 13 NJ                                       | 1.8 UJ                                      |
| 4,4'-DDT                      | UG/KG                                 | 100           | 28%              | 13                 | 47           | 1.72E+03                       |             | 2100               | 100 J                                  | 37                                     | 2 UJ  | 3.5 J                          | 19 J  | 1.8 UJ                                      |
| · ·                           |                                       | 14 4          |                  |                    |              | ll .                           |             |                    | 1                                      |  |   |                                |   |   |
| Aldrin                        | UG/KG                                 |               | 6%               | 3                  | 48           | 2.86E+01                       |             | 41                 | 1.9 U                                  | 1.8 U                                  | 2 U   | 1.9 U                          | 4.5   | 1.8 U                                       |
| Alpha-BHC                     | UG/KG                                 | 0             | 0%               | 0                  | 48           | 9.02E+01                       |             | 110                | 1.9 U                                  | 1.8 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Alpha-Chlordane               | UG/KG                                 | 63 4          | 8%               | 4                  | 48           |                                |             |                    | 1.9 U                                  | 1 J                                    | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Beta-BHC                      | UG/KG                                 | 0             | 0%               | 0                  | 48           | 3.16E+02                       |             | 200                | 1.9 U                                  | 1.8 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Chlordane                     | UG/KG                                 | 0             | 0%               | 0                  | 40           |                                |             |                    |  |  | 20 U  | 19 U                           | 18 U  | 18 U  |
| Delta-BHC                     | UG/KG                                 | 2             | 6%               | 3                  | 48           |                                |             | 300                | 1.2 J                                  | 2 J                                    | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Dieldrin                      | UG/KG                                 | 41 4          | 4%               | 2                  | 48           | 3.04E+01                       | 2           | 44                 | 3.6 U                                  | 3.5 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Endosulfan I                  | UG/KG                                 | 185 4         | 38%              | 18                 | 48           |                                |             | 900                | 1.9 U                                  | 1.8 U                                  | 2 UJ  | 9.6 J                          | 25 J  | 1.8 UJ                                      |
| Endosulfan II                 | UG/KG                                 | 9             | 2%               | 1                  | 47           |                                |             | 900                | 3.6 U                                  | 3.5 U                                  | 2 U   | 1.9 U                          | 1.8 U                                       | 1.8 U                                       |
| Endosulfan sulfate            | UG/KG                                 | 0             | 0%               | 0                  | 48           |                                |             | 1000               | 3.6 U                                  | 3.5 U                                  | 2 U   | 1.9 U                          | 1.8 U                                       | 1.8 U                                       |
| Endrin                        | UG/KG                                 | 21.5          | 2%               | 1                  | 47           | 1.83E+04                       |             | 100                | 3.6 U                                  | 3.5 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Endrin aldehyde               | UG/KG                                 | 0             | 0%               | 0                  | 48           |                                |             |                    | 3.6 U                                  | 3.5 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Endrin ketone                 | UG/KG                                 | 7.5 4         | 6%               | 3                  | 48           |                                |             |                    | 3.8 J                                  | 3.5 U                                  | 2 U   | 1.9 U                          | 1.8 U                                       | 1.8 U                                       |
| Gamma-BHC/Lindane             | UG/KG                                 | 0             | 0%               | 0                  | 48           | 4.37E+02                       |             | 60                 | 1.9 U                                  | 1.8 U                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 U                                       |
| Gamma-Chlordane               | UG/KG                                 | 1.2           | 2%               | 1                  | 48           |                                |             | 540                | 1.9 U                                  | 1.2 J                                  | 2 U   | 1.9 U                          | 1.8 U                                       | 1.8 UJ                                      |
| Heptachlor                    | UG/KG                                 | 14            | 4%               | 2                  | 47           | 1.08E+02                       |             | 100                | 2.1 J                                  | 1.8 U                                  | 2 U   | 1.9 U                          | 1.8 U                                       | 1.8 U                                       |
| Heptachlor epoxide            | UG/KG                                 | 2.8           | 4%               | 2                  | 46           | 5.34E+01                       |             | 20                 | 2.8 J                                  | 1.4 J                                  | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Methoxychlor                  | UG/KG                                 | 0             | 0%               | 0                  | 48           | 3.06E+05                       |             |                    | 19 U                                   | 18 U                                   | 2 UJ  | 1.9 UJ                         | 1.8 UJ                                      | 1.8 UJ                                      |
| Toxaphene                     | UG/KG                                 | 0             | 0%               | 0                  | 48           | 4.42E+02                       |             |                    | 190 U                                  | 180 U                                  | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1016                  | UG/KG                                 | 0             | 0%               | 0                  | 48           | 3.93E+03                       |             |                    | 36 U                                   | 35 U                                   | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1221                  | UG/KG                                 | 0             | 0%               | 0                  | 48           |                                |             |                    | 74 U                                   | 71 U                                   | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1232                  | UG/KG                                 | 0             | 0%               | 0                  | 48           |                                |             |                    | 36 U                                   | 35 U                                   | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1242                  | UG/KG                                 | 58            | 2%               | 1                  | 48           |                                |             |                    | 36 U                                   | 58 J                                   | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1248                  | UG/KG                                 | 0             | 0%               | 0                  | 48           |                                |             |                    | 36 U                                   | 35 U                                   | 20 U  | 19 U                           | 18 U  | 18 U  |
| Aroclor-1254                  | UG/KG                                 | 930           | 19%              | 9                  | 48           | 2.22E+02                       | 3           | 10000              | 72                                     | 79                                     | 20 UJ                                       | 19 UJ                          | 230 J                                       | 18 UJ                                       |

|                              | Facility     |         |           |          |            |           |             |          |             | SEAD-121C | SEAD-121C | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  |
|------------------------------|--------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------|-----------|------------|------------|------------|------------|
|                              | Location ID  |         |           |          |            |           |             |          |             | SS121C-3  | SS121C-4  | SSDRMO-10  | SSDRMO-11  | SSDRMO-12  | SSDRMO-13  |
|                              | Matrix       |         |           |          |            |           |             |          |             | SOIL      | SOIL      | SOIL       | SOIL       | SOIL       | SOIL       |
|                              | Sample ID    |         |           |          |            |           |             |          |             | EB237     | EB241     | DRMO-1006  | DRMO-1007  | DRMO-1008  | DRMO-1009  |
| Sample Depth to To           | op of Sample |         |           |          |            |           |             |          |             | 0         | 0         | 0          | 0          | 0          | 0          |
| Sample Depth to Botto        | m of Sample  |         |           |          |            |           |             |          |             | 0.2       | 0.2       | 0.2        | 0.2        | 0.2        | 0.2        |
| • •                          | Sample Date  |         |           |          |            |           |             |          |             | 3/9/1998  | 3/10/1998 | 10/23/2002 | 10/23/2002 | 10/23/2002 | 10/23/2002 |
|                              | QC Code      |         |           |          |            | Region IX |             |          |             | SA        | SA        | SA         | SA         | SA         | SA         |
|                              | Study ID     |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | EBS       | EBS       | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                              | •            | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |           |           |            |            |            |            |
| Parameter                    | Units        | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Aroclor-1260                 | UG/KG        | 85      | 10%       | 5        | 48         |           |             | 10000    |             | 85 J      | 36 J      | 20 UJ      | 19 UJ      | 18 UJ      | 18 UJ      |
| Metals and Cyanide           |              |         |           |          |            |           |             |          |             |           |           |            |            |            |            |
| Aluminum                     | MG/KG        | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300    |             | 7650      | 2700      | 11300      | 9400       | 9050       | 8530       |
| Antimony                     | MG/KG        | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9      | 11          | 3.4 J     | 2.9 J     | 2.7 J      | 1.6 J      | 3.2 J      | 1.2 J      |
| Arsenic                      | MG/KG        | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2      | 2           | 6.4       | 5.4       | 5.9        | 5.9        | 5.8        | 5          |
| Barium                       | MG/KG        | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300      | 7           | 394       | 90.6      | 68.6 J     | 91.6 J     | 53.7 J     | 38.5       |
| Beryllium                    | MG/KG        | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1      | 1           | 0.3       | 0.21      | 0.63       | 0.51       | 0.47       | 0.42       |
| Cadmium                      | MG/KG        | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3      | 14          | 18.5      | 12.6      | 1          | 1.7        | 4.3        | 0.47       |
| Calcium                      | MG/KG        | 296000  | 100%      | 48       | 48         |           |             | 121000   | 6           | 129000    | 296000    | 30700 J    | 35600 J    | 38800 J    | 38800 J    |
| Chromium                     | MG/KG        | 74.8    | 100%      | 48       | 48         |           |             | 29.6     | 12          | 49.2      | 9.2       | 20 J       | 17.7 J     | 26 J       | 16.9 J     |
| Cobalt                       | MG/KG        | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30       |             | 11.3      | 9.6       | 11.5 R     | 15.5 R     | 12.3 R     | 12.6 R     |
| Copper                       | MG/KG        | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33       | 35          | 383 J     | 532 J     | 33.6 J     | 34.3 J     | 77.2 J     | 38.5 J     |
| Cyanide                      | MG/KG        | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35     |             | 0.59 U    | 0.54 U    |            |            |            |            |
| Cyanide, Amenable            | MG/KG        | 0       | 0%        | 0        | 40         |           |             |          |             |           |           | 0.58 U     | 0.56 U     | 0.54 U     | 0.54 U     |
| Cyanide, Total               | MG/KG        | 0       | 0%        | 0        | 40         |           |             |          |             |           |           | 0.582 U    | 0.556 U    | 0.54 U     | 0.542 U    |
| Iron                         | MG/KG        | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500    | 5           | 35000     | 8050      | 25100      | 24200      | 26000      | 21600      |
| Lead                         | MG/KG        | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8     | 40          | 577 J     | 171 J     | 46.1       | 33.5       | 129        | 28.6       |
| Magnesium                    | MG/KG        | 20700   | 100%      | 48       | 48         |           |             | 21500    |             | 8770      | 15400     | 5270       | 5250       | 6070       | 6010       |
| Manganese                    | MG/KG        | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060     |             | 494       | 407       | 534        | 858        | 376        | 314        |
| Mercury                      | MG/KG        | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1      | 8           | 0.15      | 0.13      | 0.04       | 0.04       | 0.06       | 0.03       |
| Nickel                       | MG/KG        | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49       | 9           | 62.5      | 19.5      | 31.7 J     | 40.9 J     | 42.3 J     | 38.7 J     |
| Potassium                    | MG/KG        | 1990    | 100%      | 48       | 48         |           |             | 2380     |             | 1600      | 1290      | 980 J      | 891 J      | 958 J      | 820 J      |
| Selenium                     | MG/KG        | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2        |             | 1 U       | 1 U       | 0.5 J      | 0.93       | 1          | 1.2        |
| Silver                       | MG/KG        | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75     | 13          | 4.7       | 2.1       | 0.31 U     | 0.29 U     | 0.56       | 0.29 U     |
| Sodium                       | MG/KG        | 478     | 88%       | 42       | 48         |           |             | 172      | 26          | 255       | 147       | 205        | 191        | 195        | 106 U      |
| Thallium                     | MG/KG        | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7      | 3           | 1.4 UJ    | 1.3 UJ    | 0.36 U     | 0.55       | 0.55 J     | 0.58 J     |
| Vanadium                     | MG/KG        | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150      |             | 21.5      | 8.5       | 19.4 J     | 17 J       | 15.2 J     | 13.2 J     |
| Zinc                         | MG/KG        | 3610    | 100%      | 48       | 48         | 2.35E+04  | l           | 110      | 28          | 525       | 250       | 82.6 J     | 309 J      | 247 J      | 134 J      |
| Other                        |              |         |           |          |            |           | l           |          |             |           |           |            |            |            |            |
| Total Organic Carbon         | MG/KG        | 9000    | 100%      | 40       | 40         |           | l           |          |             |           |           | 5100       | 5500       | 7600       | 4600       |
| Total Petroleum Hydrocarbons | MG/KG        | 7600    | 25%       | 10       | 40         |           |             |          |             |           |           | 47 U       | 44 U       | 43 U       | 43 U       |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.

- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

U = compound was not detected

| Value   Composite   Valu   | Sample Depth to Sample Depth to Bot |       |       | Frequency<br>of | Number<br>of Times | Number<br>of | Region IX<br>PRG<br>Criteria |             | NYSDEC<br>Criteria |             | SEAD-121C<br>SSDRMO-14<br>SOIL<br>DRMO-1010<br>0.2<br>10/23/2002<br>SA<br>PID-RI | SEAD-121C<br>SSDRMO-15<br>SOIL<br>DRMO-1011<br>0<br>0.2<br>10/30/2002<br>SA<br>PID-RI | SEAD-121C<br>SSDRMO-16<br>SOIL<br>DRMO-1012<br>0<br>0.2<br>10/30/2002<br>SA<br>PID-RI | SEAD-121C<br>SSDRMO-17<br>SOIL<br>DRMO-1013<br>0<br>0.2<br>10/30/2002<br>SA<br>PID-RI | SEAD-121C<br>SSDRMO-18<br>SOIL<br>DRMO-1014<br>0<br>0.2<br>10/30/2002<br>SA<br>PID-RI | SEAD-121C<br>SSDRMO-19<br>SOIL<br>DRMO-1015<br>0<br>0.2<br>10/30/2002<br>SA<br>PID-RI |
|--|-------------------------------------|-------|-------|-----------------|--------------------|--------------|------------------------------|-------------|--------------------|-------------|--|---|---|---|---|---|
| 1,1-11-fichiarcedune   GKKC   0   0%   0   48   4886-02   600   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1,1-21-fichiarcedune   UGKC   0   0%   0   48   4886-02   600   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1,1-21-fichiarcedune   UGKC   0   0%   0   48   5.866-62   600   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1,1-21-fichiarcedune   UGKC   0   0%   0   48   5.866-62   600   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1.2 U   1,1-21-fichiarcedune   UGKC   0   0%   0   48   2.786-62   100   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1.2 U   1,1-21-fichiarcedune   UGKC   0   0%   0   48   2.786-62   100   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1.2 U      | Parameter                           | Units |       | Detection       |                    |              |                              | Exceedances |                    | Exceedances | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| 1,12-2-Ferhalmoerchaue   GKG   0   | Volatile Organic Compounds          |       |       |                 |                    |              |                              |             |                    |             |  | -   |   |   |   |   |
| 1,12-The-bistocenhame   UGKG   0   0%   0   48   5,296.02   200   3,1 U   3,1 U   2,9 U   3,3 U   3,2 U   3,2 U   1,1-bichistocenhame   UGKG   0   0%   0   48   1,246.05   400   3,1 U   3,1 U   2,9 U   3,3 U   3,2 U   3,2 U   1,1-bichistocenhame   UGKG   0   0%   0   48   2,286.02   100   3,1 U   3,1 U   2,9 U   3,3 U   3,2 U   3,2 U   1,1-bichistocenhame   UGKG   0   0%   0   48   2,286.02   100   3,1 U   3,1 U   2,9 U   3,3 U   3,2 U   3,2 U   1,1-bichistocenhame   UGKG   0   0%   0   48   2,286.02   100   3,1 U   3,1 U   2,9 U   3,3 U   3,2 U   3,2 U   1,1-bichistocenhame   UGKG   0   0%   0   48   2,286.02   0   3,1 U   3,1 U   2,9 U   3,3 U   3,2    | 1,1,1-Trichloroethane               | UG/KG | 0     | 0%              | 0                  | 48           | 1.20E+06                     |             | 800                |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
|  | 1,1,2,2-Tetrachloroethane           | UG/KG | 0     | 0%              | 0                  | 48           | 4.08E+02                     |             | 600                |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
|  | 1,1,2-Trichloroethane               | UG/KG | 0     | 0%              | 0                  | 48           | 7.29E+02                     |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| 2.2 Dichlorocethane   UGKG   0   0%   0   48   2.78E+02   100   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   1.2 Dichlorocethane (total)   UGKG   0   0%   0   48   3.42E+02   00   3.1 U   2.1 U   11 U   5.2 U   1.9 U   9.9 I   1.0 Dichlorocethane (totk)   UGKG   13   2.8%   13   47   1.4E+07   200   3.1 U   2.1 U   11 U   5.2 U   1.9 U   9.9 I   1.0 Dichlorocethane   UGKG   0   0%   48   8.42E+02   0   3.1 U   3.1 U   2.9 U   3.3 U   3.2   |                                     |       |       |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
| 1,2-Dichloropepage   UGKG   0   0%   0   48   3,42E-02   31   U   31   U   2   U   3.3   U   3.2   U   3.2   U   Acctonce   UGKG   13   28%   13   47   1,41E-07   200   3.1   U   3.1   U   2   U   3.3   U   3.2   U   | 1,1-Dichloroethene                  |       |       |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
| 1.2. Dehotropropine  | 1,2-Dichloroethane                  | UG/KG | -     |                 | 0                  |              | 2.78E+02                     |             | 100                |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Accross  | 1,2-Dichloroethene (total)          | UG/KG | -     |                 | 0                  | -            |                              |             |                    |             |  |   |   |   |   |   |
| Benzene  | 1,2-Dichloropropane                 |       |       |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Stromochichloromethane   |                                     |       |       |                 | 13                 |              |                              |             |                    |             |  |   |   |   |   |   |
| Somoform   | Benzene                             | UG/KG |       |                 | 1                  |              | 6.43E+02                     |             | 60                 |             | 3.1 UJ   |   |   |   |   |   |
| Carbon disalfield  |                                     |       | -     |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Carbon tetrachloride   UGKG   0   0%   0   48   25 E+02   600   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorochiromomethane   UGKG   0   0%   0   48   1.5 E+05   1700   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorochiromomethane   UGKG   0   0%   0   48   3.03E+03   1900   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorochiromomethane   UGKG   0   0%   0   48   3.03E+03   1900   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorochiromomethane   UGKG   0   0%   0   48   4.9E+04   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U     | Bromoform                           | UG/KG |       |                 | -                  |              | 6.16E+04                     |             |                    |             | 3.1 UJ   | 3.1 U   |   |   |   |   |
| Chlorodirenzene   UGKG   0   0%   0   48   1.51E-105   1700   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   1.51E-105   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   3.03E-03   1900   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   2.21E-102   300   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   4.29E-04   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   3.00   48   3.90E-05   5500   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   3.00   48   3.90E-05   5500   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   3.00   48   3.90E-03   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   3.00   48   3.90E-03   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   3.90E-03   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   4.69E-04   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   4.69E-04   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   2.23E-07   300   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chloridirene   UGKG   0   0%   0   48   2.23E-07   300   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chloridirene   UGKG   0   0%   0   48   2.23E-07   300   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chloridirene   UGKG   0   0%   0   48   5.26E-05   1000   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chloridirene   UGKG   0   0%   0   48   5.26E-05   1500   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   5.26E-05   1500   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   5.26E-05   1500   3.1 U   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U   Chlorodirene   UGKG   0   0%   0   48   5.26E-04   300   3.1 U   3.1 U   3.1 U   2.9 U   3.3    | Carbon disulfide                    | UG/KG |       | 4%              | 2                  | 48           | 3.55E+05                     |             | 2700               |             | 3.1 UJ   | 3.1 U   | 2.9 U   |   |   | 3.2 UJ  |
| Chlorodibromomethane   | Carbon tetrachloride                | UG/KG |       | 0%              | 0                  |              | 2.51E+02                     |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   |   | 3.2 U   | 3.2 UJ  |
| Chlorofemane   | Chlorobenzene                       |       |       |                 | -                  |              | 1.51E+05                     |             | 1700               |             |  |   |   |   |   |   |
| Chloroform   | Chlorodibromomethane                | UG/KG | 0     | 0%              | 0                  | 48           | 1.11E+03                     |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Cis-1_2-Dichlorocthene   UG/KG   O   O%   O   40   4.29E+04   3.1 U   3.1 U   2.9 U   3.3 U   3.2 U   3.2 U  | Chloroethane                        | UG/KG | 0     | 0%              | 0                  | 48           | 3.03E+03                     |             | 1900               |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Cis-1_2-Dichlorocthene   UG/KG   O   O%   O   40   4.29E+04   S.1 U   S.1 U   S.1 U   S.2 U   S.2 U   S.2 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U   S.2 U   S.3 U    | Chloroform                          | UG/KG | 4.8 4 | 4%              | 2                  | 48           | 2.21E+02                     |             | 300                |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Cis-1_3-Dichloropropene   UG/KG   0   0   0   48     3.95E+05   5500   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl bromide   UG/KG   4400   8%   3   400   48   3.95E+05   5500   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl bromide   UG/KG   0   0   0   0   48   3.90E+03   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl bromide   UG/KG   0   0   0   0   48   3.90E+04   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl tetone   UG/KG   0   0   0   0   48   4.69E+04   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl tetone   UG/KG   0   0   0   0   48   4.69E+04   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl tetone   UG/KG   0   0   0   0   48   5.28E+06   1000   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methyl tetone   UG/KG   0   0   0   48   5.28E+06   1000   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methylene chloride   UG/KG   0   0   0   0   48   5.28E+06   1000   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   Methylene chloride   UG/KG   0   0   0   0   48   4.84E+02   4.00   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 U   3.2 UJ   3   |                                     |       |       | 0%              | 0                  |              |                              |             |                    |             |  |   | 2.9 U   |   |   |   |
| Ethyl henzen   |                                     | UG/KG | 0     | 0%              | 0                  | 48           |                              |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Methyl bromide   |                                     | UG/KG | 3300  | 4%              | 2                  | 48           | 3.95E+05                     |             | 5500               |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Methyl bromide   |                                     |       | 4400  | 8%              | 3                  | 40           |                              |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Methyl butyl ketone  |                                     |       | 0     | 0%              | 0                  | 48           | 3.90E+03                     |             |                    |             |  |   |   |   |   |   |
| Methyl choride UG/KG 0 0% 0 48 4,69E-04 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Methyl ethyl ketone UG/KG 0 0% 0 48 2.23E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Methyl ethyl ketone UG/KG 2.6 2% 1 48 9.11E+03 100 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Methylene chloride UG/KG 2.6 2% 1 48 9.11E+03 100 3.1 UJ 4.1 U 3.9 U 3.8 U 4.5 U 3.2 UJ Methylene chloride UG/KG 16 3% 1 40 US/KG 16 3% 1 40 US/KG 10 0% 0 48 1.70E+06 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ 3.2  |                                     |       | 0     | 0%              | 0                  | 48           |                              |             |                    |             |  |   |   |   |   |   |
| Methyl ethyl ketone UG/KG 0 0% 0 48 2.23E+07 300 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Methyl isobutyl ketone UG/KG 0 0% 0 48 5.28E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Ortho Xylene UG/KG 16 3% 1 40 5.20E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Ortho Xylene UG/KG 16 3% 1 40 5.20E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Syrene UG/KG 0 0% 0 48 1.70E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Totalene UG/KG 0 0% 0 48 5.20E+05 1500 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Totalene UG/KG 0 0% 0 8 2.71E+05 1500 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+05 1500 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+05 1200 5.3 UJ 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ 5.2  |                                     |       |       |                 | 0                  |              | 4.69E+04                     |             |                    |             |  |   |   |   |   |   |
| Methyl isobutyl ketone UG/KG 0 0% 0 48 5.28E+06 1000 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Methylene chloride UG/KG 2.6 2% 1 48 9.11E+03 100 3.1 UJ 4.1 U 3.9 U 3.8 U 4.5 U 3.2 UJ Styrene UG/KG 16 3% 1 40 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Styrene UG/KG 0 0% 0 48 1.70E+06 3.1 UJ 3.1 UJ 2.9 U 3.3 U 3.2 UJ 3.2 UJ Total Xylenes UG/KG 0 0% 0 8 2.71E+05 1200 Total Xylenes UG/KG 0 0% 0 48 5.20E+05 1500 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Total Xylenes UG/KG 0 0% 0 48 5.20E+05 1500 Total Xylenes UG/KG 0 0% 0 48 5.30E+04 300 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloropropene UG/KG 0 0% 0 48 5.30E+04 300 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2  |                                     |       |       |                 | Õ                  |              |                              |             | 300                |             |  |   |   |   |   |   |
| Methylene chloride   UG/KG   2.6   2%   1   48   9.11E+03   100   3.1 UJ   4.1 U   3.9 U   3.8 U   4.5 U   3.2 UJ  | 1 1 1                               |       |       |                 | 0                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Ortho Xylene         UG/KG         16         3%         1         40           Styrene         UG/KG         0         0%         0         48         1.70E+06         3.1 UJ         3.1 UJ         3.1 U         2.9 U         3.3 U         3.2 U         3.2 UJ   |                                     |       |       | 2%              | 1                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Styrene   UG/KG   O   O%   O   48   I.70E+06   I.70E+   |                                     |       |       | 3%              | 1                  | 40           |                              |             |                    |             |  |   |   |   |   |   |
| Tetrachloroethene UG/KG 0 0% 0 48 4.84E+02 1400 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Toluene UG/KG 28 19% 9 48 5.20E+05 1500 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Toluene UG/KG 0 0% 0 8 2.71E+05 1200 5.2 UJ Trans-1,2-Dichloroethene UG/KG 0 0% 0 40 6.95E+04 300 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroptopene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroethene UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroethene UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroethene UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ Trans-1,3-Dichloroethene UG/KG 0 0% 0 48 6.22E+04 3400 360 U 400 U 380 U 380 U 410 U 410 U 1,2-Dichlorobenzene UG/KG 0 0% 0 48 6.00E+05 7900 360 U 400 U 380 U 380 U 410 U 410 U 1,3-Dichlorobenzene UG/KG 0 0% 0 48 5.31E+05 1600 360 U 400 U 380 U 380 U 410 U 410 U 1,4-Dichlorobenzene UG/KG 0 0% 0 48 5.31E+03 8500 360 U 400 U 380 U 380 U 380 U 410 U 410 U 1,4-Dichlorobenzene UG/KG 0 0% 0 48 6.11E+06 100 910 U 1000 U 960 U 960 U 960 U 1000 U 1000 U  |                                     |       |       |                 | 0                  |              | 1.70E+06                     |             |                    |             |  |   |   |   |   |   |
| Toluene  |                                     |       |       |                 |                    |              | ll .                         |             | 1400               |             |  |   |   |   |   |   |
| Total Xylenes  |                                     |       |       |                 | 9                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Trans-I,2-Dichloroethene   UG/KG   0   0%   0   40   6.95E+04   300   3.1 UJ   3.1 U   2.9 U   3.3 U   3.2 UJ   3.2 UJ   3.2 UJ   3.3 UJ   3.1 UJ   3.1 U   2.9 U   3.3 UJ   3.2 UJ   3.2 UJ   3.2 UJ   3.2 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.2 UJ   3.3 UJ   3.3 UJ   3.2 UJ   3.3 UJ     |                                     |       |       |                 | Ó                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Trans-1,3-Dichloropropene   UG/KG   0   0%   0   48     1   1   1   1   1   1   1   1   1  |                                     |       |       |                 | 0                  | 40           |                              |             |                    |             | 3.1 UJ   | 3.1 U   | 2.9 U   | 3.3 U   | 3.2 U   | 3.2 UJ  |
| Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Vinjt chloride UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Vinjt chloride UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ VINGALIA UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ VINGALIA UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ VINGALIA UJ 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 UJ 3.2 UJ VINGALIA UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.1 UJ 3.2 UJ 3.2 UJ VINGALIA UJ 3.1 UJJ 3.1 UJ 3.1 UJJ 3.1 UJJ 3.1 UJJ 3.1 UJJ 3.1 UJJ 3.1 UJJ 3.1 UJ |                                     |       |       |                 | Õ                  |              |                              |             |                    |             |  |   |   |   |   |   |
| Vinyl chloride UG/KG 0 0% 0 48 7.91E+01 200 3.1 UJ 3.1 U 2.9 U 3.3 U 3.2 U 3.2 UJ Semivolatile Organic Compounds L2,4-Trichlorobenzene UG/KG 0 0% 0 48 6.22E+04 3400 360 U 400 U 380 U 380 U 410 U 410 U 1,2-Dichlorobenzene UG/KG 0 0% 0 48 6.00E+05 7900 360 U 400 U 380 U 380 U 380 U 410 U 410 U 1,3-Dichlorobenzene UG/KG 0 0% 0 48 5.31E+05 1600 360 U 400 U 380 U 380 U 410 U 410 U 1,4-Dichlorobenzene UG/KG 0 0% 0 48 5.31E+03 8500 360 U 400 U 380 U 380 U 380 U 410 U 410 U 2,4-S-Trichlorophenol UG/KG 0 0% 0 48 6.11E+06 100 910 U 1000 U 960 U 960 U 960 U 1000 U 1000 U   |                                     |       |       |                 | 0                  |              | 5.30E+01                     |             | 700                |             |  |   |   |   |   |   |
| Semivolatile Organic Compounds   1,2,4-Trichlorobenzene   UG/KG   0   0%   0   48   6.22E+04   3400   360 U   400 U   380 U   380 U   380 U   410 U   410 U   1,2-Dichlorobenzene   UG/KG   0   0%   0   48   6.00E+05   7900   360 U   400 U   380 U   380 U   380 U   410 U   410 U   1,3-Dichlorobenzene   UG/KG   0   0%   0   48   5.01E+05   1600   360 U   400 U   380 U   380 U   380 U   410 U   410 U   1,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E+03   8500   360 U   400 U   380 U   380 U   380 U   410 U   410 U   2,4,5-Trichlorophenol   UG/KG   0   0%   0   48   6.11E+06   100   910 U   1000 U   960 U   960 U   1000 U   1000 U  |                                     |       |       |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
| 1,2,4-Trichlorobenzene         UG/KG         0         0%         0         48         6.22E+04         3400         360 U         400 U         380 U         380 U         410 U   |                                     |       |       |                 |                    |              | ,                            |             |                    |             |  |   |   |   |   |   |
| 1,2-Dichlorobenzene         UG/KG         0         0%         0         48         6.00E+05         7900         360 U         400 U         380 U         380 U         410 U         410 U         410 U           1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         360 U         400 U         380 U         380 U         410 U         410 U         410 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         400 U         380 U         380 U         410 U         410 U         410 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+66         100         910 U         1000 U         960 U         960 U         1000 U         1000 U  |                                     |       | 0     | 0%              | 0                  | 48           | 6.22E+04                     |             | 3400               |             | 360 U  | 400 U   | 380 U   | 380 U   | 410 U   | 410 U   |
| I.3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         360 U         400 U         380 U         380 U         410 U         410 U         410 U           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         360 U         400 U         380 U         380 U         410 U         410 U         410 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+06         100         910 U         1000 U         960 U         960 U         1000 U         1000 U  |                                     |       |       |                 | 0                  |              |                              |             |                    |             |  |   |   |   |   |   |
| 1,4-Dichlorobenzene         UG/KG         0         0         48         3.45E+03         8500         360 U         400 U         380 U         380 U         410 U         410 U         410 U           2,4,5-Trichlorophenol         UG/KG         0         0%         0         48         6.11E+06         100         910 U         1000 U         960 U         960 U         1000 U         1000 U   | 1 *                                 |       |       |                 |                    |              | ll .                         |             |                    |             |  |   |   |   |   |   |
| 2.4,5-Trichlorophenol UG/KG 0 0% 0 48 6.11E+06 100 910 U 1000 U 960 U 960 U 1000 U 1000 U  |                                     |       |       |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
|  |                                     |       | -     |                 | -                  |              |                              |             |                    |             |  |   |   |   |   |   |
|  | 2,4,6-Trichlorophenol               | UG/KG | 0     | 0%              | -                  | 48           | 6.11E+03                     |             |                    |             | 360 U  | 400 U   | 380 U   | 380 U   | 410 U   | 410 U   |

|  | Facility<br>Location ID |                   |           |          |            |                      |             |          |             | SEAD-121C<br>SSDRMO-14 | SEAD-121C<br>SSDRMO-15 | SEAD-121C<br>SSDRMO-16 | SEAD-121C<br>SSDRMO-17 | SEAD-121C<br>SSDRMO-18 | SEAD-121C<br>SSDRMO-19 |
|--|-------------------------|-------------------|-----------|----------|------------|----------------------|-------------|----------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|  | Matrix                  |                   |           |          |            |                      |             |          |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   |
|  | Sample ID               |                   |           |          |            |                      |             |          |             | DRMO-1010              | DRMO-1011              | DRMO-1012              | DRMO-1013              | DRMO-1014              | DRMO-1015              |
| Sample Depth to  |                         |                   |           |          |            |                      |             |          |             | 0                      | 0                      | 0                      | 0                      | 0                      | 0                      |
| Sample Depth to Bo                                     |                         |                   |           |          |            |                      |             |          |             | 0.2                    | 0.2                    | 0.2                    | 0.2                    | 0.2                    | 0.2                    |
| Sample Deput to Be                                     | Sample Date             |                   |           |          |            |                      |             |          |             | 10/23/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             |
|  | QC Code                 |                   |           |          |            | Region IX            |             |          |             | SA                     | SA                     | SA                     | SA                     | SA                     | SA                     |
|  | Study ID                |                   | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|  | Study ID                | Maximum           | of        | of Times | of         | Criteria             |             | Criteria |             | TID-KI                 | TID-KI                 | TID-KI                 | TID-RI                 | TID-KI                 | TID-RI                 |
| Parameter  | Units                   | Value             | Detection | Detected | Analyses 1 | Value 2              | Exceedances |          | Exceedances | Value (Q)              | Value (Q)              | Value (Q)              | Value (Q)              | Value (Q)              | Value (Q)              |
| 2,4-Dichlorophenol                                     | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.83E+05             |             | 400      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2,4-Dimethylphenol                                     | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.22E+06             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2,4-Dinitrophenol                                      | UG/KG                   | 0                 | 0%        | 0        | 47         | 1.22E+05             |             | 200      |             | 910 UJ                 | 1000 UJ                | 960 UJ                 | 960 UJ                 | 1000 UJ                | 1000 UJ                |
| 2,4-Dinitrotoluene                                     | UG/KG                   | 45                | 2%        | 1        | 48         | 1.22E+05             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2.6-Dinitrotoluene                                     | UG/KG                   | 0                 | 0%        | 0        | 48         | 6.11E+04             |             | 1000     |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2-Chloronaphthalene                                    | UG/KG                   | 0                 | 0%        | 0        | 48         | 4.94E+06             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2-Chlorophenol   | UG/KG                   | 0                 | 0%        | 0        | 48         | 6.34E+04             |             | 800      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2-Methylnaphthalene                                    | UG/KG                   | 610               | 19%       | 9        | 48         |                      |             | 36400    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2-Methylphenol   | UG/KG                   | 0                 | 0%        | 0        | 48         | 3.06E+06             |             | 100      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 2-Nitroaniline   | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.83E+05             |             | 430      |             | 910 UJ                 | 1000 U                 | 960 U                  | 960 U                  | 1000 U                 | 1000 U                 |
| 2-Nitrophenol  | UG/KG                   | 0                 | 0%        | 0        | 48         |                      |             | 330      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 3 or 4-Methylphenol                                    | UG/KG                   | 0                 | 0%        | 0        | 40         |                      |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 3,3'-Dichlorobenzidine                                 | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.08E+03             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 3-Nitroaniline   | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.83E+04             |             | 500      |             | 910 U                  | 1000 U                 | 960 U                  | 960 U                  | 1000 U                 | 1000 U                 |
| 4,6-Dinitro-2-methylphenol                             | UG/KG                   | 0                 | 0%        | 0        | 48         | 6.11E+03             |             | 200      |             | 910 U                  | 1000 U                 | 960 U                  | 960 UJ                 | 1000 U                 | 1000 U                 |
| 4-Bromophenyl phenyl ether                             | UG/KG                   | 0                 | 0%        | 0        | 48         | 0.112.05             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 4-Chloro-3-methylphenol                                | UG/KG                   | 0                 | 0%        | 0        | 48         |                      |             | 240      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 4-Chloroaniline  | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.44E+05             |             | 220      |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 4-Chlorophenyl phenyl ether                            | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.112.05             |             |          |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| 4-Methylphenol   | UG/KG                   | 0                 | 0%        | 0        | 8          | 3.06E+05             |             | 900      |             | 300 0                  | 400 0                  | 300 0                  | 300 0                  | 410 0                  | 410 0                  |
| 4-Nitroaniline   | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.32E+04             |             | 700      |             | 910 U                  | 1000 U                 | 960 U                  | 960 U                  | 1000 U                 | 1000 U                 |
| 4-Nitrophenol  | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.321.104            |             | 100      |             | 910 U                  | 1000 U                 | 960 U                  | 960 U                  | 1000 U                 | 1000 U                 |
| Acenaphthene   | UG/KG                   | 2600              | 23%       | 11       | 48         | 3.68E+06             |             | 50000    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Acenaphthylene   | UG/KG                   | 2500              | 21%       | 10       | 48         | 3.00E100             |             | 41000    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Anthracene   | UG/KG                   | 7100              | 42%       | 20       | 48         | 2.19E+07             |             | 50000    |             | 86 J                   | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Benzo(a)anthracene                                     | UG/KG                   | 10000             | 55%       | 26       | 47         | 6.21E+02             | 4           | 224      | 14          | 320 J                  | 78 J                   | 380 U                  | 380 U                  | 55 J                   | 410 U                  |
| Benzo(a)pyrene   | UG/KG                   | 8700              | 51%       | 24       | 47         | 6.21E+01             | 21          | 61       | 21          | 360 J                  | 74 J                   | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Benzo(b)fluoranthene                                   | UG/KG                   | 12000             | 64%       | 30       | 47         | 6.21E+02             | 9           | 1100     | 5           | 540                    | 98 J                   | 380 U                  | 380 U                  | 77 J                   | 410 U                  |
| 1 ' '  | UG/KG                   | 3150 <sup>4</sup> | 53%       | 25       | 47         | 0.212.02             |             | 50000    | -           | 120 J                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Benzo(ghi)perylene                                     | UG/KG                   | 7500              | 47%       | 23       | 47         | 6.21E+03             | 1           | 1100     | 4           | 230 J                  | 400 UJ                 | 380 UJ                 | 380 U                  | 410 U<br>410 UJ        | I                      |
| Benzo(k)fluoranthene<br>Bis(2-Chloroethoxy)methane     | UG/KG                   | 0                 | 0%        | 0        | 47         | 0.21E+03             | 1           | 1100     | 4           | 250 J<br>360 UJ        | 400 UJ<br>400 U        | 380 UJ                 | 380 U                  | 410 UJ<br>410 U        | 410 UJ<br>410 U        |
| •                | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.18E+02             |             |          |             | 360 U                  | 400 UJ                 | 380 UJ                 | 380 U                  | 410 U<br>410 UJ        | 410 UJ                 |
| Bis(2-Chloroethyl)ether<br>Bis(2-Chloroisopropyl)ether | UG/KG                   | 0                 | 0%        | 0        | 48         | 2.18E+02<br>2.88E+03 |             |          |             | 360 U                  | 400 U<br>400 U         | 380 U                  | 380 U                  | 410 UJ<br>410 U        | 410 UJ<br>410 U        |
| * ***  | UG/KG                   | 200               | 56%       | 27       | 48         | 3.47E+04             |             | 50000    |             | 98 J                   | 400 U<br>400 U         | 380 U                  | 380 U                  | 410 U<br>410 U         | 410 U                  |
| Bis(2-Ethylhexyl)phthalate                             |                         |                   |           |          |            |                      |             |          |             |                        |                        |                        |                        |                        |                        |
| Butylbenzylphthalate                                   | UG/KG                   | 120               | 13%       | 6        | 48<br>48   | 1.22E+07             |             | 50000    |             | 120 J                  | 400 U                  | 380 U<br>380 U         | 380 U                  | 410 U                  | 410 U                  |
| Carbazole  | UG/KG                   | 4200              | 35%       | 17       |            | 2.43E+04             |             | 400      | 10          | 56 J                   | 400 U                  |                        | 380 U                  | 410 U                  | 410 U                  |
| Chrysene   | UG/KG                   | 9100              | 53%       | 25       | 47         | 6.21E+04             |             | 400      | 10          | 340 J                  | 94 J                   | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Di-n-butylphthalate                                    | UG/KG                   | 132 4             | 10%       | 5        | 48         | 6.11E+06             |             | 8100     |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Di-n-octylphthalate                                    | UG/KG                   | 23 4              | 4%        | 2        | 48         | 2.44E+06             |             | 50000    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Dibenz(a,h)anthracene                                  | UG/KG                   | 470 <sup>4</sup>  | 26%       | 12       | 47         | 6.21E+01             | 7           | 14       | 11          | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Dibenzofuran   | UG/KG                   | 1700              | 21%       | 10       | 48         | 1.45E+05             |             | 6200     |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Diethyl phthalate                                      | UG/KG                   | 21 4              | 13%       | 6        | 48         | 4.89E+07             |             | 7100     |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Dimethylphthalate                                      | UG/KG                   | 0                 | 0%        | 0        | 48         | 1.00E+08             |             | 2000     |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Fluoranthene   | UG/KG                   | 27000             | 73%       | 35       | 48         | 2.29E+06             |             | 50000    |             | 710                    | 170 J                  | 39 J                   | 380 U                  | 110 J                  | 410 U                  |
| - raorantifene   | 00/10                   | 27000             | 1570      | 22       | -10        | 2.271.00             |             | 50000    |             | /10                    | 1703                   | 373                    | 300 0                  | 110 J                  | 410 0                  |

|                           | Facility<br>Location ID |                  |                 |                    |              |                      |             |                    |             | SEAD-121C<br>SSDRMO-14 | SEAD-121C<br>SSDRMO-15 | SEAD-121C<br>SSDRMO-16 | SEAD-121C<br>SSDRMO-17 | SEAD-121C<br>SSDRMO-18 | SEAD-121C<br>SSDRMO-19 |
|---------------------------|-------------------------|------------------|-----------------|--------------------|--------------|----------------------|-------------|--------------------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                           | Matrix                  |                  |                 |                    |              |                      |             |                    |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   |
|                           | Sample ID               |                  |                 |                    |              |                      |             |                    |             | DRMO-1010              | DRMO-1011              | DRMO-1012              | DRMO-1013              | DRMO-1014              | DRMO-1015              |
| Sample Depth to           |                         |                  |                 |                    |              |                      |             |                    |             | 0                      | 0                      | 0                      | 0                      | 0                      | 0                      |
| Sample Depth to Be        |                         | •                |                 |                    |              |                      |             |                    |             | 0.2                    | 0.2                    | 0.2                    | 0.2                    | 0.2                    | 0.2                    |
|                           | Sample Date             |                  |                 |                    |              | D . 117              |             |                    |             | 10/23/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             | 10/30/2002             |
|                           | QC Code                 |                  |                 |                    | N. 1         | Region IX            |             | NEGDEC             |             | SA                     | SA                     | SA                     | SA                     | SA                     | SA                     |
|                           | Study ID                | Maximum          | Frequency<br>of | Number<br>of Times | Number<br>of | PRG<br>Criteria      |             | NYSDEC<br>Criteria |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|                           |                         |                  |                 |                    |              | _                    |             |                    |             |                        |                        |                        |                        |                        |                        |
| Parameter                 | Units                   | Value            | Detection       | Detected           | Analyses     | Value 2              | Exceedances |                    | Exceedances |                        | Value (Q)              |
| Fluorene                  | UG/KG                   | 3500             | 27%             | 13                 | 48           | 2.75E+06             |             | 50000              |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Hexachlorobenzene         | UG/KG                   | 8.5              | 2%              | 1                  | 48           | 3.04E+02             |             | 410                |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Hexachlorobutadiene       | UG/KG                   | 0                | 0%              | 0                  | 48           | 6.24E+03             |             |                    |             | 360 UJ                 | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Hexachlorocyclopentadiene | UG/KG                   |                  | 0%              | -                  | 48           | 3.65E+05             |             |                    |             | 360 U                  | 400 U                  | 380 U                  | 380 UJ                 | 410 U                  | 410 U                  |
| Hexachloroethane          | UG/KG                   | 0                | 0%              | 0                  | 48           | 3.47E+04             |             |                    |             | 360 U                  | 400 U                  | 380 UJ                 | 380 U                  | 410 UJ                 | 410 UJ                 |
| Indeno(1,2,3-cd)pyrene    | UG/KG                   | 970 <sup>4</sup> | 46%             | 22                 | 48           | 6.21E+02             | 3           | 3200               |             | 67 J                   | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Isophorone                | UG/KG                   | 0                | 0%              | 0                  | 48           | 5.12E+05             |             | 4400               |             | 360 UJ                 | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| N-Nitrosodiphenylamine    | UG/KG                   | 4.8              | 2%              | 1                  | 48           | 9.93E+04             |             |                    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| N-Nitrosodipropylamine    | UG/KG                   | 0                | 0%              | 0                  | 48           | 6.95E+01             |             |                    |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Naphthalene               | UG/KG                   | 400              | 19%             | 9                  | 48           | 5.59E+04             |             | 13000              |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Nitrobenzene              | UG/KG                   | 0                | 0%              | 0                  | 48           | 1.96E+04             |             | 200                |             | 360 UJ                 | 400 UJ                 | 380 UJ                 | 380 U                  | 410 UJ                 | 410 UJ                 |
| Pentachlorophenol         | UG/KG                   | 0                | 0%              | 0                  | 48           | 2.98E+03             |             | 1000               |             | 910 U                  | 1000 U                 | 960 U                  | 960 U                  | 1000 U                 | 1000 U                 |
| Phenanthrene              | UG/KG                   | 29000            | 52%             | 25                 | 48           | 4.000 00             |             | 50000              |             | 370                    | 110 J                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Phenol                    | UG/KG                   | 0<br>34000       | 0%              | 0                  | 48<br>48     | 1.83E+07             |             | 30                 |             | 360 U                  | 400 U                  | 380 U                  | 380 U                  | 410 U                  | 410 U                  |
| Pyrene                    | UG/KG                   | 34000            | 67%             | 32                 | 48           | 2.32E+06             |             | 50000              |             | 530                    | 150 J                  | 380 U                  | 380 U                  | 87 J                   | 410 U                  |
| Pesticides/PCBs           | HOWO                    | 44               | 120/            | 5                  | 43           | 2.445.02             |             | 2000               |             | 10.111                 | 0.25 U                 | 0.22.11                | 0.23 U                 | 0.25 11                | 0.25 11                |
| 4,4'-DDD<br>4,4'-DDE      | UG/KG<br>UG/KG          | 44<br>69         | 12%<br>32%      | 5<br>15            | 43<br>47     | 2.44E+03<br>1.72E+03 |             | 2900<br>2100       |             | 1.9 UJ<br>6.6 J        | 0.25 U<br>0.25 UJ      | 0.23 U<br>0.23 UJ      | 0.23 U<br>0.23 UJ      | 0.25 U<br>0.25 UJ      | 0.25 U<br>0.25 UJ      |
| 4,4'-DDE<br>4,4'-DDT      | UG/KG<br>UG/KG          | 100              | 28%             | 13                 | 47           | 1.72E+03<br>1.72E+03 |             | 2100               |             | 6.6 J<br>1.9 UJ        | 0.25 UJ                | 0.23 UJ                | 0.23 UJ                | 0.25 UJ<br>0.25 UJ     | 0.25 UJ<br>0.25 UJ     |
|                           |                         |                  |                 |                    |              |                      |             | ll .               |             | ll .                   |                        |                        |                        |                        | I                      |
| Aldrin                    | UG/KG                   | 14 4             | 6%              | 3                  | 48           | 2.86E+01             |             | 41                 |             | 1.9 U                  | 0.12 U                 | 0.11 U                 | 0.12 U                 | 0.12 U                 | 0.13 U                 |
| Alpha-BHC                 | UG/KG                   | 0                | 0%              | 0                  | 48           | 9.02E+01             |             | 110                |             | 1.9 UJ                 | 1.5 U                  | 1.4 U                  | 1.4 UJ                 | 1.5 UJ                 | 1.5 UJ                 |
| Alpha-Chlordane           | UG/KG                   | 63 4             | 8%              | 4                  | 48           |                      |             |                    |             | 1.9 UJ                 | 0.37 U                 | 0.34 U                 | 0.35 U                 | 0.37 U                 | 0.38 U                 |
| Beta-BHC                  | UG/KG                   | 0                | 0%              | 0                  | 48           | 3.16E+02             |             | 200                |             | 1.9 UJ                 | 0.12 U                 | 0.11 U                 | 0.12 U                 | 0.12 U                 | 0.13 U                 |
| Chlordane                 | UG/KG                   | 0                | 0%              | 0                  | 40           |                      |             |                    |             | 19 U                   | 2.3 U                  | 2.2 U                  | 2.2 U                  | 2.3 U                  | 2.4 U                  |
| Delta-BHC                 | UG/KG                   | 2                | 6%              | 3                  | 48           |                      |             | 300                |             | 1.9 UJ                 | 0.25 UJ                | 0.23 UJ                | 0.23 UJ                | 0.25 UJ                | 0.25 UJ                |
| Dieldrin                  | UG/KG                   | 41 4             | 4%              | 2                  | 48           | 3.04E+01             | 2           | 44                 |             | 1.9 UJ                 | 0.12 UJ                | 0.11 UJ                | 0.12 UJ                | 0.12 UJ                | 0.13 UJ                |
| Endosulfan I              | UG/KG                   | 185 4            | 38%             | 18                 | 48           |                      |             | 900                |             | 13 J                   | 0.62 U                 | 0.57 U                 | 0.59 U                 | 0.61 U                 | 0.63 U                 |
| Endosulfan II             | UG/KG                   | 9                | 2%              | 1                  | 47           |                      |             | 900                |             | 1.9 U                  | 0.37 U                 | 0.34 U                 | 0.35 U                 | 0.37 U                 | 0.38 U                 |
| Endosulfan sulfate        | UG/KG                   | 0                | 0%              | 0                  | 48           |                      |             | 1000               |             | 1.9 U                  | 0.74 U                 | 0.69 U                 | 0.7 UJ                 | 0.74 UJ                | 0.75 UJ                |
| Endrin                    | UG/KG                   | 21.5             | 2%              | 1                  | 47           | 1.83E+04             |             | 100                |             | 1.9 UJ                 | 0.98 UJ                | 0.92 UJ                | 0.94 UJ                | 0.98 UJ                | 1 UJ                   |
| Endrin aldehyde           | UG/KG                   | 0                | 0%              | 0                  | 48           |                      |             |                    |             | 1.9 UJ                 | 0.98 UJ                | 0.92 UJ                | 0.94 UJ                | 0.98 UJ                | 1 UJ                   |
| Endrin ketone             | UG/KG                   | 7.5 4            | 6%              | 3                  | 48           |                      |             |                    |             | 1.9 U                  | 0.12 U                 | 0.11 U                 | 0.12 U                 | 0.12 U                 | 0.13 U                 |
| Gamma-BHC/Lindane         | UG/KG                   | 0                | 0%              | 0                  | 48           | 4.37E+02             |             | 60                 |             | 1.9 U                  | 0.12 U                 | 0.11 U                 | 0.12 UJ                | 0.12 UJ                | 0.13 UJ                |
| Gamma-Chlordane           | UG/KG                   | 1.2              | 2%              | 1                  | 48           |                      |             | 540                |             | 1.9 UJ                 | 0.37 U                 | 0.34 U                 | 0.35 U                 | 0.37 U                 | 0.38 U                 |
| Heptachlor                | UG/KG                   | 14               | 4%              | 2                  | 47           | 1.08E+02             |             | 100                |             | 1.9 U                  | 1.2 U                  | 1.1 U                  | 1.2 UJ                 | 1.2 UJ                 | 1.3 UJ                 |
| Heptachlor epoxide        | UG/KG                   | 2.8              | 4%              | 2                  | 46           | 5.34E+01             |             | 20                 |             | 1.9 UJ                 | 0.37 U                 | 0.34 U                 | 0.35 U                 | 0.37 U                 | 0.38 U                 |
| Methoxychlor              | UG/KG                   | 0                | 0%              | 0                  | 48           | 3.06E+05             |             |                    |             | 1.9 UJ                 | 0.12 U                 | 0.11 U                 | 0.12 U                 | 0.12 U                 | 0.13 U                 |
| Toxaphene                 | UG/KG                   | 0                | 0%              | 0                  | 48           | 4.42E+02             |             |                    |             | 19 U                   | 3.9 U                  | 3.7 U                  | 3.8 U                  | 3.9 U                  | 4 U                    |
| Aroclor-1016              | UG/KG                   | 0                | 0%              | 0                  | 48           | 3.93E+03             |             |                    |             | 19 U                   | 6.4 UJ                 | 6 UJ                   | 6.1 UJ                 | 6.3 UJ                 | 6.5 UJ                 |
| Aroclor-1221              | UG/KG                   | 0                | 0%              | 0                  | 48           |                      |             |                    |             | 19 U                   | 1.6 U                  | 1.5 U                  | 1.5 U                  | 1.6 U                  | 1.6 U                  |
| Aroclor-1232              | UG/KG                   | 0                | 0%              | 0                  | 48           |                      |             |                    |             | 19 U                   | 9.8 UJ                 | 9.3 UJ                 | 9.3 UJ                 | 9.7 UJ                 | 10 UJ                  |
| Aroclor-1242              | UG/KG                   | 58               | 2%              | 1                  | 48           |                      |             |                    |             | 19 U                   | 2.7 U                  | 2.5 U                  | 2.6 UJ                 | 2.7 UJ                 | 2.8 UJ                 |
| Aroclor-1248              | UG/KG                   | 0                | 0%              | 0                  | 48           |                      |             |                    |             | 19 U                   | 6.7 U                  | 6.4 U                  | 6.4 U                  | 6.7 U                  | 6.9 U                  |
| Aroclor-1254              | UG/KG                   | 930              | 19%             | 9                  | 48           | 2.22E+02             | 3           | 10000              |             | 120 J                  | 13 UJ                  | 12 UJ                  | 12 U                   | 13 U                   | 13 U                   |

|                              | Facility    |         |           |          |            |           |             |          |             | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  | SEAD-121C  |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|------------|------------|
|                              | Location ID |         |           |          |            |           |             |          |             | SSDRMO-14  | SSDRMO-15  | SSDRMO-16  | SSDRMO-17  | SSDRMO-18  | SSDRMO-19  |
|                              | Matrix      |         |           |          |            |           |             |          |             | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       | SOIL       |
|                              | Sample ID   |         |           |          |            |           |             |          |             | DRMO-1010  | DRMO-1011  | DRMO-1012  | DRMO-1013  | DRMO-1014  | DRMO-1015  |
| Sample Depth to T            |             |         |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0          | 0          |
| Sample Depth to Botto        |             |         |           |          |            |           |             |          |             | 0.2        | 0.2        | 0.2        | 0.2        | 0.2        | 0.2        |
|                              | Sample Date |         |           |          |            |           |             |          |             | 10/23/2002 | 10/30/2002 | 10/30/2002 | 10/30/2002 | 10/30/2002 | 10/30/2002 |
|                              | QC Code     |         |           |          |            | Region IX |             |          |             | SA         | SA         | SA         | SA         | SA         | SA         |
|                              | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                              | ,           | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |            |            |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | 2        | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Aroclor-1260                 | UG/KG       | 85      | 10%       | 5        | 48         |           |             | 10000    |             | 19 UJ      | 2.4 UJ     | 2.3 UJ     | 2.3 UJ     | 2.4 UJ     | 2.5 UJ     |
| Metals and Cyanide           |             |         |           |          |            |           |             |          |             |            |            |            |            |            |            |
| Aluminum                     | MG/KG       | 17000   | 100%      | 48       | 48         | 7.61E+04  |             | 19300    |             | 7860       | 14300 J    | 14900 J    | 11800 J    | 12300 J    | 10600 J    |
| Antimony                     | MG/KG       | 236     | 81%       | 39       | 48         | 3.13E+01  | 2           | 5.9      | 11          | 16.2       | 28.5 J     | 0.72 J     | 0.32 J     | 15.5 J     | 1.6 J      |
| Arsenic                      | MG/KG       | 11.6    | 100%      | 48       | 48         | 3.90E-01  | 48          | 8.2      | 2           | 9.2        | 4.7 J      | 3.8 J      | 5.3 J      | 4.7 J      | 5.5 J      |
| Barium                       | MG/KG       | 2030    | 100%      | 48       | 48         | 5.37E+03  |             | 300      | 7           | 686 J      | 119 J      | 50.8 J     | 76.6 J     | 76.3 J     | 99.2 J     |
| Beryllium                    | MG/KG       | 1.2     | 100%      | 48       | 48         | 1.54E+02  |             | 1.1      | 1           | 0.37       | 0.83 J     | 0.78 J     | 0.7 J      | 0.73 J     | 0.64 J     |
| Cadmium                      | MG/KG       | 29.1    | 60%       | 29       | 48         | 3.70E+01  |             | 2.3      | 14          | 29.1       | 0.7 J      | 0.56 J     | 0.06 U     | 0.06 U     | 0.06 U     |
| Calcium                      | MG/KG       | 296000  | 100%      | 48       | 48         |           |             | 121000   | 6           | 101000 J   | 4670 J     | 14900 J    | 22800 J    | 7720 J     | 20000 J    |
| Chromium                     | MG/KG       | 74.8    | 100%      | 48       | 48         |           |             | 29.6     | 12          | 46.8 J     | 29.9 J     | 24.8 J     | 18.2 J     | 26.5 J     | 16 J       |
| Cobalt                       | MG/KG       | 17      | 100%      | 35       | 35         | 9.03E+02  |             | 30       |             | 12.4 R     | 11.3 J     | 12.7 J     | 11.9 J     | 12.7 J     | 9.1 J      |
| Copper                       | MG/KG       | 9750    | 100%      | 48       | 48         | 3.13E+03  | 3           | 33       | 35          | 1450 J     | 195 J      | 33.5 J     | 21.2 J     | 64.9 J     | 40.2 J     |
| Cyanide                      | MG/KG       | 0       | 0%        | 0        | 8          | 1.22E+06  |             | 0.35     |             |            |            |            |            |            |            |
| Cyanide, Amenable            | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             | 0.56 U     | 0.62 U     | 0.58 U     | 0.59 U     | 0.62 U     | 0.63 U     |
| Cyanide, Total               | MG/KG       | 0       | 0%        | 0        | 40         |           |             |          |             | 0.556 U    | 0.619 U    | 0.583 U    | 0.589 U    | 0.615 U    | 0.633 U    |
| Iron                         | MG/KG       | 51700   | 100%      | 48       | 48         | 2.35E+04  | 23          | 36500    | 5           | 50000      | 23600 J    | 23300 J    | 19500 J    | 23300 J    | 16900 J    |
| Lead                         | MG/KG       | 18900   | 100%      | 48       | 48         | 4.00E+02  | 7           | 24.8     | 40          | 653        | 250 J      | 31.7 J     | 13.1 J     | 170 J      | 51.1 J     |
| Magnesium                    | MG/KG       | 20700   | 100%      | 48       | 48         |           |             | 21500    |             | 7610       | 4480 J     | 6110 J     | 6940 J     | 5570 J     | 12000 J    |
| Manganese                    | MG/KG       | 858     | 100%      | 48       | 48         | 1.76E+03  |             | 1060     |             | 579        | 474 J      | 503 J      | 537 J      | 415 J      | 250 J      |
| Mercury                      | MG/KG       | 0.47    | 92%       | 44       | 48         | 2.35E+01  |             | 0.1      | 8           | 0.3        | 0.09       | 0.04       | 0.04       | 0.05       | 0.29       |
| Nickel                       | MG/KG       | 224     | 100%      | 48       | 48         | 1.56E+03  |             | 49       | 9           | 54 J       | 32.6 J     | 39.4 J     | 29.6 J     | 39.7 J     | 24.4 J     |
| Potassium                    | MG/KG       | 1990    | 100%      | 48       | 48         |           |             | 2380     |             | 1140 J     | 1470 J     | 1680 J     | 1590 J     | 1660 J     | 1980 J     |
| Selenium                     | MG/KG       | 1.3     | 21%       | 10       | 48         | 3.91E+02  |             | 2        |             | 1.3        | 0.4 U      | 0.38 U     | 0.39 U     | 0.41 U     | 0.41 U     |
| Silver                       | MG/KG       | 21.8    | 38%       | 18       | 48         | 3.91E+02  |             | 0.75     | 13          | 5.5        | 2.2 J      | 0.43 U     | 0.44 U     | 0.46 J     | 0.46 U     |
| Sodium                       | MG/KG       | 478     | 88%       | 42       | 48         |           |             | 172      | 26          | 478        | 162 J      | 88 J       | 94.1       | 58.2       | 63.9       |
| Thallium                     | MG/KG       | 1.1     | 21%       | 10       | 48         | 5.16E+00  |             | 0.7      | 3           | 0.59 J     | 0.7 U      | 0.87 J     | 0.68 U     | 0.72 U     | 0.73 U     |
| Vanadium                     | MG/KG       | 25.4    | 100%      | 48       | 48         | 7.82E+01  |             | 150      |             | 14.7 J     | 21.4 J     | 19.1 J     | 16.7 J     | 18.5 J     | 15.2 J     |
| Zinc                         | MG/KG       | 3610    | 100%      | 48       | 48         | 2.35E+04  |             | 110      | 28          | 2910 J     | 1120 J     | 213 J      | 57.8 J     | 124 J      | 103 J      |
| Other                        |             |         |           |          |            |           |             |          |             |            |            |            |            |            |            |
| Total Organic Carbon         | MG/KG       | 9000    | 100%      | 40       | 40         |           |             |          |             | 6400       | 5600       | 4200       | 7200       | 8700       | 5800       |
| Total Petroleum Hydrocarbons | MG/KG       | 7600    | 25%       | 10       | 40         |           |             |          |             | 370        | 50 UJ      | 47 UJ      | 47 UJ      | 49 UJ      | 51 UJ      |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

| Part   | Sample Depth to<br>Sample Depth to Bot | ttom of Sample<br>Sample Date<br>QC Code |       | _         |          |          | Region IX  |             | N. C. C. C. C. C. C. C. C. C. C. C. C. C. |             | SEAD-121C<br>SSDRMO-20<br>SOIL<br>DRMO-1016<br>0<br>0.2<br>10/24/2002<br>SA | SEAD-121C<br>SSDRMO-21<br>SOIL<br>DRMO-1017<br>0<br>0.2<br>10/24/2002<br>SA | SEAD-121C<br>SSDRMO-22<br>SOIL<br>DRMO-1018<br>0<br>0.2<br>10/24/2002<br>SA | SEAD-121C<br>SSDRMO-23<br>SOIL<br>DRMO-1019<br>0<br>0.2<br>10/30/2002<br>SA | SEAD-121C<br>SSDRMO-24<br>SOIL<br>DRMO-1020<br>0<br>0.2<br>10/23/2002<br>SA | SEAD-121C<br>SSDRMO-5<br>SOIL<br>DRMO-1000<br>0<br>0.2<br>10/23/2002<br>SA |
|--|--|--|-------|-----------|----------|----------|------------|-------------|---|-------------|---|---|---|---|---|--|
| Particular   Value     |  | Study ID                                 | M     | Frequency | Number   | Number   | PRG        |             |   |             | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI   |
| Value   Valu   |  | ** *.                                    |       |           |          |          | _          |             |   |             | ***   |   | ***   | ***   | ***   | ***  |
| L1-17-inshorechame   |  | Units                                    | value | Detection | Detected | Analyses | vaiue      | Exceedances | v aiue                                    | Exceedances | value (Q)   | value (Q)   | value (Q)   | Value (Q)   | value (Q)   | Value (Q)  |
| 1,12-Pichlorochame   UGKG   0   0%   0   48   4.086-02   28 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1,1-Pichlorochame   UGKG   0   0%   0   48   5.066-05   200   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1,1-Pichlorochame   UGKG   0   0%   0   48   1.246-05   400   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1,1-Pichlorochame   UGKG   0   0%   0   48   1.246-05   400   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1,1-Pichlorochame   UGKG   0   0%   0   48   1.246-05   400   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   2.0 U   3.U    |  | UG/KG                                    | 0     | 094       | 0        | 18       | 1.20E±06   |             | 800                                       |             | 28 111  | 3 1 111   | 28 111  | 3 111   | 27 111  | 3 1 111  |
| 1,1-7; indifferentance   |  |  |       |           |          |          |            |             |   |             |   |   |   |   |   |  |
| L1-Dehlorochane  |  |  |       |           | -        |          |            |             | 000                                       |             |   |   |   |   |   |  |
| 1.1-Dehlorochene   UGKG   0  |  |  | -     |           |          |          |            |             | 200                                       |             |   |   |   |   |   |  |
| 1,2-Dehlorochame (104)   UGKG   0   0%   0   48   278E+02   100   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1,2-Dehlorochame (104)   UGKG   0   0%   0   48   3.42E+02   0   2.8 U   3.1 U   2.8 U   3.U   2.7 U   3.1 U   1.0 U   3.0 U   |  |  |       |           |          |          |            |             |   |             |   |   |   |   |   |  |
|  |  |  |       |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| L2-Delchorropropure  |  |  | -     |           |          |          | 2.78E+02   |             | 100                                       |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Access   |  |  |       |           | -        | -        |            |             |   |             | 2077  | 2 4 777   | 20 ***  | 2 ***   | 2 7 7 7 7   |  |
| Bername  |  |  | -     |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| Bomodichromethane   UGKG   0   0   48   8.484=02   28.U   3.1.U   28.U   3.U   27.U   3.U     | II.                                    |  |       |           |          |          |            |             |   |             |   |   |   |   |   |  |
| Bomofrom   | II.                                    |  |       |           |          |          | ll .       |             | 60  |             |   |   |   |   |   |  |
| Carbon testufide   |  |  |       |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| Carbon tetrachloride   UG/KG   O   O%   O   48   2.51E-IO2   600   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   1.11E-IO3   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   1.11E-IO3   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   1.11E-IO3   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   2.21E-IO2   300   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   2.21E-IO2   300   2.8 U   3.1 U   2.8 U   3 U   2.7 U   3.1 U   Chlorodibromorethane   UG/KG   O   O%   O   48   2.21E-IO2   O   O   Chlorodibromorethane   UG/KG   O   O%   O   48   2.21E-IO2   O   O   Chlorodibromorethane   UG/KG   O   O%   O   48   2.21E-IO2   O   O   Chlorodibromorethane   UG/KG   O   O%   O   48   O   O   Chlorodibromorethane   UG/KG   O   O%   O   48   O   O   O   O   O   O   O   O   O   | Bromoform                              |  |       |           |          |          |            |             |   |             |   |   |   |   |   |  |
| Chloroberzone   UG/KG   0   0%   0   48   1.51E-05   1700   2.8 UJ   3.1 UJ   2.8 UJ   3.1 UJ   2.7 UJ   3.1 UJ   2.6 UJ   3.1 UJ   2.8    | Carbon disulfide                       | UG/KG                                    |       |           | 2        |          | 3.55E+05   |             |   |             | 2.8 UJ  |   |   |   |   | 3.1 UJ   |
| Chloredibromomethane   UG/KG   O   O%   O%   O   48   A   IIIE-04   O   O%   O   A8   O   O   O%   O   A8   O   O   O%   O   O   A8   O   O   O%   O   A8   O   O   O%   O   A8   O   O   O   O   O   O   O   O   O  | Carbon tetrachloride                   | UG/KG                                    | 0     | 0%        | 0        | 48       | 2.51E+02   |             | 600                                       |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Chlorochame  | Chlorobenzene                          | UG/KG                                    |       | 0%        | 0        |          | 1.51E+05   |             | 1700                                      |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  |   | 3.1 UJ   |
| Chloroform UG/KG 4.8 4 4% 2 48 2.21E+02 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Cis-1,2-Dichloroethene UG/KG 0 0% 0 40 4.29E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Eithyl benzene UG/KG 3300 4% 2 48 3.9SE+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl benzene UG/KG 0 0% 0 48 3.9SE+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl bromide UG/KG 0 0% 0 48 3.9SE+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl bromide UG/KG 0 0 0% 0 48 3.9SE+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl ktenne UG/KG 0 0 0% 0 48 3.9SE+04 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl ktenne UG/KG 0 0 0% 0 48 4.69E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl ktenne UG/KG 0 0 0% 0 48 4.69E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl ktenne UG/KG 0 0 0% 0 48 5.2SE+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methyl ktenne UG/KG 0 0 0% 0 48 5.2SE+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methylkene kloride UG/KG 0 0 0% 0 48 5.2SE+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Methylkene kloride UG/KG 0 0 0% 0 48 5.2SE+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Styrene UG/KG 0 0 0% 0 48 5.2SE+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Styrene UG/KG 0 0 0% 0 48 4.84E+02 1400 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Toluene UG/KG 0 0 0% 0 8 5.27IE+05 1200 Trans-1,2-Dichloroethene UG/KG 0 0 0% 0 8 5.27IE+05 1200 Trans-1,2-Dichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 2.8 UJ 3.1 UJ 2.8 UJ 3.UJ 2.7 UJ 3.1 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.2DE+04 300 380 U 430 U 390 U 400 U 360 UJ 360 UJ Trichloroethene UG/KG 0 0 0% 0 48 5.3SE+04 300 380 U 430 U 390 U 400 U 360 UJ 360 UJ Semivolatile Organic Compounds Li_2-Hinklorobenzene UG/KG 0 0 | Chlorodibromomethane                   | UG/KG                                    | 0     | 0%        | 0        | 48       | 1.11E+03   |             |   |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Cis-1,2-Dichloropropene   UG/KG   0   0%   0   440   4,29E+04   2,8 U   3.1 U   2.8 U   3.1 U   2.7 U   3.1 U  | Chloroethane                           | UG/KG                                    | 0     | 0%        | 0        | 48       | 3.03E+03   |             | 1900                                      |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Cis-1,2-Dichloropropene   UG/KG   0   0%   0   440   4,29E+04   2,8 U   3.1 U   2.8 U   3.1 U   2.7 U   3.1 U  | Chloroform                             | UG/KG                                    | 484   | 4%        | 2        | 48       | 2.21E±02   |             | 300                                       |             | 28 111  | 3.1 III   | 28 111  | 3 111   | 2.7 []]   | 3.1 III  |
| Cis. 1-Dichloropropee UGKG 0 0 % 0 48 Ethylbenzene UGKG 3300 4% 2 48 3.95E+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylbromide UGKG 3400 4% 2 48 3.95E+05 5500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylbromide UGKG 0 0 % 0 48 3.90E+03 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylbromide UGKG 0 0 % 0 48 4.469E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylbromide UGKG 0 0 % 0 48 4.225E+07 300 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylsobutyl ketone UGKG 0 0 % 0 48 5.25E+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ Methylsobutyl ketone UGKG 2.6 2% 1 48 5.25E+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.46E+02 100 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.46E+02 100 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.46E+02 1400 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.86E+02 1400 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.86E+02 1400 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 8 2.7 IE-06 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 4.86E+02 1400 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 8 2.7 IE-05 1200 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 8 2.7 IE-05 1200 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ 3.1 UJ 0.0 Cho Xylene UGKG 0 0 % 0 48 5.20E+05 1500 2.8 UJ 3.1 UJ 2.8 UJ 3.U 2.7 UJ |  |  |       |           |          |          |            |             | 500                                       |             |   |   |   |   |   |  |
| Ethyl benzene  | • • • • • • • • • • • • • • • • • • •  |  |       |           |          |          | 4.276104   |             |   |             |   |   |   |   |   |  |
| MefuPara Xylene   UG/KG   4400   8%   3   40   3.90E+03   2.8 UJ   3.1 UJ   2.8 UJ   |  |  |       |           | -        |          | 3.05E±05   |             | 5500                                      |             |   |   |   |   |   |  |
| Methyl bromide   UG/KG   0   0%   0   48   3.90E+03     2.8 UJ   3.1 UJ   2.8 UJ     |  |  |       |           |          |          | 3.93L+03   |             | 3300                                      |             |   |   |   |   |   |  |
| Methyl butyl ketone UG/KG 0 0% 0 48 4.69E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.1 UJ 2.7 UJ 3.1 UJ Methyl chloride UG/KG 0 0% 0 48 4.69E+04 2.8 UJ 3.1 UJ 2.8 UJ 3.1 UJ 2.8 UJ 3.1 UJ 2.7 UJ 3.1 UJ Methyl ketone UG/KG 0 0% 0 48 2.23E+07 300 2.8 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ Methyl ketone UG/KG 0 0% 0 48 5.28E+06 1000 2.8 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 0.7 UJ 0 |  |  |       |           |          |          | 2.00E - 02 |             |   |             |   |   |   |   |   |  |
| Methyl chloride         UG/KG         0         0%         0         48         4.69E+04         2.8 UJ         3.1 UJ   | 1 -                                    |  |       |           | -        |          | 3.90E+03   |             |   |             |   |   |   |   |   |  |
| Methyl ethyl ketone         UG/KG         0         0%         0         48         2.23E+07         300         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Methyl sobutyl ketone         UG/KG         0         0%         0         48         5.28E+06         1000         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Methyl ethyl ketone         UG/KG         2.6         2%         1         48         5.28E+06         1000         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Ortho Xylene         UG/KG         16         3%         1         40         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Styrene         UG/KG         0         0%         0         48         1.70E+06         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Tetrachloroethene         UG/KG         0         0%         0         48         5.20E+05         1500         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Trans-1,2-Dichloroethene <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>4 405 04</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>  |  |  |       |           | -        |          | 4 405 04   |             |   |             |   |   |   |   |   |  |
| Methyl isobutyl ketone   UG/KG   0   0%   0   48   5.28E+06   1000   2.8 UJ   3.1 UJ   2.8 UJ   3 UJ   2.7 UJ   3.1 UJ   Methylene chloride   UG/KG   2.6   2%   1   48   9.11E+03   100   2.8 UJ   2.6 J   2.8 UJ   5 UJ   2.7 UJ   3.1 UJ   5.0 UJ   2.7 UJ   3.1 UJ   5.0 UJ   |  |  | -     |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| Methylene chloride   |  |  |       |           | Ü        |          |            |             |   |             |   |   |   |   |   |  |
| Ortho Xylene         UG/KG         16         3%         1         40           Styrene         UG/KG         0         0%         0         48         1.70E+06         2.8 UJ         3.1 UJ         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Styrene         UG/KG         0         0%         0         48         4.84E+02         1400         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Total Cylene         UG/KG         28         19%         9         48         5.20E+05         1500         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Trans-1,2-Dichloroethene         UG/KG         0         0%         0         8         2.71E+05         1200         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Trans-1,3-Dichloropethene         UG/KG         0         0%         0         48         5.30E+04         300         2.8 UJ         3.1 UJ         2.8 UJ         3 UJ         2.7 UJ         3.1 UJ           Trans-1,3-Dichloropetropene         UG/KG         0         0%         0         48 <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>  |  |  |       |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| Styrene  | 1 -                                    |  |       |           | 1        |          | 9.11E+03   |             | 100                                       |             |   |   |   |   |   |  |
| Tetrachloroethene  |  |  |       |           | 1        |          |            |             |   |             |   |   |   |   |   |  |
| Toluene  |  |  |       |           | 0        |          |            |             |   |             |   |   |   |   |   |  |
| Total Xylenes  | Tetrachloroethene                      | UG/KG                                    | 0     | 0%        | 0        | 48       | 4.84E+02   |             | 1400                                      |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Trans-1,2-Dichloroethene   UG/KG   0   0%   0   40   6.95E+04   300   2.8 UJ   3.1 UJ   2.8 UJ   3 UJ   2.7 UJ   3.1 UJ    | Toluene                                | UG/KG                                    | 28    | 19%       | 9        | 48       | 5.20E+05   |             | 1500                                      |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Trans-1,3-Dichloropropene  | Total Xylenes                          | UG/KG                                    | 0     | 0%        | 0        | 8        | 2.71E+05   |             | 1200                                      |             |   |   |   |   |   |  |
| Trichloroethene UG/KG 0 0% 0 48 5.30E+01 700 2.8 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ Vinyl chloride UG/KG 0 0% 0 48 7.91E+01 200 2.8 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 2.8 UJ 3 UJ 2.7 UJ 3.1 UJ 2.8 UJ 3 UJ 3 UJ 3 UJ 3 UJ 3 UJ 3 UJ 3 UJ   | Trans-1,2-Dichloroethene               | UG/KG                                    | 0     | 0%        | 0        | 40       | 6.95E+04   |             | 300                                       |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Vinyl chloride   | Trans-1,3-Dichloropropene              | UG/KG                                    | 0     | 0%        | 0        | 48       |            |             |   |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Semivolatile Organic Compounds   1,2,4-Trichlorobenzene   UG/KG   0   0%   0   48   6.2E±04   3400   380 U   430 U   390 U   400 U   360 U   360 U   1,2-Dichlorobenzene   UG/KG   0   0%   0   48   6.0E±05   7900   380 U   430 U   390 U   400 U   360 U   360 U   360 U   1,3-Dichlorobenzene   UG/KG   0   0%   0   48   5.31E±05   1600   380 U   430 U   390 U   400 U   360 U   360 U   1,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E±03   8500   380 U   430 U   390 U   400 U   360 U   360 U   360 U   1,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E±03   8500   380 U   430 U   390 U   400 U   360 U   360 U   360 U   1,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E±03   8500   380 U   430 U   390 U   400 U   360 U    | Trichloroethene                        | UG/KG                                    | 0     | 0%        | 0        | 48       | 5.30E+01   |             | 700                                       |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| Semivolatile Organic Compounds   1,2,4-Trichlorobenzene   UG/KG   0   0%   0   48   6.22E+04   3400   380 U   430 U   390 U   400 U   360 U   360 U   1,2-Dichlorobenzene   UG/KG   0   0%   0   48   6.00E+05   7900   380 U   430 U   390 U   400 U   360 U   360 U   360 U   1,3-Dichlorobenzene   UG/KG   0   0%   0   48   5.31E+05   1600   380 U   430 U   390 U   400 U   360 U   360 U   1,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E+03   8500   380 U   430 U   390 U   400 U   360 U   360 U   360 U   360 U   4,4-Dichlorobenzene   UG/KG   0   0%   0   48   3.45E+03   8500   380 U   430 U   390 U   400 U   360 U    | Vinyl chloride                         | UG/KG                                    | 0     | 0%        | 0        | 48       | 7.91E+01   |             | 200                                       |             | 2.8 UJ  | 3.1 UJ  | 2.8 UJ  | 3 UJ  | 2.7 UJ  | 3.1 UJ   |
| 1,2,4-Trichlorobenzene         UG/KG         0         0%         0         48         6.22E+04         3400         380 U         430 U         390 U         400 U         360 UJ         360 UJ         360 U           1,2-Dichlorobenzene         UG/KG         0         0%         0         48         6.00E+05         7900         380 U         430 U         390 U         400 U         360 UJ         360 UJ         360 U         1,3-Dichlorobenzene         1,4-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         380 U         430 U         390 U         400 U         360 UJ         360 UJ         1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         380 U         430 U         390 U         400 U         360 UJ   |  |  |       |           |          |          |            |             |   |             |   |   |   |   |   |  |
| 1,2-Dichlorobenzene         UG/KG         0         0%         0         48         6.00E+05         7900         380 U         430 U         390 U         400 U         360 UJ         360 UJ         360 UJ           1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         380 U         430 U         390 U         400 U         360 UJ         360 UJ         360 UJ           1,4-Dichlorobenzene         UG/KG         0         0%         0         48         3.45E+03         8500         380 U         430 U         390 U         400 U         360 UJ         360 UJ         360 UJ   |  |  | 0     | 0%        | 0        | 48       | 6.22E+04   |             | 3400                                      |             | 380 U   | 430 U   | 390 U   | 400 U   | 360 UJ  | 360 U  |
| 1,3-Dichlorobenzene         UG/KG         0         0%         0         48         5.31E+05         1600         380 U         430 U         390 U         400 U         360 UJ   |  |  | -     |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| I,4-Dichlorobenzene UG/KG 0 0% 0 48 3.45E+03 8500 380 U 430 U 390 U 400 U 360 UJ 360 UJ 360 U  |  |  |       |           |          |          | ll .       |             |   |             |   |   |   |   |   |  |
|  |  |  |       |           | -        |          |            |             |   |             |   |   |   |   |   |  |
| 12,4,5-Tricinoropinano 00/KG 0 0/0 0 46   0.11E+00   100   540 0 1100 0 560 0 1000 0 900 03 910 0  | 1 ·                                    |  |       |           | -        |          | ll .       |             |   |             |   |   |   |   |   | I  |
| 2.4.6-Trichlorophenol UG/KG 0 0% 0 48 6.11E+03 380 U 430 U 390 U 400 U 360 UJ 360 UJ   |  |  | -     |           |          |          |            |             | 100                                       |             |   |   |   |   |   |  |

|                               | Facility       |                   |           |          |            |                      |             |          |             | SEAD-121C      | SEAD-121C      | SEAD-121C      | SEAD-121C      | SEAD-121C        | SEAD-121C      |
|-------------------------------|----------------|-------------------|-----------|----------|------------|----------------------|-------------|----------|-------------|----------------|----------------|----------------|----------------|------------------|----------------|
|                               | Location ID    |                   |           |          |            |                      |             |          |             | SSDRMO-20      | SSDRMO-21      | SSDRMO-22      | SSDRMO-23      | SSDRMO-24        | SSDRMO-5       |
|                               | Matrix         |                   |           |          |            |                      |             |          |             | SOIL           | SOIL           | SOIL           | SOIL           | SOIL             | SOIL           |
|                               | Sample ID      |                   |           |          |            |                      |             |          |             | DRMO-1016      | DRMO-1017      | DRMO-1018      | DRMO-1019      | DRMO-1020        | DRMO-1000      |
| Sample Depth to               |                |                   |           |          |            |                      |             |          |             | 0              | 0              | 0              | 0              | 0                | 0              |
| Sample Depth to Bo            |                |                   |           |          |            |                      |             |          |             | 0.2            | 0.2            | 0.2            | 0.2            | 0.2              | 0.2            |
|                               | Sample Date    |                   |           |          |            |                      |             |          |             | 10/24/2002     | 10/24/2002     | 10/24/2002     | 10/30/2002     | 10/23/2002       | 10/23/2002     |
|                               | QC Code        |                   |           |          |            | Region IX            |             |          |             | SA             | SA             | SA             | SA             | SA               | SA             |
|                               | Study ID       |                   | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI         | PID-RI         | PID-RI         | PID-RI         | PID-RI           | PID-RI         |
|                               | •              | Maximum           | of        | of Times | of         | Criteria             |             | Criteria |             |                |                |                |                |                  |                |
| Parameter                     | Units          | Value             | Detection | Detected | Analyses 1 | Value 2              | Exceedances |          | Exceedances |                | Value (Q)      | Value (Q)      | Value (Q)      | Value (Q)        | Value (Q)      |
| 2,4-Dichlorophenol            | UG/KG          | 0                 | 0%        | 0        | 48         | 1.83E+05             |             | 400      |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2,4-Dimethylphenol            | UG/KG          | 0                 | 0%        | 0        | 48         | 1.22E+06             |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2,4-Dinitrophenol             | UG/KG          | 0                 | 0%        | 0        | 47         | 1.22E+05             |             | 200      |             | 940 UJ         | 1100 U         | 980 U          | 1000 UJ        | 900 UJ           | 910 UJ         |
| 2,4-Dinitrotoluene            | UG/KG          | 45                | 2%        | 1        | 48         | 1.22E+05             |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2,6-Dinitrotoluene            | UG/KG          | 0                 | 0%        | 0        | 48         | 6.11E+04             |             | 1000     |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2-Chloronaphthalene           | UG/KG          | 0                 | 0%        | 0        | 48         | 4.94E+06             |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2-Chlorophenol                | UG/KG          | 0                 | 0%        | 0        | 48         | 6.34E+04             |             | 800      |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2-Methylnaphthalene           | UG/KG          | 610               | 19%       | 9        | 48         |                      |             | 36400    |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2-Methylphenol                | UG/KG          | 0                 | 0%        | 0        | 48         | 3.06E+06             |             | 100      |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 2-Nitroaniline                | UG/KG          | 0                 | 0%        | 0        | 48         | 1.83E+05             |             | 430      |             | 940 U          | 1100 U         | 980 U          | 1000 U         | 900 UJ           | 910 U          |
| 2-Nitrophenol                 | UG/KG          | 0                 | 0%        | 0        | 48         |                      |             | 330      |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 3 or 4-Methylphenol           | UG/KG          | 0                 | 0%        | 0        | 40         | 4 000 00             |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 3,3'-Dichlorobenzidine        | UG/KG          | -                 | 0%        | 0        | 48         | 1.08E+03             |             | #00      |             | 380 U          | 430 U          | 390 UJ         | 400 U          | 360 UJ           | 360 UJ         |
| 3-Nitroaniline                | UG/KG          | 0                 | 0%        | 0        | 48         | 1.83E+04             |             | 500      |             | 940 UJ         | 1100 U         | 980 U          | 1000 U         | 900 UJ           | 910 UJ         |
| 4,6-Dinitro-2-methylphenol    | UG/KG          | 0                 | 0%        | 0        | 48         | 6.11E+03             |             |          |             | 940 U          | 1100 U         | 980 U          | 1000 U         | 900 UJ           | 910 U          |
| 4-Bromophenyl phenyl ether    | UG/KG<br>UG/KG | 0                 | 0%<br>0%  | 0        | 48<br>48   |                      |             | 240      |             | 380 U<br>380 U | 430 U<br>430 U | 390 U<br>390 U | 400 U<br>400 U | 360 UJ<br>360 UJ | 360 U<br>360 U |
| 4-Chloro-3-methylphenol       |                | 0                 | 0%        | 0        | 48<br>48   | 2.44E+05             |             | 240      |             | 380 U<br>380 U | 430 U<br>430 U | 390 U          | 400 U<br>400 U | 360 UJ           | 360 U          |
| 4-Chloroaniline               | UG/KG<br>UG/KG | 0                 | 0%        | 0        | 48         | 2.44E+03             |             | 220      |             | 380 U          | 430 U<br>430 U | 390 U          | 400 U<br>400 U | 360 UJ           |                |
| 4-Chlorophenyl phenyl ether   | UG/KG<br>UG/KG | 0                 | 0%        | 0        | 48<br>8    | 3.06E+05             |             | 900      |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| 4-Methylphenol 4-Nitroaniline | UG/KG          | 0                 | 0%        | 0        | 8<br>48    | 2.32E+04             |             | 900      |             | 940 U          | 1100 U         | 980 U          | 1000 U         | 900 UJ           | 910 U          |
| 4-Nitrophenol                 | UG/KG          | 0                 | 0%        | 0        | 48         | 2.32E+04             |             | 100      |             | 940 U          | 1100 U         | 980 U          | 1000 U         | 900 UJ           | 910 U          |
| Acenaphthene                  | UG/KG          | 2600              | 23%       | 11       | 48         | 3.68E+06             |             | 50000    |             | 85 J           | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Acenaphthylene                | UG/KG          | 2500              | 21%       | 10       | 48         | 3.08E+00             |             | 41000    |             | 180 J          | 430 U          | 230 J          | 400 U          | 360 UJ           | 78 J           |
| Anthracene                    | UG/KG          | 7100              | 42%       | 20       | 48         | 2.19E+07             |             | 50000    |             | 250 J          | 430 U          | 230 J          | 400 U          | 110 J            | 51 J           |
| Benzo(a)anthracene            | UG/KG          | 10000             | 55%       | 26       | 47         | 6.21E+02             | 4           | 224      | 14          | 950            | 430 U          | 610 J          | 400 U          | 380 J            | 320 J          |
| Benzo(a)pyrene                | UG/KG          | 8700              | 51%       | 24       | 47         | 6.21E+01             | 21          | 61       | 21          | 1400 J         | 430 U          | 910 J          | 400 U          | 420 J            | 510 J          |
| Benzo(b)fluoranthene          | UG/KG          | 12000             | 64%       | 30       | 47         | 6.21E+02             | 9           | 1100     | 5           | 1800 J         | 430 U          | 1100 J         | 400 U          | 480 J            | 730 J          |
| Benzo(ghi)perylene            | UG/KG          | 3150 <sup>4</sup> | 53%       | 25       | 47         | 0.212.02             |             | 50000    |             | 620 J          | 430 U          | 660 J          | 400 U          | 130 J            | 270 J          |
| Benzo(k)fluoranthene          | UG/KG          | 7500              | 47%       | 22       | 47         | 6.21E+03             | 1           | 1100     | 4           | 1100 J         | 430 UJ         | 500 J          | 400 UJ         | 360 J            | 340 J          |
| Bis(2-Chloroethoxy)methane    | UG/KG          | 0                 | 0%        | 0        | 48         | 0.21E+03             | 1           | 1100     | 4           | 380 UJ         | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 UJ         |
| Bis(2-Chloroethyl)ether       | UG/KG          | 0                 | 0%        | 0        | 48         | 2.18E+02             |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Bis(2-Chloroisopropyl)ether   | UG/KG          | 0                 | 0%        | 0        | 48         | 2.18E+02<br>2.88E+03 |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Bis(2-Ethylhexyl)phthalate    | UG/KG          | 200               | 56%       | 27       | 48         | 3.47E+04             |             | 50000    |             | 56 J           | 430 U          | 68 J           | 400 U          | 81 J             | 360 UJ         |
| Butylbenzylphthalate          | UG/KG          | 120               | 13%       | 6        | 48         | 1.22E+07             |             | 50000    |             | 380 U          | 430 UJ         | 390 UJ         | 400 U          | 360 UJ           | 360 UJ         |
| Carbazole                     | UG/KG          | 4200              | 35%       | 17       | 48         | 2.43E+04             |             | 30000    |             | 140 J          | 430 U          | 76 J           | 400 U          | 44 J             | 360 U          |
| Chrysene                      | UG/KG          | 9100              | 53%       | 25       | 47         | 6.21E+04             |             | 400      | 10          | 1000           | 430 U          | 620 J          | 400 U          | 360 J            | 360 J          |
| 1 '                           | UG/KG          | 132 4             | 10%       | 5        | 48         | 6.11E+06             |             | 8100     | 10          |                |                |                |                |                  | <b>I</b>       |
| Di-n-butylphthalate           |                |                   |           |          |            |                      |             |          |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Di-n-octylphthalate           | UG/KG          | 23 4              | 4%        | 2        | 48         | 2.44E+06             |             | 50000    |             | 380 U          | 430 U          | 390 UJ         | 400 U          | 360 UJ           | 360 UJ         |
| Dibenz(a,h)anthracene         | UG/KG          | 470 4             | 26%       | 12       | 47         | 6.21E+01             | 7           | 14       | 11          | 59 J           | 430 U          | 390 UJ         | 400 U          | 360 UJ           | 58 J           |
| Dibenzofuran                  | UG/KG          | 1700              | 21%       | 10       | 48         | 1.45E+05             |             | 6200     |             | 39 J           | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Diethyl phthalate             | UG/KG          | 21 4              | 13%       | 6        | 48         | 4.89E+07             |             | 7100     |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Dimethylphthalate             | UG/KG          | 0                 | 0%        | 0        | 48         | 1.00E+08             |             | 2000     |             | 380 U          | 430 U          | 390 U          | 400 U          | 360 UJ           | 360 U          |
| Fluoranthene                  | UG/KG          | 27000             | 73%       | 35       | 48         | 2.29E+06             |             | 50000    |             | 1900           | 58 J           | 890            | 54 J           | 870 J            | 590            |

|   | Facility<br>Location ID        |                  |                 |                    |          |                      |             |          |             | SEAD-121C<br>SSDRMO-20 | SEAD-121C<br>SSDRMO-21 | SEAD-121C<br>SSDRMO-22 | SEAD-121C<br>SSDRMO-23 | SEAD-121C<br>SSDRMO-24 | SEAD-121C<br>SSDRMO-5 |
|---|--------------------------------|------------------|-----------------|--------------------|----------|----------------------|-------------|----------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
|   | Matrix                         |                  |                 |                    |          |                      |             |          |             | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                   | SOIL                  |
| 6 15 1.                                       | Sample ID                      |                  |                 |                    |          |                      |             |          |             | DRMO-1016              | DRMO-1017              | DRMO-1018              | DRMO-1019              | DRMO-1020              | DRMO-1000             |
| Sample Depth to                               |                                |                  |                 |                    |          |                      |             |          |             | 0                      | 0                      | 0                      | 0                      | 0                      | 0                     |
| Sample Depth to Be                            | ottom of Sample<br>Sample Date |                  |                 |                    |          |                      |             |          |             | 0.2<br>10/24/2002      | 0.2<br>10/24/2002      | 0.2<br>10/24/2002      | 0.2<br>10/30/2002      | 0.2<br>10/23/2002      | 0.2<br>10/23/2002     |
|   | OC Code                        |                  |                 |                    |          | Region IX            |             |          |             | 10/24/2002<br>SA       | 10/24/2002<br>SA       | 10/24/2002<br>SA       | 10/30/2002<br>SA       | 10/23/2002<br>SA       | 10/23/2002<br>SA      |
|   |                                |                  | F               | N                  | Number   | PRG                  |             | NYSDEC   | ,           | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                |
|   | Study ID                       | Maximum          | Frequency<br>of | Number<br>of Times | of       | Criteria             |             | Criteria |             | PID-KI                 | PID-KI                 | PID-KI                 | PID-RI                 | PID-KI                 | PID-KI                |
| _   |                                |                  |                 |                    |          | _                    |             |          |             |                        |                        |                        |                        |                        |                       |
| Parameter                                     | Units                          | Value            | Detection       | Detected           | Analyses | Value <sup>2</sup>   | Exceedances |          | Exceedances |                        | Value (Q)<br>430 U     | Value (Q)              | Value (Q)<br>400 U     | Value (Q)              | Value (Q)             |
| Fluorene                                      | UG/KG                          | 3500             | 27%             | 13                 | 48       | 2.75E+06             |             | 50000    |             | 110 J                  |                        | 87 J                   |                        | 360 UJ                 | 360 U                 |
| Hexachlorobenzene                             | UG/KG                          | 8.5              | 2%              | 1                  | 48       | 3.04E+02             |             | 410      |             | 380 U                  | 430 U                  | 390 U                  | 400 U                  | 360 UJ                 | 360 U                 |
| Hexachlorobutadiene                           | UG/KG<br>UG/KG                 | 0                | 0%<br>0%        | 0                  | 48<br>48 | 6.24E+03<br>3.65E+05 |             |          |             | 380 UJ<br>380 U        | 430 UJ<br>430 U        | 390 UJ<br>390 U        | 400 U<br>400 U         | 360 UJ<br>360 UJ       | 360 UJ<br>360 U       |
| Hexachlorocyclopentadiene<br>Hexachloroethane | UG/KG<br>UG/KG                 | 0                | 0%              | 0                  | 48       | 3.47E+04             |             |          |             | 380 U                  | 430 U                  | 390 U                  | 400 U<br>400 UJ        | 360 UJ                 | 360 U                 |
|   |                                |                  |                 |                    |          |                      |             |          |             |                        |                        |                        |                        |                        | I                     |
| Indeno(1,2,3-cd)pyrene                        | UG/KG                          | 970 <sup>4</sup> | 46%             | 22                 | 48       | 6.21E+02             | 3           | 3200     |             | 160 J                  | 430 UJ                 | 160 J                  | 400 U                  | 84 J                   | 62 J                  |
| Isophorone                                    | UG/KG                          | 0                | 0%              | 0                  | 48       | 5.12E+05             |             | 4400     |             | 380 UJ                 | 430 UJ                 | 390 UJ                 | 400 U                  | 360 UJ                 | 360 UJ                |
| N-Nitrosodiphenylamine                        | UG/KG                          | 4.8              | 2%              | 1                  | 48       | 9.93E+04             |             |          |             | 380 U                  | 430 U                  | 390 U                  | 400 U                  | 360 UJ                 | 360 U                 |
| N-Nitrosodipropylamine                        | UG/KG                          | 0                | 0%              | 0                  | 48       | 6.95E+01             |             |          |             | 380 U                  | 430 U                  | 390 U                  | 400 U                  | 360 UJ                 | 360 U                 |
| Naphthalene                                   | UG/KG                          | 400              | 19%             | 9                  | 48       | 5.59E+04             |             | 13000    |             | 380 U                  | 430 U                  | 390 U                  | 400 U                  | 360 UJ                 | 360 U                 |
| Nitrobenzene                                  | UG/KG                          | 0                | 0%              | 0                  | 48       | 1.96E+04             |             | 200      |             | 380 UJ                 | 430 UJ                 | 390 UJ                 | 400 UJ                 | 360 UJ                 | 360 UJ                |
| Pentachlorophenol                             | UG/KG                          | 0                | 0%              | 0                  | 48       | 2.98E+03             |             | 1000     |             | 940 U                  | 1100 U                 | 980 U                  | 1000 U                 | 900 UJ                 | 910 U                 |
| Phenanthrene                                  | UG/KG                          | 29000            | 52%             | 25                 | 48       |                      |             | 50000    |             | 1200                   | 430 U                  | 700                    | 400 U                  | 490 J                  | 260 J                 |
| Phenol  | UG/KG                          | 0                | 0%              | 0                  | 48       | 1.83E+07             |             | 30       |             | 380 U                  | 430 U                  | 390 U                  | 400 U                  | 360 UJ                 | 360 U                 |
| Pyrene  | UG/KG                          | 34000            | 67%             | 32                 | 48       | 2.32E+06             |             | 50000    |             | 86 J                   | 430 U                  | 1900 J                 | 44 J                   | 600 J                  | 1000 J                |
| Pesticides/PCBs                               |                                |                  | 400             | _                  | 40       | 2 445 02             |             | 2000     |             | 40.777                 | 2277                   | 2 777                  | 0.24.777               | 40.777                 | 40.777                |
| 4,4'-DDD                                      | UG/KG                          | 44               | 12%             | 5                  | 43       | 2.44E+03             |             | 2900     |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.24 UJ                | 1.8 UJ                 | 1.9 UJ                |
| 4,4'-DDE                                      | UG/KG                          | 69               | 32%             | 15                 | 47       | 1.72E+03             |             | 2100     |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.24 UJ                | 1.8 UJ                 | 1.9 UJ                |
| 4,4'-DDT                                      | UG/KG                          | 100              | 28%             | 13                 | 47       | 1.72E+03             |             | 2100     |             | 9.5 NJ                 | 2.2 UJ                 | 2 UJ                   | 0.24 U                 | 1.8 UJ                 | 1.9 UJ                |
| Aldrin  | UG/KG                          | 14 4             | 6%              | 3                  | 48       | 2.86E+01             |             | 41       |             | 1.9 U                  | 2.2 U                  | 2 U                    | 0.12 U                 | 1.8 U                  | 1.9 U                 |
| Alpha-BHC                                     | UG/KG                          | 0                | 0%              | 0                  | 48       | 9.02E+01             |             | 110      |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 1.4 UJ                 | 1.8 UJ                 | 1.9 UJ                |
| Alpha-Chlordane                               | UG/KG                          | 63 4             | 8%              | 4                  | 48       |                      |             |          |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.36 U                 | 1.8 UJ                 | 1.9 UJ                |
| Beta-BHC                                      | UG/KG                          | 0                | 0%              | 0                  | 48       | 3.16E+02             |             | 200      |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.12 U                 | 1.8 UJ                 | 1.9 UJ                |
| Chlordane                                     | UG/KG                          | 0                | 0%              | 0                  | 40       |                      |             |          |             | 19 U                   | 22 U                   | 20 U                   | 2.3 U                  | 18 U                   | 19 U                  |
| Delta-BHC                                     | UG/KG                          | 2                | 6%              | 3                  | 48       |                      |             | 300      |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.24 UJ                | 1.8 UJ                 | 1.9 UJ                |
| Dieldrin                                      | UG/KG                          | 41 4             | 4%              | 2                  | 48       | 3.04E+01             | 2           | 44       |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.12 UJ                | 1.8 UJ                 | 1.9 UJ                |
| Endosulfan I                                  | UG/KG                          | 185 4            | 38%             | 18                 | 48       |                      |             | 900      |             | 37 J                   | 2.2 UJ                 | 21 J                   | 0.6 U                  | 1.8 UJ                 | 8.3 J                 |
| Endosulfan II                                 | UG/KG                          | 9                | 2%              | 1                  | 47       |                      |             | 900      |             | 1.9 U                  | 2.2 U                  | 2 U                    | 0.36 U                 | 1.8 U                  | 1.9 U                 |
| Endosulfan sulfate                            | UG/KG                          | 0                | 0%              | 0                  | 48       |                      |             | 1000     |             | 1.9 U                  | 2.2 U                  | 2 U                    | 0.72 UJ                | 1.8 U                  | 1.9 U                 |
| Endrin  | UG/KG                          | 21.5             | 2%              | 1                  | 47       | 1.83E+04             |             | 100      |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.96 UJ                | 1.8 UJ                 | 1.9 UJ                |
| Endrin aldehyde                               | UG/KG                          | 0                | 0%              | 0                  | 48       |                      |             |          |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.96 UJ                | 1.8 UJ                 | 1.9 UJ                |
| Endrin ketone                                 | UG/KG                          | 7.5 4            | 6%              | 3                  | 48       |                      |             |          |             | 1.9 U                  | 2.2 U                  | 2 U                    | 0.12 U                 | 1.8 U                  | 1.9 U                 |
| Gamma-BHC/Lindane                             | UG/KG                          | 0                | 0%              | 0                  | 48       | 4.37E+02             |             | 60       |             | 1.9 U                  | 2.2 U                  | 2 U                    | 0.12 UJ                | 1.8 U                  | 1.9 U                 |
| Gamma-Chlordane                               | UG/KG                          | 1.2              | 2%              | 1                  | 48       | 4.571.102            |             | 540      |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.36 U                 | 1.8 UJ                 | 1.9 UJ                |
| Heptachlor                                    | UG/KG                          | 14               | 4%              | 2                  | 47       | 1.08E+02             |             | 100      |             | 1.9 U                  | 2.2 U                  | 2 U                    | 1.2 UJ                 | 1.8 U                  | 1.9 U                 |
| Heptachlor epoxide                            | UG/KG                          | 2.8              | 4%              | 2                  | 46       | 5.34E+01             |             | 20       |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.36 U                 | 1.8 UJ                 | 1.9 UJ                |
| Methoxychlor                                  | UG/KG                          | 0                | 0%              | 0                  | 48       | 3.06E+05             |             | I ~~     |             | 1.9 UJ                 | 2.2 UJ                 | 2 UJ                   | 0.12 U                 | 1.8 UJ                 | 1.9 UJ                |
| Toxaphene                                     | UG/KG                          | 0                | 0%              | 0                  | 48       | 4.42E+02             |             |          |             | 19 U                   | 22 U                   | 20 U                   | 3.9 U                  | 18 U                   | 19 U                  |
| Aroclor-1016                                  | UG/KG                          | 0                | 0%              | 0                  | 48       | 3.93E+03             |             |          |             | 19 U                   | 22 U                   | 20 U                   | 6.3 UJ                 | 18 U                   | 19 U                  |
| Aroclor-1221                                  | UG/KG                          | 0                | 0%              | 0                  | 48       | 3.552.03             |             |          |             | 19 U                   | 22 U                   | 20 U                   | 1.6 U                  | 18 U                   | 19 U                  |
| Aroclor-1232                                  | UG/KG                          | 0                | 0%              | 0                  | 48       |                      |             |          |             | 19 U                   | 22 U                   | 20 U                   | 9.6 UJ                 | 18 U                   | 19 U                  |
| Aroclor-1242                                  | UG/KG                          | 58               | 2%              | 1                  | 48       |                      |             |          |             | 19 U                   | 22 U                   | 20 U                   | 2.6 UJ                 | 18 U                   | 19 U                  |
| Aroclor-1248                                  | UG/KG                          | 0                | 0%              | 0                  | 48       |                      |             |          |             | 19 U                   | 22 U                   | 20 U                   | 6.6 U                  | 18 U                   | 19 U                  |
| Aroclor-1254                                  | UG/KG                          | 930              | 19%             | 9                  | 48       | 2.22E+02             | 3           | 10000    |             | 44 J                   | 22 UJ                  | 20 UJ                  | 13 U                   | 18 UJ                  | 19 UJ                 |

|                              | Facility    |         |                 |          |          |           |             |          |             | SEAD-121C        | SEAD-121C        | SEAD-121C    | SEAD-121C        | SEAD-121C   | SEAD-121C        |
|------------------------------|-------------|---------|-----------------|----------|----------|-----------|-------------|----------|-------------|------------------|------------------|--------------|------------------|-------------|------------------|
|                              | Location ID |         |                 |          |          |           |             |          |             | SSDRMO-20        | SSDRMO-21        | SSDRMO-22    | SSDRMO-23        | SSDRMO-24   | SSDRMO-5         |
|                              | Matrix      |         |                 |          |          |           |             |          |             | SOIL             | SOIL             | SOIL<br>SOIL | SOIL             | SOIL        | SOIL             |
|                              | Sample ID   |         |                 |          |          |           |             |          |             | DRMO-1016        | DRMO-1017        | DRMO-1018    | DRMO-1019        | DRMO-1020   | DRMO-1000        |
| Sample Depth to To           |             |         |                 |          |          |           |             |          |             | 0                | 0 DKWIO-1017     | 0            | 0                | 0 DKMO-1020 | 0 DKWIO-1000     |
| Sample Depth to Botto        |             |         |                 |          |          |           |             |          |             | 0.2              | 0.2              | 0.2          | 0.2              | 0.2         | 0.2              |
|                              | Sample Date |         |                 |          |          |           |             |          |             | 10/24/2002       | 10/24/2002       | 10/24/2002   | 10/30/2002       | 10/23/2002  | 10/23/2002       |
|                              | OC Code     |         |                 |          |          | Region IX |             |          |             | 10/24/2002<br>SA | 10/24/2002<br>SA | SA           | 10/30/2002<br>SA | SA          | 10/23/2002<br>SA |
|                              | Study ID    |         | F               | Number   | Number   | PRG       |             | NYSDEC   |             | PID-RI           | PID-RI           | PID-RI       | PID-RI           | PID-RI      | PID-RI           |
|                              | Study ID    | Maximum | Frequency<br>of | of Times | of       | Criteria  |             | Criteria |             | PID-KI           | PID-KI           | PID-KI       | PID-KI           | PID-KI      | PID-KI           |
| _                            |             |         |                 |          |          |           |             |          |             |                  |                  |              |                  |             |                  |
| Parameter                    | Units       | Value   | Detection       | Detected | Analyses | Value 2   | Exceedances |          | Exceedances |                  | Value (Q)        | Value (Q)    | Value (Q)        | Value (Q)   | Value (Q)        |
| Aroclor-1260                 | UG/KG       | 85      | 10%             | 5        | 48       |           |             | 10000    |             | 19 UJ            | 22 UJ            | 20 UJ        | 2.4 UJ           | 18 UJ       | 19 UJ            |
| Metals and Cyanide           |             |         |                 |          |          |           |             |          |             |                  |                  |              |                  |             |                  |
| Aluminum                     | MG/KG       | 17000   | 100%            | 48       | 48       | 7.61E+04  | _           | 19300    |             | 3540             | 11200            | 10500        | 11100 J          | 8110        | 5520             |
| Antimony                     | MG/KG       | 236     | 81%             | 39       | 48       | 3.13E+01  | 2           | 5.9      | 11          | 1 U              | 1.6 J            | 8.1          | 1.4 J            | 236         | 4.4 J            |
| Arsenic                      | MG/KG       | 11.6    | 100%            | 48       | 48       | 3.90E-01  | 48          | 8.2      | 2           | 4.1              | 7                | 6.7          | 4.1 J            | 11.6        | 3.9              |
| Barium                       | MG/KG       | 2030    | 100%            | 48       | 48       | 5.37E+03  |             | 300      | 7           | 35.2 J           | 105 J            | 113 J        | 99.3 J           | 2030 J      | 46.5 J           |
| Beryllium                    | MG/KG       | 1.2     | 100%            | 48       | 48       | 1.54E+02  |             | 1.1      | 1           | 0.24             | 0.75             | 0.65         | 0.65 J           | 0.43        | 0.31             |
| Cadmium                      | MG/KG       | 29.1    | 60%             | 29       | 48       | 3.70E+01  |             | 2.3      | 14          | 1.1              | 0.16 U           | 0.14 U       | 0.06 U           | 4.3         | 0.55             |
| Calcium                      | MG/KG       | 296000  | 100%            | 48       | 48       |           |             | 121000   | 6           | 197000 J         | 12100 J          | 20400 J      | 11700 J          | 48800 J     | 59700 J          |
| Chromium                     | MG/KG       | 74.8    | 100%            | 48       | 48       |           |             | 29.6     | 12          | 9.8              | 19.2 J           | 19.5 J       | 17.7 J           | 26.8 J      | 12.3 J           |
| Cobalt                       | MG/KG       | 17      | 100%            | 35       | 35       | 9.03E+02  |             | 30       |             | 5.5              | 9.4 R            | 11.5 R       | 8.6 J            | 17.5 R      | 6.7 R            |
| Copper                       | MG/KG       | 9750    | 100%            | 48       | 48       | 3.13E+03  | 3           | 33       | 35          | 40.5 J           | 25.1 J           | 55.4 J       | 43.8 J           | 5050 J      | 44.2 J           |
| Cyanide                      | MG/KG       | 0       | 0%              | 0        | 8        | 1.22E+06  |             | 0.35     |             |                  |                  |              |                  |             |                  |
| Cyanide, Amenable            | MG/KG       | 0       | 0%              | 0        | 40       |           |             |          |             | 0.57 U           | 0.66 U           | 0.59 U       | 0.61 U           | 0.54 U      | 0.55 U           |
| Cyanide, Total               | MG/KG       | 0       | 0%              | 0        | 40       |           |             |          |             | 0.571 U          | 0.661 U          | 0.588 U      | 0.612 U          | 0.545 U     | 0.548 U          |
| Iron                         | MG/KG       | 51700   | 100%            | 48       | 48       | 2.35E+04  | 23          | 36500    | 5           | 10200            | 22700            | 23700        | 17300 J          | 28800       | 13900            |
| Lead                         | MG/KG       | 18900   | 100%            | 48       | 48       | 4.00E+02  | 7           | 24.8     | 40          | 62.3             | 29.5             | 344          | 59.2 J           | 18900       | 195              |
| Magnesium                    | MG/KG       | 20700   | 100%            | 48       | 48       |           |             | 21500    |             | 10500            | 4660             | 5130         | 4700 J           | 6060        | 20700            |
| Manganese                    | MG/KG       | 858     | 100%            | 48       | 48       | 1.76E+03  |             | 1060     |             | 315              | 279              | 513          | 266 J            | 532         | 364              |
| Mercury                      | MG/KG       | 0.47    | 92%             | 44       | 48       | 2.35E+01  |             | 0.1      | 8           | 0.03             | 0.05             | 0.14         | 0.08             | 0.31        | 0.07             |
| Nickel                       | MG/KG       | 224     | 100%            | 48       | 48       | 1.56E+03  |             | 49       | 9           | 16.2 J           | 27.1 J           | 29.4 J       | 25 J             | 45.7 J      | 20.8 J           |
| Potassium                    | MG/KG       | 1990    | 100%            | 48       | 48       |           |             | 2380     |             | 841 J            | 909 J            | 949 J        | 1430 J           | 910 J       | 891 J            |
| Selenium                     | MG/KG       | 1.3     | 21%             | 10       | 48       | 3.91E+02  |             | 2        |             | 0.48 U           | 1.1              | 0.53 J       | 0.39 U           | 1           | 0.46 U           |
| Silver                       | MG/KG       | 21.8    | 38%             | 18       | 48       | 3.91E+02  |             | 0.75     | 13          | 0.34             | 2.9              | 0.31 U       | 0.44 U           | 0.76        | 0.29 U           |
| Sodium                       | MG/KG       | 478     | 88%             | 42       | 48       |           |             | 172      | 26          | 289              | 197              | 116 U        | 65.2             | 108 U       | 240              |
| Thallium                     | MG/KG       | 1.1     | 21%             | 10       | 48       | 5.16E+00  |             | 0.7      | 3           | 0.35 U           | 0.4 U            | 0.5 J        | 0.69 U           | 0.52 J      | 0.34 U           |
| Vanadium                     | MG/KG       | 25.4    | 100%            | 48       | 48       | 7.82E+01  |             | 150      |             | 7.8 J            | 20.7 J           | 18.7 J       | 16.1 J           | 16.1 J      | 10.7 J           |
| Zinc                         | MG/KG       | 3610    | 100%            | 48       | 48       | 2.35E+04  |             | 110      | 28          | 104 J            | 85.2 J           | 103 J        | 111 J            | 990 J       | 137 J            |
| Other                        |             |         |                 |          |          |           |             |          |             |                  |                  |              |                  |             |                  |
| Total Organic Carbon         | MG/KG       | 9000    | 100%            | 40       | 40       |           |             |          |             | 4100             | 6200             | 7400         | 7500             | 4000        | 3600             |
| Total Petroleum Hydrocarbons | MG/KG       | 7600    | 25%             | 10       | 40       |           |             |          |             | 46 U             | 53 U             | 59           | 49 UJ            | 44 U        | 830              |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

|                               | Facility<br>Location ID<br>Matrix<br>Sample ID |         |                 |                    |            |            |             |            |             | SEAD-121C<br>SSDRMO-6<br>SOIL<br>DRMO-1001 | SEAD-121C<br>SSDRMO-7<br>SOIL<br>DRMO-1002 | SEAD-121C<br>SSDRMO-7<br>SOIL<br>DRMO-1003 | SEAD-121C<br>SSDRMO-8<br>SOIL<br>DRMO-1004 | SEAD-121C<br>SSDRMO-9<br>SOIL<br>DRMO-1005 |
|-------------------------------|--|---------|-----------------|--------------------|------------|------------|-------------|------------|-------------|--|--|--|--|--|
| Sample Depth to To            |  |         |                 |                    |            |            |             |            |             | 0  | 0  | 0  | 0  | 0  |
| Sample Depth to Botto         |  |         |                 |                    |            |            |             |            |             | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
|                               | Sample Date                                    |         |                 |                    |            |            |             |            |             | 10/24/2002                                 | 10/24/2002                                 | 10/24/2002                                 | 10/23/2002                                 | 10/23/2002                                 |
|                               | QC Code  |         |                 |                    |            | Region IX  |             |            |             | SA   | SA   | SA   | SA   | SA   |
|                               | Study ID                                       |         | F               | N                  | Number     | PRG        |             | NYSDEC     |             | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     |
|                               | Study ID                                       | Maximum | Frequency<br>of | Number<br>of Times | of         | Criteria   |             | Criteria   |             | PID-KI                                     | PID-KI                                     | PID-KI                                     | PID-KI                                     | PID-KI                                     |
|                               |  |         |                 |                    |            |            |             |            |             |  |  |  |  |  |
| Parameter                     | Units  | Value   | Detection       | Detected           | Analyses 1 | Value 2    | Exceedances | Value 3    | Exceedances | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  |
| Volatile Organic Compounds    |  | _       |                 | _                  |            |            |             |            |             |  |  |  |  |  |
| 1,1,1-Trichloroethane         | UG/KG  | 0       | 0%              | 0                  | 48         | 1.20E+06   |             | 800        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,1,2,2-Tetrachloroethane     | UG/KG  | 0       | 0%              | 0                  | 48         | 4.08E+02   |             | 600        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,1,2-Trichloroethane         | UG/KG  | 0       | 0%              | 0                  | 48         | 7.29E+02   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,1-Dichloroethane            | UG/KG  | 0       | 0%              | 0                  | 48         | 5.06E+05   |             | 200        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,1-Dichloroethene            | UG/KG  | 0       | 0%              | 0                  | 48         | 1.24E+05   |             | 400        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,2-Dichloroethane            | UG/KG  | 0       | 0%              | 0                  | 48         | 2.78E+02   |             | 100        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| 1,2-Dichloroethene (total)    | UG/KG  | 0       | 0%              | 0                  | 8          |            |             |            |             |  |  |  |  |  |
| 1,2-Dichloropropane           | UG/KG  | 0       | 0%              | 0                  | 48         | 3.42E+02   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Acetone                       | UG/KG  | 13      | 28%             | 13                 | 47         | 1.41E+07   |             | 200        |             | 2.7 R                                      | 3.1 UJ                                     | 2.9 R                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Benzene                       | UG/KG  | 41      | 2%              | 1                  | 48         | 6.43E+02   |             | 60         |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Bromodichloromethane          | UG/KG  | 0       | 0%              | 0                  | 48         | 8.24E+02   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Bromoform                     | UG/KG  | 0       | 0%              | 0                  | 48         | 6.16E+04   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Carbon disulfide              | UG/KG  | 4.7     | 4%              | 2                  | 48         | 3.55E+05   |             | 2700       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Carbon tetrachloride          | UG/KG  | 0       | 0%              | 0                  | 48         | 2.51E+02   |             | 600        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Chlorobenzene                 | UG/KG  | 0       | 0%              | 0                  | 48         | 1.51E+05   |             | 1700       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Chlorodibromomethane          | UG/KG  | 0       | 0%              | 0                  | 48         | 1.11E+03   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Chloroethane                  | UG/KG  | 0       | 0%              | 0                  | 48         | 3.03E+03   |             | 1900       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Chloroform                    | UG/KG  | 4.8 4   | 4%              | 2                  | 48         | 2.21E+02   |             | 300        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Cis-1,2-Dichloroethene        | UG/KG  | 0       | 0%              | 0                  | 40         | 4.29E+04   |             | 500        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Cis-1,3-Dichloropropene       | UG/KG  | 0       | 0%              | 0                  | 48         | 11.2923101 |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Ethyl benzene                 | UG/KG  | 3300    | 4%              | 2                  | 48         | 3.95E+05   |             | 5500       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Meta/Para Xylene              | UG/KG  | 4400    | 8%              | 3                  | 40         | 3.7511103  |             | 3300       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Methyl bromide                | UG/KG  | 0       | 0%              | 0                  | 48         | 3.90E+03   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Methyl butyl ketone           | UG/KG  | 0       | 0%              | 0                  | 48         | 3.701.103  |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Methyl chloride               | UG/KG  | 0       | 0%              | 0                  | 48         | 4.69E+04   |             |            |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Methyl ethyl ketone           | UG/KG  | 0       | 0%              | 0                  | 48         | 2.23E+07   |             | 300        |             | 2.7 UJ                                     | 3.1 UJ                                     | 2.9 UJ                                     | 2.5 UJ                                     | 2.7 UJ                                     |
| Methyl isobutyl ketone        | UG/KG  | 0       | 0%              | 0                  | 48         | 5.28E+06   |             | 1000       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Methylene chloride            | UG/KG  | 2.6     | 2%              | 1                  | 48         | 9.11E+03   |             | 100        |             | 0.84 U                                     | 3.1 UJ                                     | 1.7 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
|                               | UG/KG  | 16      | 3%              | 1                  | 40         | 9.11E+05   |             | 100        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Ortho Xylene<br>Styrene       | UG/KG<br>UG/KG                                 | 0       | 5%<br>0%        | 0                  | 48         | 1.70E+06   |             |            |             | 2.7 U                                      | 3.1 UJ<br>3.1 UJ                           | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
|                               |  | 0       | 0%              | 0                  |            |            |             | 1.400      |             |  |  |  |  |  |
| Tetrachloroethene             | UG/KG  |         |                 | 9                  | 48         | 4.84E+02   |             | 1400       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Toluene                       | UG/KG  | 28      | 19%             | 0                  | 48         | 5.20E+05   |             | 1500       |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Total Xylenes                 | UG/KG  | 0       | 0%              | -                  | 8          | 2.71E+05   |             | 1200       |             |  | 2 4 777                                    | 20.77                                      | 2  | 2 7 7 7 7                                  |
| Trans-1,2-Dichloroethene      | UG/KG  | 0       | 0%              | 0                  | 40         | 6.95E+04   |             | 300        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Trans-1,3-Dichloropropene     | UG/KG  | 0       | 0%              | 0                  | 48         | # 20F 04   |             | <b>200</b> |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Trichloroethene               | UG/KG  | 0       | 0%              | 0                  | 48         | 5.30E+01   |             | 700        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Vinyl chloride                | UG/KG  | 0       | 0%              | 0                  | 48         | 7.91E+01   |             | 200        |             | 2.7 U                                      | 3.1 UJ                                     | 2.9 U                                      | 2.5 UJ                                     | 2.7 UJ                                     |
| Semivolatile Organic Compound |  |         | 0.01            |                    | 40         |            |             | 2400       |             | 250.55                                     | 200  | 200  | 250  | 240.77                                     |
| 1,2,4-Trichlorobenzene        | UG/KG  | 0       | 0%              | 0                  | 48         | 6.22E+04   |             | 3400       |             | 350 U                                      | 380 U                                      | 380 U                                      | 350 U                                      | 360 U                                      |
| 1,2-Dichlorobenzene           | UG/KG  | 0       | 0%              | 0                  | 48         | 6.00E+05   |             | 7900       |             | 350 U                                      | 380 U                                      | 380 U                                      | 350 U                                      | 360 U                                      |
| 1,3-Dichlorobenzene           | UG/KG  | 0       | 0%              | 0                  | 48         | 5.31E+05   |             | 1600       |             | 350 U                                      | 380 U                                      | 380 U                                      | 350 U                                      | 360 U                                      |
| 1,4-Dichlorobenzene           | UG/KG  | 0       | 0%              | 0                  | 48         | 3.45E+03   |             | 8500       |             | 350 U                                      | 380 U                                      | 380 U                                      | 350 U                                      | 360 U                                      |
| 2,4,5-Trichlorophenol         | UG/KG  | 0       | 0%              | 0                  | 48         | 6.11E+06   |             | 100        |             | 870 U                                      | 960 U                                      | 950 U                                      | 880 U                                      | 900 U                                      |
| 2,4,6-Trichlorophenol         | UG/KG  | 0       | 0%              | 0                  | 48         | 6.11E+03   |             |            |             | 350 U                                      | 380 U                                      | 380 U                                      | 350 U                                      | 360 U                                      |

|  | Facility<br>Location ID |         |           |          |            |           |             |          |             | SEAD-121C<br>SSDRMO-6 | SEAD-121C<br>SSDRMO-7 | SEAD-121C<br>SSDRMO-7 | SEAD-121C<br>SSDRMO-8 | SEAD-121C<br>SSDRMO-9 |
|--|-------------------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|  | Matrix                  |         |           |          |            |           |             |          |             | SOIL                  | SOIL                  | SOIL                  | SOIL                  | SOIL                  |
|  | Sample ID               |         |           |          |            |           |             |          |             | DRMO-1001             | DRMO-1002             | DRMO-1003             | DRMO-1004             | DRMO-1005             |
| Sample Depth to                        |                         |         |           |          |            |           |             |          |             | 0                     | 0                     | 0                     | 0                     | 0                     |
| Sample Depth to Bot                    |                         |         |           |          |            |           |             |          |             | 0.2                   | 0.2                   | 0.2                   | 0.2                   | 0.2                   |
|  | Sample Date             |         |           |          |            |           |             |          |             | 10/24/2002            | 10/24/2002            | 10/24/2002            | 10/23/2002            | 10/23/2002            |
|  | QC Code                 |         |           |          |            | Region IX |             |          |             | SA                    | SA                    | SA                    | SA                    | SA                    |
|  | Study ID                |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI                | PID-RI                | PID-RI                | PID-RI                | PID-RI                |
|  |                         | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |                       |                       |                       |                       |                       |
| Parameter                              | Units                   | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)             | Value (O)             | Value (Q)             | Value (Q)             | Value (O)             |
| 2,4-Dichlorophenol                     | UG/KG                   | 0       | 0%        | 0        | 48         | 1.83E+05  | Executances | 400      | Execuances  | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2,4-Dimethylphenol                     | UG/KG                   | 0       | 0%        | 0        | 48         | 1.22E+06  |             |          |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2,4-Dinitrophenol                      | UG/KG                   | 0       | 0%        | 0        | 47         | 1.22E+05  |             | 200      |             | 870 UJ                | 960 U                 | 950 U                 | 880 UJ                | 900 U                 |
| 2,4-Dinitrotoluene                     | UG/KG                   | 45      | 2%        | 1        | 48         | 1.22E+05  |             | 200      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2,6-Dinitrotoluene                     | UG/KG                   | 0       | 0%        | 0        | 48         | 6.11E+04  |             | 1000     |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2-Chloronaphthalene                    | UG/KG                   | 0       | 0%        | 0        | 48         | 4.94E+06  |             | 1000     |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2-Chlorophenol                         | UG/KG                   | 0       | 0%        | 0        | 48         | 6.34E+04  |             | 800      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2-Methylnaphthalene                    | UG/KG                   | 610     | 19%       | 9        | 48         | 0.542104  |             | 36400    |             | 350 U                 | 140 J                 | 110 J                 | 350 U                 | 360 U                 |
| 2-Methylphenol                         | UG/KG                   | 0       | 0%        | ó        | 48         | 3.06E+06  |             | 100      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 2-Nitroaniline                         | UG/KG                   | 0       | 0%        | 0        | 48         | 1.83E+05  |             | 430      |             | 870 U                 | 960 U                 | 950 U                 | 880 U                 | 900 U                 |
| 2-Nitrophenol                          | UG/KG                   | 0       | 0%        | 0        | 48         | 1.052.105 |             | 330      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 3 or 4-Methylphenol                    | UG/KG                   | 0       | 0%        | 0        | 40         |           |             | 330      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 3,3'-Dichlorobenzidine                 | UG/KG                   | 0       | 0%        | 0        | 48         | 1.08E+03  |             |          |             | 350 U                 | 380 UJ                | 380 UJ                | 350 U                 | 360 U                 |
| 3-Nitroaniline                         | UG/KG                   | 0       | 0%        | 0        | 48         | 1.83E+04  |             | 500      |             | 870 UJ                | 960 U                 | 950 U                 | 880 UJ                | 900 U                 |
| 4,6-Dinitro-2-methylphenol             | UG/KG                   | 0       | 0%        | 0        | 48         | 6.11E+03  |             | 300      |             | 870 U                 | 960 U                 | 950 U                 | 880 U                 | 900 U                 |
| 4-Bromophenyl phenyl ether             | UG/KG                   | 0       | 0%        | 0        | 48         | 0.112.03  |             |          |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 4-Chloro-3-methylphenol                | UG/KG                   | 0       | 0%        | 0        | 48         |           |             | 240      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 4-Chloroaniline                        | UG/KG                   | 0       | 0%        | 0        | 48         | 2.44E+05  |             | 220      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 4-Chlorophenyl phenyl ether            | UG/KG                   | 0       | 0%        | 0        | 48         | 2.44L+03  |             | 220      |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| 4-Methylphenol                         | UG/KG                   | 0       | 0%        | 0        | 8          | 3.06E+05  |             | 900      |             | 330 0                 | 380 0                 | 360 0                 | 330 0                 | 300 0                 |
| 4-Nitroaniline                         | UG/KG                   | 0       | 0%        | 0        | 48         | 2.32E+04  |             | 700      |             | 870 U                 | 960 U                 | 950 U                 | 880 U                 | 900 U                 |
| 4-Nitrophenol                          | UG/KG                   | 0       | 0%        | 0        | 48         | 2.32E+04  |             | 100      |             | 870 U                 | 960 U                 | 950 U                 | 880 U                 | 900 U                 |
| Acenaphthene                           | UG/KG                   | 2600    | 23%       | 11       | 48         | 3.68E+06  |             | 50000    |             | 95 J                  | 310 J                 | 190 J                 | 350 U                 | 360 U                 |
| Acenaphthylene                         | UG/KG                   | 2500    | 21%       | 10       | 48         | 3.06E+00  |             | 41000    |             | 42 J                  | 1000                  | 810                   | 65 J                  | 360 U                 |
| Anthracene                             | UG/KG                   | 7100    | 42%       | 20       | 48         | 2.19E+07  |             | 50000    |             | 160 J                 | 1600                  | 850                   | 110 J                 | 360 U                 |
| Benzo(a)anthracene                     | UG/KG                   | 10000   | 55%       | 26       | 47         | 6.21E+02  | 4           | 224      | 14          | 460                   | 6700 J                | 3900 J                | 360                   | 160 J                 |
|  | UG/KG                   | 8700    | 51%       | 24       | 47         | 6.21E+02  | 21          | 61       | 21          | 610 J                 | 7600 J                | 5000 J                | 520 J                 | 180 J                 |
| Benzo(a)pyrene<br>Benzo(b)fluoranthene | UG/KG                   | 12000   | 64%       | 30       | 47         | 6.21E+01  | 9           | 1100     | 5           | 880 J                 | 11000 J               | 6600 J                | 720 J                 | 240 J                 |
| 1 ''                                   |                         |         |           |          |            | 0.21E+02  | 9           |          | 3           | I                     |                       |                       |                       |                       |
| Benzo(ghi)perylene                     | UG/KG                   | 3150 4  | 53%       | 25       | 47         |           |             | 50000    |             | 230 J                 | 3800 J                | 2500 J                | 210 J                 | 53 J                  |
| Benzo(k)fluoranthene                   | UG/KG                   | 7500    | 47%       | 22       | 47         | 6.21E+03  | 1           | 1100     | 4           | 530 J                 | 4900 J                | 3100 J                | 490 J                 | 130 J                 |
| Bis(2-Chloroethoxy)methane             | UG/KG                   | 0       | 0%        | 0        | 48         |           |             |          |             | 350 UJ                | 380 U                 | 380 U                 | 350 UJ                | 360 U                 |
| Bis(2-Chloroethyl)ether                | UG/KG                   | 0       | 0%        | 0        | 48         | 2.18E+02  |             |          |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| Bis(2-Chloroisopropyl)ether            | UG/KG                   | 0       | 0%        | 0        | 48         | 2.88E+03  |             |          |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| Bis(2-Ethylhexyl)phthalate             | UG/KG                   | 200     | 56%       | 27       | 48         | 3.47E+04  |             | 50000    |             | 350 U                 | 200 J                 | 97 J                  | 58 J                  | 64 J                  |
| Butylbenzylphthalate                   | UG/KG                   | 120     | 13%       | 6        | 48         | 1.22E+07  |             | 50000    |             | 350 U                 | 380 UJ                | 380 UJ                | 350 U                 | 360 UJ                |
| Carbazole                              | UG/KG                   | 4200    | 35%       | 17       | 48         | 2.43E+04  |             |          |             | 200 J                 | 910                   | 550                   | 73 J                  | 360 U                 |
| Chrysene                               | UG/KG                   | 9100    | 53%       | 25       | 47         | 6.21E+04  |             | 400      | 10          | 500                   | 6800 J                | 4300 J                | 430                   | 160 J                 |
| Di-n-butylphthalate                    | UG/KG                   | 132 4   | 10%       | 5        | 48         | 6.11E+06  |             | 8100     |             | 350 U                 | 380 U                 | 73 J                  | 350 U                 | 360 U                 |
| Di-n-octylphthalate                    | UG/KG                   | 23 4    | 4%        | 2        | 48         | 2.44E+06  |             | 50000    |             | 350 U                 | 380 UJ                | 380 UJ                | 350 U                 | 360 U                 |
| Dibenz(a,h)anthracene                  | UG/KG                   | 470 4   | 26%       | 12       | 47         | 6.21E+01  | 7           | 14       | 11          | 350 UJ                | 570 J                 | 370 J                 | 350 UJ                | 360 U                 |
| Dibenzofuran                           | UG/KG                   | 1700    | 21%       | 10       | 48         | 1.45E+05  | -           | 6200     |             | 63 J                  | 330 J                 | 160 J                 | 350 U                 | 360 U                 |
| Diethyl phthalate                      | UG/KG                   | 21 4    | 13%       | 6        | 48         | 4.89E+07  |             | 7100     |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| Dimethylphthalate                      | UG/KG                   | 0       | 0%        | 0        | 48         | 1.00E+08  |             | 2000     |             | 350 U                 | 380 U                 | 380 U                 | 350 U                 | 360 U                 |
| Fluoranthene                           | UG/KG                   | 27000   | 73%       | 35       | 48         | 2.29E+06  |             | 50000    |             | 1500                  | 15000                 | 8800                  | 950                   | 350 J                 |
| 1 Idorantiiciic                        | UU/KU                   | 27000   | 13/0      | JJ       | 40         | 2.23ET00  |             | 20000    |             | 1500                  | 15000                 | 0000                  | 750                   | 330 <b>3</b>          |

|                                      | Facility       |                  |           |          |            |           |             |          |             | SEAD-121C      | SEAD-121C  | SEAD-121C      | SEAD-121C      | SEAD-121C      |
|--------------------------------------|----------------|------------------|-----------|----------|------------|-----------|-------------|----------|-------------|----------------|------------|----------------|----------------|----------------|
|                                      | Location ID    |                  |           |          |            |           |             |          |             | SSDRMO-6       | SSDRMO-7   | SSDRMO-7       | SSDRMO-8       | SSDRMO-9       |
|                                      | Matrix         |                  |           |          |            |           |             |          |             | SOIL           | SOIL       | SOIL           | SOIL           | SOIL           |
|                                      | Sample ID      |                  |           |          |            |           |             |          |             | DRMO-1001      | DRMO-1002  | DRMO-1003      | DRMO-1004      | DRMO-1005      |
| Sample Depth to                      |                |                  |           |          |            |           |             |          |             | 0              | 0          | 0              | 0              | 0              |
| Sample Depth to Bo                   |                |                  |           |          |            |           |             |          |             | 0.2            | 0.2        | 0.2            | 0.2            | 0.2            |
|                                      | Sample Date    |                  |           |          |            |           |             |          |             | 10/24/2002     | 10/24/2002 | 10/24/2002     | 10/23/2002     | 10/23/2002     |
|                                      | QC Code        |                  |           |          |            | Region IX |             |          |             | SA             | SA         | SA             | SA             | SA             |
|                                      | Study ID       |                  | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI         | PID-RI     | PID-RI         | PID-RI         | PID-RI         |
|                                      |                | Maximum          | of        | of Times | of         | Criteria  |             | Criteria |             |                |            |                |                |                |
| Parameter                            | Units          | Value            | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)      | Value (Q)  | Value (Q)      | Value (Q)      | Value (Q)      |
| Fluorene                             | UG/KG          | 3500             | 27%       | 13       | 48         | 2.75E+06  |             | 50000    |             | 84 J           | 1000       | 560            | 51 J           | 360 U          |
| Hexachlorobenzene                    | UG/KG          | 8.5              | 2%        | 1        | 48         | 3.04E+02  |             | 410      |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| Hexachlorobutadiene                  | UG/KG          | 0                | 0%        | 0        | 48         | 6.24E+03  |             |          |             | 350 UJ         | 380 UJ     | 380 UJ         | 350 UJ         | 360 UJ         |
| Hexachlorocyclopentadiene            | UG/KG          | 0                | 0%        | 0        | 48         | 3.65E+05  |             |          |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| Hexachloroethane                     | UG/KG          | 0                | 0%        | 0        | 48         | 3.47E+04  |             |          |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| Indeno(1,2,3-cd)pyrene               | UG/KG          | 970 <sup>4</sup> | 46%       | 22       | 48         | 6.21E+02  | 3           | 3200     |             | 79 J           | 1100 J     | 840 J          | 83 J           | 360 UJ         |
| Isophorone                           | UG/KG          | 0                | 0%        | 0        | 48         | 5.12E+05  |             | 4400     |             | 350 UJ         | 380 UJ     | 380 UJ         | 350 UJ         | 360 UJ         |
| N-Nitrosodiphenylamine               | UG/KG          | 4.8              | 2%        | 1        | 48         | 9.93E+04  |             |          |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| N-Nitrosodipropylamine               | UG/KG          | 0                | 0%        | 0        | 48         | 6.95E+01  |             |          |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| Naphthalene                          | UG/KG          | 400              | 19%       | 9        | 48         | 5.59E+04  |             | 13000    |             | 57 J           | 97 J       | 74 J           | 350 U          | 360 U          |
| Nitrobenzene                         | UG/KG          | 0                | 0%        | Ó        | 48         | 1.96E+04  |             | 200      |             | 350 UJ         | 380 UJ     | 380 UJ         | 350 UJ         | 360 UJ         |
| Pentachlorophenol                    | UG/KG          | 0                | 0%        | 0        | 48         | 2.98E+03  |             | 1000     |             | 870 U          | 960 U      | 950 U          | 880 U          | 900 U          |
| Phenanthrene                         | UG/KG          | 29000            | 52%       | 25       | 48         | 2.70E103  |             | 50000    |             | 1100           | 13000      | 7600           | 550            | 160 J          |
| Phenol                               | UG/KG          | 0                | 0%        | 0        | 48         | 1.83E+07  |             | 30       |             | 350 U          | 380 U      | 380 U          | 350 U          | 360 U          |
| Pyrene                               | UG/KG          | 34000            | 67%       | 32       | 48         | 2.32E+06  |             | 50000    |             | 1200           | 24000 J    | 14000 J        | 720            | 250 J          |
| Pesticides/PCBs                      | 00/10          | 34000            | 0770      | 32       | 40         | 2.522.100 |             | 30000    |             | 1200           | 24000 3    | 14000 3        | 720            | 250 3          |
| 4.4'-DDD                             | UG/KG          | 44               | 12%       | 5        | 43         | 2.44E+03  |             | 2900     |             | 1.9 UJ         | 2 UJ       | 1.9 UJ         | 5.4 J          | 1.8 UJ         |
| 4,4'-DDE                             | UG/KG          | 69               | 32%       | 15       | 47         | 1.72E+03  |             | 2100     |             | 9.1 J          | 2 UJ       | 1.9 UJ         | 26 J           | 1.8 GJ<br>12 J |
| 4,4'-DDT                             | UG/KG          | 100              | 28%       | 13       | 47         | 1.72E+03  |             | 2100     |             | 3.1 NJ         | 2 UJ       | 1.9 UJ         | 9 NJ           | 1.8 UJ         |
| '                                    |                | 14 4             |           |          |            |           |             |          |             | I              |            |                |                |                |
| Aldrin                               | UG/KG          |                  | 6%        | 3        | 48         | 2.86E+01  |             | 41       |             | 1.8 U          | 2 U        | 1.9 U          | 1.8 U          | 1.8 U          |
| Alpha-BHC                            | UG/KG          | 0                | 0%        |          | 48         | 9.02E+01  |             | 110      |             | 1.8 UJ         | 2 UJ       | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Alpha-Chlordane                      | UG/KG          | 63 4             | 8%        | 4        | 48         |           |             |          |             | 1.8 UJ         | 2 UJ       | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Beta-BHC                             | UG/KG          | 0                | 0%        | 0        | 48         | 3.16E+02  |             | 200      |             | 1.8 UJ         | 2 UJ       | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Chlordane                            | UG/KG          | 0                | 0%        | 0        | 40         |           |             |          |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Delta-BHC                            | UG/KG          | 2                | 6%        | 3        | 48         |           |             | 300      |             | 1.8 UJ         | 2 UJ       | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Dieldrin                             | UG/KG          | 41 4             | 4%        | 2        | 48         | 3.04E+01  | 2           | 44       |             | 1.8 UJ         | 2 UJ       | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Endosulfan I                         | UG/KG          | 185 4            | 38%       | 18       | 48         |           |             | 900      |             | 6.6 J          | 190 J      | 180 J          | 23 NJ          | 7.5 J          |
| Endosulfan II                        | UG/KG          | 9                | 2%        | 1        | 47         |           |             | 900      |             | 1.8 U          | 2 U        | 1.9 U          | 1.8 U          | 1.8 U          |
| Endosulfan sulfate                   | UG/KG          | 0                | 0%        | 0        | 48         |           |             | 1000     |             | 1.8 U          | 2 U        | 1.9 U          | 1.8 U          | 1.8 U          |
| Endrin                               | UG/KG          | 21.5             | 2%        | 1        | 47         | 1.83E+04  |             | 100      |             | 1.8 UJ         | 2 U        | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Endrin aldehyde                      | UG/KG          | 0                | 0%        | 0        | 48         | 1.032.01  |             | 100      |             | 1.8 UJ         | 2 U        | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| 1 '                                  | UG/KG          | 7.5 4            | 6%        | 3        |            |           |             |          |             | 1.8 U          | 2 U        | 1.9 U          | 1.8 U          | 1.8 U          |
| Endrin ketone                        | UG/KG<br>UG/KG | 7.5<br>0         | 0%        | 0        | 48<br>48   | 4.37E+02  |             | 60       |             | 1.8 U<br>1.8 U | 2 U<br>2 U | 1.9 U<br>1.9 U | 1.8 U<br>1.8 U | 1.8 U<br>1.8 U |
| Gamma-BHC/Lindane<br>Gamma-Chlordane |                |                  | 2%        |          | 48         | 4.5/E+02  |             | 540      |             | 1.8 UJ         | 2 U        | 1.9 UJ         |                |                |
|                                      | UG/KG          | 1.2<br>14        | 2%<br>4%  | 1 2      | 48<br>47   | 1.005.02  |             |          |             |                |            |                | 1.8 UJ         | 1.8 UJ         |
| Heptachlor                           | UG/KG          |                  | .,.       | _        |            | 1.08E+02  |             | 100      |             | 1.8 U          | 2 U        | 1.9 U          | 1.8 U          | 1.8 U          |
| Heptachlor epoxide                   | UG/KG          | 2.8              | 4%        | 2        | 46         | 5.34E+01  |             | 20       |             | 1.8 UJ         | 2 U        | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Methoxychlor                         | UG/KG          |                  | 0%        | -        | 48         | 3.06E+05  |             |          |             | 1.8 UJ         | 2 U        | 1.9 UJ         | 1.8 UJ         | 1.8 UJ         |
| Toxaphene                            | UG/KG          | 0                | 0%        | 0        | 48         | 4.42E+02  |             |          |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1016                         | UG/KG          | 0                | 0%        | 0        | 48         | 3.93E+03  |             |          |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1221                         | UG/KG          | 0                | 0%        | 0        | 48         |           |             |          |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1232                         | UG/KG          | 0                | 0%        | 0        | 48         | I         |             | I        |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1242                         | UG/KG          | 58               | 2%        | 1        | 48         |           |             |          |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1248                         | UG/KG          | 0                | 0%        | 0        | 48         |           | .           | 10005    |             | 18 U           | 20 U       | 19 U           | 18 U           | 18 U           |
| Aroclor-1254                         | UG/KG          | 930              | 19%       | 9        | 48         | 2.22E+02  | 3           | 10000    |             | 18 UJ          | 20 UJ      | 19 UJ          | 18 UJ          | 74 J           |

|                              | Facility              |             |                  |               |          |           |             |                  |             | SEAD-121C          | SEAD-121C        | SEAD-121C          | SEAD-121C          | SEAD-121C        |
|------------------------------|-----------------------|-------------|------------------|---------------|----------|-----------|-------------|------------------|-------------|--------------------|------------------|--------------------|--------------------|------------------|
|                              | Location ID<br>Matrix |             |                  |               |          |           |             |                  |             | SSDRMO-6<br>SOIL   | SSDRMO-7<br>SOIL | SSDRMO-7<br>SOIL   | SSDRMO-8<br>SOIL   | SSDRMO-9<br>SOIL |
|                              | Sample ID             |             |                  |               |          |           |             |                  |             | DRMO-1001          | DRMO-1002        | DRMO-1003          | DRMO-1004          | DRMO-1005        |
| Sample Depth to              |                       |             |                  |               |          |           |             |                  |             | DRMO-1001<br>0     | DRMO-1002<br>0   | 0 DRMO-1003        | DRMO-1004<br>0     | DRMO-1003<br>0   |
| Sample Depth to Bo           |                       |             |                  |               |          |           |             |                  |             | 0.2                | 0.2              | 0.2                | 0.2                | 0.2              |
| Sample Depth to Bo           | Sample Date           |             |                  |               |          |           |             |                  |             | 10/24/2002         | 10/24/2002       | 10/24/2002         | 10/23/2002         | 10/23/2002       |
|                              | OC Code               |             |                  |               |          | Region IX |             |                  |             | SA                 | 10/24/2002<br>SA | SA                 | SA                 | SA               |
|                              | Study ID              |             | Frequency        | Number        | Number   | PRG       |             | NYSDEC           |             | PID-RI             | PID-RI           | PID-RI             | PID-RI             | PID-RI           |
|                              | Study ID              | Maximum     | of               | of Times      | of       | Criteria  |             | Criteria         |             | FID-KI             | FID-KI           | FID-KI             | FID-KI             | FID-KI           |
| <b>.</b>                     |                       |             |                  |               |          |           |             |                  |             | ***                | ****             |                    |                    | *** (0)          |
| Parameter<br>Aroclor-1260    | Units                 | Value<br>85 | Detection<br>10% | Detected<br>5 | Analyses | Value 2   | Exceedances | Value 3<br>10000 | Exceedances | Value (Q)<br>18 UJ | Value (Q)        | Value (Q)<br>19 UJ | Value (Q)<br>18 UJ | Value (Q)        |
|                              | UG/KG                 | 85          | 10%              | 5             | 48       |           |             | 10000            |             | 18 UJ              | 20 UJ            | 19 UJ              | 18 UJ              | 18 UJ            |
| Metals and Cyanide           |                       | 45000       | 1000             | 40            | 40       | # 44E 04  |             | 40200            |             | 40000              | 7.120            | 0000               | #0.40              | 40200            |
| Aluminum                     | MG/KG                 | 17000       | 100%             | 48            | 48       | 7.61E+04  |             | 19300            |             | 10900              | 7420             | 8280               | 7840               | 10200            |
| Antimony                     | MG/KG                 | 236         | 81%              | 39            | 48       | 3.13E+01  | 2           | 5.9              | 11          | 2 J                | 3.2 J            | 1.4 J              | 1.8 J              | 3.2 J            |
| Arsenic                      | MG/KG                 | 11.6        | 100%             | 48            | 48       | 3.90E-01  | 48          | 8.2              | 2           | 4.6                | 6.2              | 5.4                | 5.1                | 5.3              |
| Barium                       | MG/KG                 | 2030        | 100%             | 48            | 48       | 5.37E+03  |             | 300              | 7           | 57.1 J             | 80.9 J           | 84.5 J             | 41.1 J             | 71.1 J           |
| Beryllium                    | MG/KG                 | 1.2         | 100%             | 48            | 48       | 1.54E+02  |             | 1.1              | 1           | 0.53               | 0.5              | 0.53               | 0.4                | 0.47             |
| Cadmium                      | MG/KG                 | 29.1        | 60%              | 29            | 48       | 3.70E+01  |             | 2.3              | 14          | 7.8                | 0.57             | 0.44               | 0.97               | 3                |
| Calcium                      | MG/KG                 | 296000      | 100%             | 48            | 48       |           |             | 121000           | 6           | 34700 J            | 63600 J          | 61200 J            | 94200 J            | 92500 J          |
| Chromium                     | MG/KG                 | 74.8        | 100%             | 48            | 48       |           |             | 29.6             | 12          | 22.9 J             | 17.6 J           | 18.8 J             | 17.6 J             | 22.6 J           |
| Cobalt                       | MG/KG                 | 17          | 100%             | 35            | 35       | 9.03E+02  |             | 30               |             | 14.4 R             | 8.6 R            | 8.7 R              | 11.5 R             | 11.4 R           |
| Copper                       | MG/KG                 | 9750        | 100%             | 48            | 48       | 3.13E+03  | 3           | 33               | 35          | 49.3 J             | 39.8 J           | 32.8 J             | 46.1 J             | 216 J            |
| Cyanide                      | MG/KG                 | 0           | 0%               | 0             | 8        | 1.22E+06  |             | 0.35             |             |                    |                  |                    |                    |                  |
| Cyanide, Amenable            | MG/KG                 | 0           | 0%               | 0             | 40       |           |             |                  |             | 0.53 U             | 0.58 U           | 0.57 U             | 0.53 U             | 0.54 U           |
| Cyanide, Total               | MG/KG                 | 0           | 0%               | 0             | 40       |           |             |                  |             | 0.534 U            | 0.582 U          | 0.575 U            | 0.532 U            | 0.542 U          |
| Iron                         | MG/KG                 | 51700       | 100%             | 48            | 48       | 2.35E+04  | 23          | 36500            | 5           | 24700              | 18500            | 18700              | 18100              | 25000            |
| Lead                         | MG/KG                 | 18900       | 100%             | 48            | 48       | 4.00E+02  | 7           | 24.8             | 40          | 130                | 117              | 93.8               | 66.8               | 122              |
| Magnesium                    | MG/KG                 | 20700       | 100%             | 48            | 48       |           |             | 21500            |             | 6840               | 12700            | 6180               | 8290               | 7770             |
| Manganese                    | MG/KG                 | 858         | 100%             | 48            | 48       | 1.76E+03  |             | 1060             |             | 468                | 480              | 553                | 610                | 581              |
| Mercury                      | MG/KG                 | 0.47        | 92%              | 44            | 48       | 2.35E+01  |             | 0.1              | 8           | 0.07               | 0.07             | 0.06               | 0.06               | 0.04             |
| Nickel                       | MG/KG                 | 224         | 100%             | 48            | 48       | 1.56E+03  |             | 49               | 9           | 42.5 J             | 22.4 J           | 23.5 J             | 31 J               | 32.9 J           |
| Potassium                    | MG/KG                 | 1990        | 100%             | 48            | 48       |           |             | 2380             |             | 1200 J             | 862 J            | 712 J              | 1070 J             | 1120 J           |
| Selenium                     | MG/KG                 | 1.3         | 21%              | 10            | 48       | 3.91E+02  |             | 2                |             | 0.64               | 0.49 U           | 0.47 U             | 0.44 U             | 0.49 J           |
| Silver                       | MG/KG                 | 21.8        | 38%              | 18            | 48       | 3.91E+02  |             | 0.75             | 13          | 0.29 U             | 0.31 U           | 0.3 U              | 0.28 U             | 1.4              |
| Sodium                       | MG/KG                 | 478         | 88%              | 42            | 48       |           |             | 172              | 26          | 204                | 191              | 194                | 302                | 235 J            |
| Thallium                     | MG/KG                 | 1.1         | 21%              | 10            | 48       | 5.16E+00  |             | 0.7              | 3           | 0.55 J             | 0.36 U           | 0.35 U             | 0.33 U             | 0.33 U           |
| Vanadium                     | MG/KG                 | 25.4        | 100%             | 48            | 48       | 7.82E+01  |             | 150              |             | 17 J               | 15.3 J           | 14.4 J             | 12.4 J             | 14.1 J           |
| Zinc                         | MG/KG                 | 3610        | 100%             | 48            | 48       | 2.35E+04  |             | 110              | 28          | 77.5 J             | 107 J            | 96.8 J             | 93.2 J             | 157 J            |
| Other                        |                       |             |                  |               |          |           |             |                  |             |                    |                  |                    |                    |                  |
| Total Organic Carbon         | MG/KG                 | 9000        | 100%             | 40            | 40       |           |             |                  |             | 4600               | 5800             | 6000               | 5300               | 6000             |
| Total Petroleum Hydrocarbons | MG/KG                 | 7600        | 25%              | 10            | 40       |           |             |                  |             | 43 U               | 190              | 46 U               | 43 U               | 140              |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

### Table C-3 DITCHSOIL SAMPLE RESULTS SEAD-121C

### SEAD-121C and SEAD-121I RI REPORT

|                            | Facility Location ID Matrix Sample ID |         |           |          |            |   |             |                     | SEAD-121C<br>SDDRMO-1<br>DITCHSOIL<br>DRMO-4000 | SEAD-121C<br>SDDRMO-2<br>DITCHSOIL<br>DRMO-4001 | SEAD-121C<br>SDDRMO-3<br>DITCHSOIL<br>DRMO-4002 | SEAD-121C<br>SDDRMO-4<br>DITCHSOIL<br>DRMO-4003 | SEAD-121C<br>SDDRMO-5<br>DITCHSOIL<br>DRMO-4004 | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4005 |
|----------------------------|---------------------------------------|---------|-----------|----------|------------|---|-------------|---------------------|---|---|---|---|---|---|
| Sample Depth to T          | Γop of Sample                         |         |           |          |            |   |             |                     | 0   | 0   | 0   | 0   | 0   | 0   |
| Sample Depth to Bott       | om of Sample                          |         |           |          |            |   |             |                     | 2   | 2   | 2   | 2   | 2   | 2   |
|                            | Sample Date                           |         |           |          |            |   |             |                     | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       |
|                            | QC Code                               |         |           |          |            | Region IX                               |             |                     | SA  | SA  | SA  | SA  | SA  | SA  |
|                            | Study ID                              | 1       | Frequency | Number   | Number     | PRG                                     |             | NYSDEC              | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  |
|                            |                                       | Maximum | of        | of Times | of         | Criteria                                |             | Criteria            | 1   | 1   | 1   | 1   | 1   | 1   |
| Parameter                  | Units                                 | Value   | Detection | Detected | Analyses 1 | Value 2                                 | Exceedances | Value 3 Exceedances | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       |
| Volatile Organic Compound  | s                                     |         |           |          |            |   |             |                     |   |   |   |   |   |   |
| 1,1,1-Trichloroethane      | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.20E+06                                |             | 800                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,1,2,2-Tetrachloroethane  | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.08E+02                                |             | 600                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,1,2-Trichloroethane      | UG/KG                                 | 0       | 0%        | 0        | 10         | 7.29E+02                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,1-Dichloroethane         | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.06E+05                                |             | 200                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,1-Dichloroethene         | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.24E+05                                |             | 400                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,2-Dichloroethane         | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.78E+02                                |             | 100                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| 1,2-Dichloropropane        | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.42E+02                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Acetone                    | UG/KG                                 | 150     | 70%       | 7        | 10         | 1.41E+07                                |             | 200                 | 14 J  | 53 J  | 150 J   | 12 UJ   | 12 J  | 21 J  |
| Benzene                    | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.43E+02                                |             | 60                  | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Bromodichloromethane       | UG/KG                                 | 0       | 0%        | 0        | 10         | 8.24E+02                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Bromoform                  | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.16E+04                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Carbon disulfide           | UG/KG                                 | 12      | 20%       | 2        | 10         | 3.55E+05                                |             | 2700                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Carbon tetrachloride       | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.51E+02                                |             | 600                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Chlorobenzene              | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.51E+05                                |             | 1700                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Chlorodibromomethane       | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.11E+03                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Chloroethane               | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.03E+03                                |             | 1900                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Chloroform                 | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.21E+02                                |             | 300                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Cis-1,2-Dichloroethene     | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.29E+04                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Cis-1,3-Dichloropropene    | UG/KG                                 | 0       | 0%        | 0        | 10         |   |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Ethyl benzene              | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.95E+05                                |             | 5500                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Meta/Para Xylene           | UG/KG                                 | 0       | 0%        | 0        | 10         |   |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Methyl bromide             | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.90E+03                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Methyl butyl ketone        | UG/KG                                 | 0       | 0%        | 0        | 10         |   |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Methyl chloride            | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.69E+04                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Methyl ethyl ketone        | UG/KG                                 | 130     | 30%       | 3        | 10         | 2.23E+07                                |             | 300                 | 3.6 J   | 12 UJ   | 26 UJ   | 130 J   | 6.5 UJ  | 6.6 UJ  |
| Methyl isobutyl ketone     | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.28E+06                                |             | 1000                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Methylene chloride         | UG/KG                                 | 0       | 0%        | 0        | 10         | 9.11E+03                                |             | 100                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Ortho Xylene               | UG/KG                                 | 0       | 0%        | 0        | 10         | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Styrene                    | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.70E+06                                |             |                     | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Tetrachloroethene          | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.84E+02                                |             | 1400                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Toluene                    | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.20E+05                                |             | 1500                | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Trans-1,2-Dichloroethene   | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.95E+04                                |             | 300                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Trans-1,3-Dichloropropene  | UG/KG                                 | 0       | 0%        | 0        | 10         | 0.55E+04                                |             | 300                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Trichloroethene            | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.30E+01                                |             | 700                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Vinyl chloride             | UG/KG                                 | 0       | 0%        | 0        | 10         | 7.91E+01                                |             | 200                 | 2.8 UJ  | 12 UJ   | 26 UJ   | 12 UJ   | 6.5 UJ  | 6.6 UJ  |
| Semivolatile Organic Compo |                                       | U       | 070       | U        | 10         | 7.51L+01                                |             | 200                 | 2.0 03  | 12 03   | 20 03   | 12 03   | 0.5 03  | 0.0 03  |
| 1.2.4-Trichlorobenzene     | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.22E+04                                |             | 3400                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 1,2-Dichlorobenzene        | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.00E+05                                |             | 7900                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 1,3-Dichlorobenzene        | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.31E+05                                |             | 1600                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 1,4-Dichlorobenzene        | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.45E+03                                |             | 8500                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 2,4,5-Trichlorophenol      | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.11E+06                                |             | 100                 | 910 U   | 4100 UJ   | 4300 UJ   | 3900 UJ   | 2100 UJ   | 1600 UJ   |
| 2,4,5-1 richlorophenol     | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.11E+06<br>6.11E+03                    |             | 100                 | 360 U   | 1600 UJ   | 4300 UJ<br>1700 UJ                              | 1600 UJ   | 840 UJ  | 650 UJ  |
|                            |                                       | 0       | 0%        |          | 10         | II .                                    |             | 400                 | 360 U   |   |   |   |   | 650 UJ  |
| 2,4-Dichlorophenol         | UG/KG                                 |         |           | 0        | -          | 1.83E+05                                |             | 400                 |   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  |   |
| 2,4-Dimethylphenol         | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.22E+06                                |             | 200                 | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 2,4-Dinitrophenol          | UG/KG                                 | -       | 0%        | 0        | 10         | 1.22E+05                                |             | 200                 | 910 U   | 4100 UJ   | 4300 UJ   | 3900 UJ   | 2100 UJ   | 1600 UJ   |
| 2,4-Dinitrotoluene         | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.22E+05                                |             | 1000                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |
| 2,6-Dinitrotoluene         | UG/KG                                 | 0       | 0%        | 0        | 10         | 6.11E+04                                |             | 1000                | 360 U   | 1600 UJ   | 1700 UJ   | 1600 UJ   | 840 UJ  | 650 UJ  |

### Table C-3 DITCHSOIL SAMPLE RESULTS SEAD-121C

### SEAD-121C and SEAD-121I RI REPORT

|                                       | Facility<br>Location ID |             |                 |               |                |                                |             |             |             | SEAD-121C<br>SDDRMO-1  | SEAD-121C<br>SDDRMO-2  | SEAD-121C<br>SDDRMO-3  | SEAD-121C<br>SDDRMO-4  | SEAD-121C<br>SDDRMO-5  | SEAD-121C<br>SDDRMO-8  |
|---------------------------------------|-------------------------|-------------|-----------------|---------------|----------------|--------------------------------|-------------|-------------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                                       | Matrix<br>Sample ID     |             |                 |               |                |                                |             |             |             | DITCHSOIL<br>DRMO-4000 | DITCHSOIL<br>DRMO-4001 | DITCHSOIL<br>DRMO-4002 | DITCHSOIL<br>DRMO-4003 | DITCHSOIL<br>DRMO-4004 | DITCHSOIL<br>DRMO-4005 |
| Sample Depth to T                     |                         |             |                 |               |                |                                |             |             |             | 0                      | 0                      | 0                      | 0                      | 0                      | 0                      |
| Sample Depth to Botto                 | m of Sample             |             |                 |               |                |                                |             |             |             | 2                      | 2                      | 2                      | 2                      | 2                      | 2                      |
|                                       | Sample Date             |             |                 |               |                |                                |             |             |             | 11/5/2002              | 11/5/2002              | 11/5/2002              | 11/5/2002              | 11/5/2002              | 11/5/2002              |
|                                       | QC Code                 |             |                 |               |                | Region IX                      |             |             |             | SA                     | SA                     | SA                     | SA                     | SA                     | SA                     |
|                                       | Study ID                |             | Frequency       |               |                | PRG                            |             | NYSDEC      |             | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|                                       |                         | Maximum     |                 | of Times      | of             | Criteria 2                     |             | Criteria    |             | 1                      | 1                      | 1                      | 1                      | 1                      | 1                      |
| Parameter<br>2-Chloronaphthalene      | Units<br>UG/KG          | Value<br>() | Detection<br>0% | Detected<br>0 | Analyses<br>10 | Value <sup>2</sup><br>4.94E+06 | Exceedances | Value 3     | Exceedances | Value (Q)<br>360 U     | Value (Q)<br>1600 UJ   | Value (Q)<br>1700 UJ   | Value (Q)<br>1600 UJ   | Value (Q)<br>840 UJ    | Value (Q)<br>650 UJ    |
| 2-Chlorophenol                        | UG/KG                   | 0           | 0%              | 0             | 10             | 6.34E+04                       |             | 800         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 2-Methylnaphthalene                   | UG/KG                   | 0           | 0%              | 0             | 10             | 0.54E104                       |             | 36400       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 2-Methylphenol                        | UG/KG                   | 0           | 0%              | 0             | 10             | 3.06E+06                       |             | 100         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 2-Nitroaniline                        | UG/KG                   | 0           | 0%              | 0             | 10             | 1.83E+05                       |             | 430         |             | 910 U                  | 4100 UJ                | 4300 UJ                | 3900 UJ                | 2100 UJ                | 1600 UJ                |
| 2-Nitrophenol                         | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             | 330         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 3 or 4-Methylphenol                   | UG/KG                   | 790         | 10%             | 1             | 10             |                                |             |             |             | 360 U                  | 1600 UJ                | 790 J                  | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 3,3'-Dichlorobenzidine                | UG/KG                   | 0           | 0%              | 0             | 10             | 1.08E+03                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 3-Nitroaniline                        | UG/KG                   | 0           | 0%              | 0             | 10             | 1.83E+04                       |             | 500         |             | 910 U                  | 4100 UJ                | 4300 UJ                | 3900 UJ                | 2100 UJ                | 1600 UJ                |
| 4,6-Dinitro-2-methylphenol            | UG/KG                   | 0           | 0%              | 0             | 10             | 6.11E+03                       |             |             |             | 910 U                  | 4100 UJ                | 4300 UJ                | 3900 UJ                | 2100 UJ                | 1600 UJ                |
| 4-Bromophenyl phenyl ether            | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 4-Chloro-3-methylphenol               | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             | 240         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 4-Chloroaniline                       | UG/KG                   | 0           | 0%              | 0             | 10             | 2.44E+05                       |             | 220         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 4-Chlorophenyl phenyl ether           | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| 4-Nitroaniline                        | UG/KG                   | 0           | 0%              | 0             | 10             | 2.32E+04                       |             |             |             | 910 U                  | 4100 UJ                | 4300 UJ                | 3900 UJ                | 2100 UJ                | 1600 UJ                |
| 4-Nitrophenol                         | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             | 100         |             | 910 U                  | 4100 UJ                | 4300 UJ                | 3900 UJ                | 2100 UJ                | 1600 UJ                |
| Acenaphthene                          | UG/KG                   | 0           | 0%              | 0             | 10             | 3.68E+06                       |             | 50000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Acenaphthylene                        | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             | 41000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Anthracene                            | UG/KG                   | 250         | 20%             | 2             | 10             | 2.19E+07                       |             | 50000       |             | 360 U                  | 250 J                  | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Benzo(a)anthracene                    | UG/KG                   | 1100        | 20%             | 2             | 10             | 6.21E+02                       | 1           | 224         | 2           | 360 U                  | 1100 J                 | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Benzo(a)pyrene                        | UG/KG                   | 900         | 20%             | 2             | 10             | 6.21E+01                       | 2           | 61          | 2           | 360 U                  | 900 J                  | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Benzo(b)fluoranthene                  | UG/KG                   | 1100        | 20%             | 2             | 10             | 6.21E+02                       | 1           | 1100        |             | 360 U                  | 1100 J                 | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Benzo(ghi)perylene                    | UG/KG                   | 290         | 10%             | 1             | 10             |                                |             | 50000       |             | 360 U                  | 290 J                  | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Benzo(k)fluoranthene                  | UG/KG                   | 580         | 10%             | 1             | 10             | 6.21E+03                       |             | 1100        |             | 360 U                  | 580 J                  | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Bis(2-Chloroethoxy)methane            | UG/KG                   | 0           | 0%              | 0             | 10             |                                |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Bis(2-Chloroethyl)ether               | UG/KG                   | 0           | 0%              | 0             | 10             | 2.18E+02                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Bis(2-Chloroisopropyl)ether           | UG/KG                   | 0           | 0%              | 0             | 10             | 2.88E+03                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Bis(2-Ethylhexyl)phthalate            | UG/KG                   | 0           | 0%              | 0             | 10             | 3.47E+04                       |             | 50000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Butylbenzylphthalate                  | UG/KG                   | 0           | 0%              | 0             | 10             | 1.22E+07                       |             | 50000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Carbazole                             | UG/KG                   | 0           | 0%              | 0             | 10             | 2.43E+04                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Chrysene                              | UG/KG                   | 1200        | 20%             | 2             | 10             | 6.21E+04                       |             | 400         | 1           | 360 U                  | 1200 J                 | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Di-n-butylphthalate                   | UG/KG                   | 0           | 0%              | 0             | 10             | 6.11E+06                       |             | 8100        |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Di-n-octylphthalate                   | UG/KG                   | 0           | 0%<br>0%        | 0             | 10<br>10       | 2.44E+06                       |             | 50000<br>14 |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Dibenz(a,h)anthracene<br>Dibenzofuran | UG/KG<br>UG/KG          | 0           | 0%              | 0             | 10             | 6.21E+01<br>1.45E+05           |             | 6200        |             | 360 U<br>360 U         | 1600 UJ<br>1600 UJ     | 1700 UJ<br>1700 UJ     | 1600 UJ<br>1600 UJ     | 840 UJ<br>840 UJ       | 650 UJ<br>650 UJ       |
| Diethyl phthalate                     | UG/KG                   | 0           | 0%              | 0             | 10             | 4.89E+07                       |             | 7100        |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Dimethylphthalate                     | UG/KG                   | 0           | 0%              | 0             | 10             | 1.00E+08                       |             | 2000        |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Fluoranthene                          | UG/KG                   | 2100        | 20%             | 2             | 10             | 2.29E+06                       |             | 50000       |             | 360 U                  | 2100 J                 | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Fluorene                              | UG/KG                   | 0           | 0%              | 0             | 10             | 2.75E+06                       |             | 50000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Hexachlorobenzene                     | UG/KG                   | 0           | 0%              | 0             | 10             | 3.04E+02                       |             | 410         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Hexachlorobutadiene                   | UG/KG                   | 0           | 0%              | 0             | 10             | 6.24E+03                       |             | 410         |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Hexachlorocyclopentadiene             | UG/KG                   | 0           | 0%              | 0             | 10             | 3.65E+05                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Hexachloroethane                      | UG/KG                   | 0           | 0%              | 0             | 10             | 3.47E+04                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Indeno(1,2,3-cd)pyrene                | UG/KG                   | 270         | 10%             | 1             | 10             | 6.21E+02                       |             | 3200        |             | 360 U                  | 270 J                  | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Isophorone                            | UG/KG                   | 0           | 0%              | 0             | 10             | 5.12E+05                       |             | 4400        |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| N-Nitrosodiphenylamine                | UG/KG                   | 0           | 0%              | 0             | 10             | 9.93E+04                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| N-Nitrosodipropylamine                | UG/KG                   | 0           | 0%              | 0             | 10             | 6.95E+01                       |             |             |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |
| Naphthalene                           | UG/KG                   | 0           | 0%              | 0             | 10             | 5.59E+04                       |             | 13000       |             | 360 U                  | 1600 UJ                | 1700 UJ                | 1600 UJ                | 840 UJ                 | 650 UJ                 |

### Table C-3 DITCHSOIL SAMPLE RESULTS SEAD-121C

### SEAD-121C and SEAD-121I RI REPORT

| Sample Depth to     | Facility Location ID Matrix Sample ID |         |           |          |            |           |             |          |             | SEAD-121C<br>SDDRMO-1<br>DITCHSOIL<br>DRMO-4000<br>0 | SEAD-121C<br>SDDRMO-2<br>DITCHSOIL<br>DRMO-4001<br>0 | SEAD-121C<br>SDDRMO-3<br>DITCHSOIL<br>DRMO-4002 | SEAD-121C<br>SDDRMO-4<br>DITCHSOIL<br>DRMO-4003 | SEAD-121C<br>SDDRMO-5<br>DITCHSOIL<br>DRMO-4004<br>0 | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4005 |
|---------------------|---------------------------------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|--|--|---|---|--|---|
| Sample Depth to Bot |                                       |         |           |          |            |           |             |          |             | 2  | 2  | 2   | 2   | 2  | 2   |
| Sample Depar to Bot | Sample Date                           |         |           |          |            |           |             |          |             | 11/5/2002  | 11/5/2002  | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002  | 11/5/2002                                       |
|                     | QC Code                               |         |           |          |            | Region IX |             |          |             | SA   | SA   | SA  | SA  | SA   | SA  |
|                     | Study ID                              |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI   | PID-RI   | PID-RI  | PID-RI  | PID-RI   | PID-RI  |
|                     |                                       | Maximum |           | of Times | of         | Criteria  |             | Criteria |             | 1  | 1  | 1   | 1   | 1  | 1   |
| Parameter           | Units                                 | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)  | Value (Q)  | Value (Q)                                       | Value (Q)                                       | Value (Q)  | Value (Q)                                       |
| Nitrobenzene        | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.96E+04  |             | 200      |             | 360 U  | 1600 UJ  | 1700 UJ   | 1600 UJ   | 840 UJ   | 650 UJ  |
| Pentachlorophenol   | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.98E+03  |             | 1000     |             | 910 U  | 4100 UJ  | 4300 UJ   | 3900 UJ   | 2100 UJ  | 1600 UJ   |
| Phenanthrene        | UG/KG                                 | 1100    | 20%       | 2        | 10         |           |             | 50000    |             | 360 U  | 1100 J   | 1700 UJ   | 1600 UJ   | 840 UJ   | 650 UJ  |
| Phenol              | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.83E+07  |             | 30       |             | 360 U  | 1600 UJ  | 1700 UJ   | 1600 UJ   | 840 UJ   | 650 UJ  |
| Pyrene              | UG/KG                                 | 2100    | 20%       | 2        | 10         | 2.32E+06  |             | 50000    |             | 360 U  | 2100 J   | 1700 UJ   | 1600 UJ   | 840 UJ   | 650 UJ  |
| Pesticides/PCBs     |                                       |         |           |          |            |           |             |          |             |  |  |   |   |  |   |
| 4,4'-DDD            | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.44E+03  |             | 2900     |             | 0.22 UJ  | 1 UJ   | 1.1 UJ  | 0.95 UJ   | 0.51 UJ  | 0.4 UJ  |
| 4,4'-DDE            | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.72E+03  |             | 2100     |             | 0.22 UJ  | 1 UJ   | 1.1 UJ  | 0.95 UJ   | 0.51 UJ  | 0.4 UJ  |
| 4,4'-DDT            | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.72E+03  |             | 2100     |             | 0.22 UJ  | 1 UJ   | 1.1 UJ  | 0.95 UJ   | 0.51 UJ  | 0.4 UJ  |
| Aldrin              | UG/KG                                 | 0       | 0%        | 0        | 10         | 2.86E+01  |             | 41       |             | 0.11 U   | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Alpha-BHC           | UG/KG                                 | 0       | 0%        | 0        | 10         | 9.02E+01  |             | 110      |             | 1.3 UJ   | 6 UJ   | 6.3 UJ  | 5.7 UJ  | 3.1 UJ   | 2.4 UJ  |
| Alpha-Chlordane     | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             |          |             | 0.33 UJ  | 1.5 UJ   | 1.6 UJ  | 1.4 UJ  | 0.77 UJ  | 0.6 UJ  |
| Beta-BHC            | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.16E+02  |             | 200      |             | 0.11 U   | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Chlordane           | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             |          |             | 2.1 U  | 9.5 UJ   | 10 UJ   | 9 UJ  | 4.9 UJ   | 3.8 UJ  |
| Delta-BHC           | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             | 300      |             | 0.22 UJ  | 1 UJ   | 1.1 UJ  | 0.95 UJ   | 0.51 UJ  | 0.4 UJ  |
| Dieldrin            | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.04E+01  |             | 44       |             | 0.11 UJ  | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Endosulfan I        | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             | 900      |             | 0.55 UJ  | 2.5 UJ   | 2.6 UJ  | 2.4 UJ  | 1.3 UJ   | 1 UJ  |
| Endosulfan II       | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             | 900      |             | 0.33 U   | 1.5 UJ   | 1.6 UJ  | 1.4 UJ  | 0.77 UJ  | 0.6 UJ  |
| Endosulfan sulfate  | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             | 1000     |             | 0.66 UJ  | 3 UJ   | 3.2 UJ  | 2.9 UJ  | 1.5 UJ   | 1.2 UJ  |
| Endrin              | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.83E+04  |             | 100      |             | 0.88 U   | 4 UJ   | 4.2 UJ  | 3.8 UJ  | 2.1 UJ   | 1.6 UJ  |
| Endrin aldehyde     | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             |          |             | 0.88 UJ  | 4 UJ   | 4.2 UJ  | 3.8 UJ  | 2.1 UJ   | 1.6 UJ  |
| Endrin ketone       | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             |          |             | 0.11 UJ  | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Gamma-BHC/Lindane   | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.37E+02  |             | 60       |             | 0.11 UJ  | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Gamma-Chlordane     | UG/KG                                 | 0       | 0%        | 0        | 10         |           |             | 540      |             | 0.33 UJ  | 1.5 UJ   | 1.6 UJ  | 1.4 UJ  | 0.77 UJ  | 0.6 UJ  |
| Heptachlor          | UG/KG                                 | 0       | 0%        | 0        | 10         | 1.08E+02  |             | 100      |             | 1.1 U  | 5 UJ   | 5.3 UJ  | 4.8 UJ  | 2.6 UJ   | 2 UJ  |
| Heptachlor epoxide  | UG/KG                                 | 0       | 0%        | 0        | 10         | 5.34E+01  |             | 20       |             | 0.33 U   | 1.5 UJ   | 1.6 UJ  | 1.4 UJ  | 0.77 UJ  | 0.6 UJ  |
| Methoxychlor        | UG/KG                                 | 0       | 0%        | 0        | 10         | 3.06E+05  |             |          |             | 0.11 U   | 0.5 UJ   | 0.53 UJ   | 0.48 UJ   | 0.26 UJ  | 0.2 UJ  |
| Toxaphene           | UG/KG                                 | 0       | 0%        | 0        | 10         | 4.42E+02  |             |          |             | 3.5 U  | 16 UJ  | 17 UJ   | 15 UJ   | 8.2 UJ   | 6.4 UJ  |
| Aroclor-1016        | UG/KG                                 | 0       | 0%        | 0        | 9          | 3.93E+03  |             |          |             | 5.7 U  | 26 UJ  | 27 UJ   | 24 UJ   | 13 UJ  | 10 UJ   |
| Aroclor-1221        | UG/KG                                 | 0       | 0%        | 0        | 9          |           |             |          |             | 1.4 U  | 6.4 UJ   | 6.8 UJ  | 6.1 UJ  | 3.3 UJ   | 2.6 UJ  |
| Aroclor-1232        | UG/KG                                 | 0       | 0%        | 0        | 9          |           |             |          |             | 8.7 U  | 39 UJ  | 42 UJ   | 38 UJ   | 20 UJ  | 16 UJ   |
| Aroclor-1242        | UG/KG                                 | 0       | 0%        | 0        | 9          |           |             |          |             | 2.4 U  | 11 UJ  | 11 UJ   | 10 UJ   | 5.6 UJ   | 4.3 UJ  |
| Aroclor-1248        | UG/KG                                 | 0       | 0%        | 0        | 9          |           |             |          |             | 6 U  | 27 UJ  | 29 UJ   | 26 UJ   | 14 UJ  | 11 UJ   |
| Aroclor-1254        | UG/KG                                 | 0       | 0%        | 0        | 9          | 2.22E+02  |             | 10000    |             | 12 U   | 52 UJ  | 55 UJ   | 50 UJ   | 27 UJ  | 21 UJ   |
| Aroclor-1260        | UG/KG                                 | 0       | 0%        | 0        | 9          |           |             | 10000    |             | 2.2 UJ   | 9.9 UJ   | 10 UJ   | 9.4 UJ  | 5.1 UJ   | 3.9 UJ  |
| Metals and Cyanide  |                                       |         |           |          |            |           |             |          |             |  |  |   |   |  |   |
| Aluminum            | MG/KG                                 | 21500   | 100%      | 10       | 10         | 7.61E+04  |             | 19300    | 1           | 2850   | 5600 J   | 5100 J  | 9540 J  | 9770 J   | 10100   |
| Antimony            | MG/KG                                 | 4.9     | 50%       | 5        | 10         | 3.13E+01  |             | 5.9      |             | 0.97 J   | 4.5 J  | 4.7 J   | 4.3 UJ  | 2.5 J  | 1.8 UJ  |
| Arsenic             | MG/KG                                 | 6.1     | 100%      | 10       | 10         | 3.90E-01  | 1           | 8.2      |             | 1.1  | 6.1 J  | 1.2 J   | 2.2 J   | 5.1 J  | 2.1   |
| Barium              | MG/KG                                 | 291     | 100%      | 10       | 10         | 5.37E+03  | •           | 300      |             | 36.6 J   | 111 J  | 41.9 J  | 131 J   | 96.3 J   | 72.2 J  |
| Beryllium           | MG/KG                                 | 0.8 4   | 80%       | 8        | 10         | 1.54E+02  |             | 1.1      |             | 0.2  | 0.64 UJ  | 0.68 UJ   | 0.67 J  | 0.6 J  | 0.63  |
| Cadmium             | MG/KG<br>MG/KG                        | 14.3    | 50%       | 5        | 10         | 3.70E+01  |             | 2.3      | 3           | 0.2<br>0.13 U  | 1.5 J  | 3.4 J   | 2.1 J   | 5.8 J  | 0.65<br>0.24 U                                  |
|                     |                                       |         |           |          |            | 3.70E+01  |             |          | 2           |  |  |   |   |  |   |
| Calcium             | MG/KG                                 | 161000  | 100%      | 10       | 10         |           |             | 121000   |             | 28900  | 133000 J   | 45400 J   | 61200 J   | 56000 J  | 24000   |
| Chromium            | MG/KG                                 | 29.8    | 100%      | 10       | 10         |           |             | 29.6     | 1           | 7.3  | 29.8 J   | 15.9 J  | 29.3 J  | 26.5 J   | 22.6  |
| Cobalt              | MG/KG                                 | 15.8 4  | 100%      | 10       | 10         | 9.03E+02  |             | 30       |             | 3  | 10.2 J   | 7.2 J   | 10.2 J  | 14.7 J   | 11.4  |
| Copper              | MG/KG                                 | 1190    | 100%      | 10       | 10         | 3.13E+03  |             | 33       | 7           | 19.1   | 117 J  | 77.4 J  | 96.8 J  | 133 J  | 34  |
| Cyanide, Amenable   | MG/KG                                 | 2.36    | 10%       | 1        | 10         |           |             |          |             | 0.55 U   | 2.49 UJ  | 2.63 UJ   | 2.36 J  | 1.29 UJ  | 1.1 U   |

## Table C-3 DITCHSOIL SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT

| Depot Activity |
|----------------|
|                |

| I                            | Facility<br>Location ID |         |           |          |            |           |             |          |             | SEAD-121C<br>SDDRMO-1 | SEAD-121C<br>SDDRMO-2 | SEAD-121C<br>SDDRMO-3 | SEAD-121C<br>SDDRMO-4 | SEAD-121C<br>SDDRMO-5 | SEAD-121C<br>SDDRMO-8 |
|------------------------------|-------------------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                              | Matrix                  |         |           |          |            |           |             |          |             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             |
|                              | Sample ID               |         |           |          |            |           |             |          |             | DRMO-4000             | DRMO-4001             | DRMO-4002             | DRMO-4003             | DRMO-4004             | DRMO-4005             |
| Sample Depth to Top          |                         |         |           |          |            |           |             |          |             | 0                     | 0                     | 0                     | 0                     | 0                     | 0                     |
| Sample Depth to Bottom       | n of Sample             |         |           |          |            |           |             |          |             | 2                     | 2                     | 2                     | 2                     | 2                     | 2                     |
| S                            | ample Date              |         |           |          |            |           |             |          |             | 11/5/2002             | 11/5/2002             | 11/5/2002             | 11/5/2002             | 11/5/2002             | 11/5/2002             |
|                              | QC Code                 |         |           |          |            | Region IX |             |          |             | SA                    | SA                    | SA                    | SA                    | SA                    | SA                    |
|                              | Study ID                |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI                | PID-RI                | PID-RI                | PID-RI                | PID-RI                | PID-RI                |
|                              |                         | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             | 1                     | 1                     | 1                     | 1                     | 1                     | 1                     |
| Parameter                    | Units                   | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| Cyanide, Total               | MG/KG                   | 2.36    | 10%       | 1        | 10         |           |             |          |             | 0.552 U               | 2.49 UJ               | 2.63 UJ               | 2.36 J                | 1.29 UJ               | 1.1 U                 |
| Iron                         | MG/KG                   | 27300 4 | 100%      | 10       | 10         | 2.35E+04  | 1           | 36500    |             | 5650                  | 18400 J               | 13800 J               | 20400 J               | 23300 J               | 20500                 |
| Lead                         | MG/KG                   | 436     | 100%      | 10       | 10         | 4.00E+02  | 1           | 24.8     | 8           | 34.3                  | 200 J                 | 148 J                 | 197 J                 | 196 J                 | 58.3                  |
| Magnesium                    | MG/KG                   | 17600   | 100%      | 10       | 10         |           |             | 21500    |             | 3340                  | 13100 J               | 5780 J                | 7480 J                | 6810 J                | 5150                  |
| Manganese                    | MG/KG                   | 918     | 100%      | 10       | 10         | 1.76E+03  |             | 1060     |             | 126                   | 754 J                 | 271 J                 | 616 J                 | 918 J                 | 471                   |
| Mercury                      | MG/KG                   | 0.3     | 100%      | 10       | 10         | 2.35E+01  |             | 0.1      | 6           | 0.09                  | 0.3 J                 | 0.14 J                | 0.2 J                 | 0.09 J                | 0.11                  |
| Nickel                       | MG/KG                   | 42.7    | 100%      | 10       | 10         | 1.56E+03  |             | 49       |             | 8.2                   | 32.5 J                | 22.8 J                | 29.3 J                | 42.7 J                | 30.9                  |
| Potassium                    | MG/KG                   | 1410    | 100%      | 10       | 10         |           |             | 2380     |             | 368                   | 880 J                 | 1070 J                | 1370 J                | 1410 J                | 905                   |
| Selenium                     | MG/KG                   | 2.5     | 40%       | 4        | 10         | 3.91E+02  |             | 2        | 2           | 0.73                  | 2.1 UJ                | 2.3 J                 | 2.5 J                 | 1.6 J                 | 0.82 U                |
| Silver                       | MG/KG                   | 2.6     | 50%       | 5        | 10         | 3.91E+02  |             | 0.75     | 5           | 0.93                  | 1.3 UJ                | 1.4 UJ                | 2.1 J                 | 2.6 J                 | 0.65                  |
| Sodium                       | MG/KG                   | 1120    | 100%      | 10       | 10         |           |             | 172      | 9           | 258                   | 1090 J                | 985 J                 | 1120 J                | 465 J                 | 388                   |
| Thallium                     | MG/KG                   | 0       | 0%        | 0        | 10         | 5.16E+00  |             | 0.7      |             | 0.33 U                | 1.5 UJ                | 1.6 UJ                | 1.5 UJ                | 0.77 UJ               | 0.61 U                |
| Vanadium                     | MG/KG                   | 29.1    | 100%      | 10       | 10         | 7.82E+01  |             | 150      |             | 8.6                   | 29.1 J                | 16.1 J                | 23.6 J                | 20.9 J                | 17.8                  |
| Zinc                         | MG/KG                   | 566     | 100%      | 10       | 10         | 2.35E+04  |             | 110      | 7           | 57.9 J                | 540                   | 314                   | 390                   | 566                   | 135 J                 |
| Other                        |                         |         |           |          |            |           |             |          |             |                       |                       |                       |                       |                       |                       |
| Total Organic Carbon         | MG/KG                   | 9100    | 100%      | 10       | 10         |           |             |          |             | 4600                  | 6400 J                | 7500 J                | 6300 J                | 6200 J                | 7100 J                |
| Total Petroleum Hydrocarbons | MG/KG                   | 2600    | 20%       | 2        | 10         |           |             |          |             | 1000                  | 2600 Ј                | 211 UJ                | 190 UJ                | 100 UJ                | 80 UJ                 |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate DRMO-4005 at Loc ID SDDRMO-8.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

| Sample Depth to To          | Facility Location ID Matrix Sample ID p of Sample |         |           |          |            |           |             |                    | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008<br>0 | SEAD-121C<br>SDDRMO-6<br>DITCHSOIL<br>DRMO-4006<br>0 | SEAD-121C<br>SDDRMO-7<br>DITCHSOIL<br>DRMO-4007<br>0 | SEAD-121C<br>SDDRMO-9<br>DITCHSOIL<br>DRMO-4009<br>0 | SEAD-121C<br>SDDRMO-10<br>DITCHSOIL<br>DRMO-4010<br>0 |
|-----------------------------|---|---------|-----------|----------|------------|-----------|-------------|--------------------|--|--|--|--|---|
| Sample Depth to Botton      |   |         |           |          |            |           |             |                    | 2  | 2  | 2  | 2  | 2   |
| 5                           | Sample Date                                       |         |           |          |            |           |             |                    | 11/5/2002  | 11/5/2002  | 11/5/2002  | 11/5/2002  | 11/5/2002   |
|                             | QC Code   |         |           |          |            | Region IX |             |                    | SA   | SA   | SA   | SA   | SA  |
|                             | Study ID  |         | Frequency |          | Number     | PRG       |             | NYSDEC             | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI  |
|                             |   | Maximum | of        | of Times | of         | Criteria  |             | Criteria           | 1  | 1  | 1  | 1  | 1   |
| Parameter                   | Units   | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3 Exceedance | s Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)   |
| Volatile Organic Compounds  |   |         |           |          |            |           |             |                    |  |  |  |  |   |
| 1,1,1-Trichloroethane       | UG/KG   | 0       | 0%        | 0        | 10         | 1.20E+06  |             | 800                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| 1,1,2,2-Tetrachloroethane   | UG/KG   | 0       | 0%        | 0        | 10         | 4.08E+02  |             | 600                | 11 UJ  | 3.7 UJ   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| 1,1,2-Trichloroethane       | UG/KG   | 0       | 0%        | 0        | 10         | 7.29E+02  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| 1,1-Dichloroethane          | UG/KG   | 0       | 0%        | 0        | 10         | 5.06E+05  |             | 200                | 11 UJ  | 3.7 UJ   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| 1,1-Dichloroethene          | UG/KG   | 0       | 0%        | 0        | 10         | 1.24E+05  |             | 400                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| 1,2-Dichloroethane          | UG/KG   | 0       | 0%        | 0        | 10         | 2.78E+02  |             | 100                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| 1,2-Dichloropropane         | UG/KG   | 0       | 0%        | 0        | 10         | 3.42E+02  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Acetone                     | UG/KG   | 150     | 70%       | 7        | 10         | 1.41E+07  |             | 200                | 72 J   | 3.7 U  | 2.9 U  | 25 J   | 33 J  |
| Benzene                     | UG/KG   | 0       | 0%        | 0        | 10         | 6.43E+02  |             | 60                 | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Bromodichloromethane        | UG/KG   | 0       | 0%        | 0        | 10         | 8.24E+02  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Bromoform                   | UG/KG   | 0       | 0%        | 0        | 10         | 6.16E+04  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Carbon disulfide            | UG/KG   | 12      | 20%       | 2        | 10         | 3.55E+05  |             | 2700               | 6.7 J  | 12 J   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| Carbon tetrachloride        | UG/KG   | 0       | 0%        | 0        | 10         | 2.51E+02  |             | 600                | 11 UJ  | 3.7 UJ   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| Chlorobenzene               | UG/KG   | 0       | 0%        | 0        | 10         | 1.51E+05  |             | 1700               | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Chlorodibromomethane        | UG/KG   | 0       | 0%        | 0        | 10         | 1.11E+03  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Chloroethane                | UG/KG   | 0       | 0%        | 0        | 10         | 3.03E+03  |             | 1900               | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Chloroform                  | UG/KG   | 0       | 0%        | 0        | 10         | 2.21E+02  |             | 300                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Cis-1,2-Dichloroethene      | UG/KG   | 0       | 0%        | 0        | 10         | 4.29E+04  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Cis-1,3-Dichloropropene     | UG/KG   | 0       | 0%        | 0        | 10         |           |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Ethyl benzene               | UG/KG   | 0       | 0%        | 0        | 10         | 3.95E+05  |             | 5500               | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Meta/Para Xylene            | UG/KG   | 0       | 0%        | 0        | 10         |           |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Methyl bromide              | UG/KG   | 0       | 0%        | 0        | 10         | 3.90E+03  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Methyl butyl ketone         | UG/KG   | 0       | 0%        | 0        | 10         |           |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Methyl chloride             | UG/KG   | 0       | 0%        | 0        | 10         | 4.69E+04  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Methyl ethyl ketone         | UG/KG   | 130     | 30%       | 3        | 10         | 2.23E+07  |             | 300                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.2 J   |
| Methyl isobutyl ketone      | UG/KG   | 0       | 0%        | 0        | 10         | 5.28E+06  |             | 1000               | 11 UJ  | 3.7 UJ   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| Methylene chloride          | UG/KG   | 0       | 0%        | 0        | 10         | 9.11E+03  |             | 100                | 11 UJ  | 3.7 UJ   | 2.9 UJ   | 4.6 UJ   | 7.1 UJ  |
| Ortho Xylene                | UG/KG   | 0       | 0%        | 0        | 10         |           |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Styrene                     | UG/KG   | 0       | 0%        | 0        | 10         | 1.70E+06  |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Tetrachloroethene           | UG/KG   | 0       | 0%        | 0        | 10         | 4.84E+02  |             | 1400               | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Toluene                     | UG/KG   | 0       | 0%        | 0        | 10         | 5.20E+05  |             | 1500               | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Trans-1,2-Dichloroethene    | UG/KG   | 0       | 0%        | 0        | 10         | 6.95E+04  |             | 300                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Trans-1,3-Dichloropropene   | UG/KG   | 0       | 0%        | 0        | 10         |           |             |                    | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Trichloroethene             | UG/KG   | 0       | 0%        | 0        | 10         | 5.30E+01  |             | 700                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Vinyl chloride              | UG/KG   | 0       | 0%        | 0        | 10         | 7.91E+01  |             | 200                | 11 UJ  | 3.7 U  | 2.9 U  | 4.6 UJ   | 7.1 UJ  |
| Semivolatile Organic Compou | nds   |         |           |          |            |           |             |                    |  |  |  |  |   |
| 1,2,4-Trichlorobenzene      | UG/KG   | 0       | 0%        | 0        | 10         | 6.22E+04  |             | 3400               | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 1,2-Dichlorobenzene         | UG/KG   | 0       | 0%        | 0        | 10         | 6.00E+05  |             | 7900               | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 1,3-Dichlorobenzene         | UG/KG   | 0       | 0%        | 0        | 10         | 5.31E+05  |             | 1600               | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 1,4-Dichlorobenzene         | UG/KG   | 0       | 0%        | 0        | 10         | 3.45E+03  |             | 8500               | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 2,4,5-Trichlorophenol       | UG/KG   | 0       | 0%        | 0        | 10         | 6.11E+06  |             | 100                | 2600 UJ  | 1200 U   | 1100 U   | 1400 U   | 2300 UJ   |
| 2,4,6-Trichlorophenol       | UG/KG   | 0       | 0%        | 0        | 10         | 6.11E+03  |             |                    | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 2,4-Dichlorophenol          | UG/KG   | 0       | 0%        | 0        | 10         | 1.83E+05  |             | 400                | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 2,4-Dimethylphenol          | UG/KG   | 0       | 0%        | 0        | 10         | 1.22E+06  |             |                    | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 2,4-Dinitrophenol           | UG/KG   | 0       | 0%        | 0        | 10         | 1.22E+05  |             | 200                | 2600 UJ  | 1200 U   | 1100 U   | 1400 U   | 2300 UJ   |
| 2,4-Dinitrotoluene          | UG/KG   | 0       | 0%        | 0        | 10         | 1.22E+05  |             |                    | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |
| 2,6-Dinitrotoluene          | UG/KG   | 0       | 0%        | 0        | 10         | 6.11E+04  |             | 1000               | 1100 UJ  | 460 U  | 430 U  | 550 U  | 910 UJ  |

|  |                |         |           |          |            |                      | Seneca A    | Army D   | epot Activ  | ıty                |                |                |                |                  |
|--|----------------|---------|-----------|----------|------------|----------------------|-------------|----------|-------------|--------------------|----------------|----------------|----------------|------------------|
|  | Facility       |         |           |          |            |                      |             |          |             | SEAD-121C          | SEAD-121C      | SEAD-121C      | SEAD-121C      | SEAD-121C        |
|  | Location ID    |         |           |          |            |                      |             |          |             | SDDRMO-8           | SDDRMO-6       | SDDRMO-7       | SDDRMO-9       | SDDRMO-10        |
|  | Matrix         |         |           |          |            |                      |             |          |             | DITCHSOIL          | DITCHSOIL      | DITCHSOIL      | DITCHSOIL      | DITCHSOIL        |
|  | Sample ID      |         |           |          |            |                      |             |          |             | DRMO-4008          | DRMO-4006      | DRMO-4007      | DRMO-4009      | DRMO-4010        |
| Sample Depth to To                         |                |         |           |          |            |                      |             |          |             | 0                  | 0              | 0              | 0              | 0                |
| Sample Depth to Botton                     | m of Sample    |         |           |          |            |                      |             |          |             | 2                  | 2              | 2              | 2              | 2                |
|  | Sample Date    |         |           |          |            |                      |             |          |             | 11/5/2002          | 11/5/2002      | 11/5/2002      | 11/5/2002      | 11/5/2002        |
|  | QC Code        |         |           |          |            | Region IX            |             |          |             | SA                 | SA             | SA             | SA             | SA               |
|  | Study ID       |         | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI             | PID-RI         | PID-RI         | PID-RI         | PID-RI           |
|  |                | Maximum | of        | of Times | of         | Criteria             |             | Criteria |             | 1                  | 1              | 1              | 1              | 1                |
| Parameter                                  | Units          | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3  | Exceedances | Value (Q)          | Value (Q)      | Value (Q)      | Value (Q)      | Value (Q)        |
| 2-Chloronaphthalene                        | UG/KG          | 0       | 0%        | 0        | 10         | 4.94E+06             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 2-Chlorophenol                             | UG/KG          | 0       | 0%        | 0        | 10         | 6.34E+04             |             | 800      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 2-Methylnaphthalene                        | UG/KG          | 0       | 0%        | 0        | 10         |                      |             | 36400    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 2-Methylphenol                             | UG/KG          | 0       | 0%        | 0        | 10         | 3.06E+06             |             | 100      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 2-Nitroaniline                             | UG/KG          | 0       | 0%        | 0        | 10         | 1.83E+05             |             | 430      |             | 2600 UJ            | 1200 U         | 1100 U         | 1400 U         | 2300 UJ          |
| 2-Nitrophenol                              | UG/KG          | 0       | 0%        | 0        | 10         |                      |             | 330      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 3 or 4-Methylphenol                        | UG/KG          | 790     | 10%       | 1        | 10         |                      |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 3,3'-Dichlorobenzidine                     | UG/KG          | 0       | 0%        | 0        | 10         | 1.08E+03             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 3-Nitroaniline                             | UG/KG          | 0       | 0%        | 0        | 10         | 1.83E+04             |             | 500      |             | 2600 UJ            | 1200 U         | 1100 U         | 1400 U         | 2300 UJ          |
| 4,6-Dinitro-2-methylphenol                 | UG/KG          | 0       | 0%        | 0        | 10         | 6.11E+03             |             |          |             | 2600 UJ            | 1200 U         | 1100 U         | 1400 U         | 2300 UJ          |
| 4-Bromophenyl phenyl ether                 | UG/KG          | 0       | 0%        | 0        | 10         |                      |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 4-Chloro-3-methylphenol                    | UG/KG          | 0       | 0%        | 0        | 10         |                      |             | 240      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 4-Chloroaniline                            | UG/KG          | 0       | 0%        | 0        | 10         | 2.44E+05             |             | 220      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| 4-Chlorophenyl phenyl ether                | UG/KG          | 0       | 0%        | 0        | 10         |                      |             |          |             | 1100 UJ            | 460 UJ         | 430 UJ         | 550 U          | 910 UJ           |
| 4-Nitroaniline                             | UG/KG          | 0       | 0%        | 0        | 10         | 2.32E+04             |             |          |             | 2600 UJ            | 1200 U         | 1100 U         | 1400 U         | 2300 UJ          |
| 4-Nitrophenol                              | UG/KG          | 0       | 0%        | 0        | 10         |                      |             | 100      |             | 2600 UJ            | 1200 U         | 1100 U         | 1400 U         | 2300 UJ          |
| Acenaphthene                               | UG/KG          | 0       | 0%        | 0        | 10         | 3.68E+06             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Acenaphthylene                             | UG/KG          | 0       | 0%        | 0        | 10         |                      |             | 41000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Anthracene                                 | UG/KG          | 250     | 20%       | 2        | 10         | 2.19E+07             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 100 J          | 910 UJ           |
| Benzo(a)anthracene                         | UG/KG          | 1100    | 20%       | 2        | 10         | 6.21E+02             | 1           | 224      | 2           | 1100 UJ            | 460 U          | 430 U          | 230 J          | 910 UJ           |
| Benzo(a)pyrene                             | UG/KG          | 900     | 20%       | 2        | 10         | 6.21E+01             | 2           | 61       | 2           | 1100 UJ            | 460 U          | 430 U          | 170 J          | 910 UJ           |
| Benzo(b)fluoranthene                       | UG/KG          | 1100    | 20%       | 2        | 10         | 6.21E+02             | 1           | 1100     |             | 1100 UJ            | 460 UJ         | 430 UJ         | 180 J          | 910 UJ           |
| Benzo(ghi)perylene                         | UG/KG          | 290     | 10%       | 1        | 10         | 6 21 F 02            |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Benzo(k)fluoranthene                       | UG/KG          | 580     | 10%       | 1        | 10         | 6.21E+03             |             | 1100     |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Bis(2-Chloroethoxy)methane                 | UG/KG          | 0       | 0%        | 0        | 10         | 2 105 02             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Bis(2-Chloroethyl)ether                    | UG/KG          | 0       | 0%        | 0        | 10         | 2.18E+02             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Bis(2-Chloroisopropyl)ether                | UG/KG          | 0       | 0%<br>0%  | 0        | 10         | 2.88E+03             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Bis(2-Ethylhexyl)phthalate                 | UG/KG<br>UG/KG | 0       | 0%        | 0        | 10<br>10   | 3.47E+04             |             |          |             | 1100 UJ<br>1100 UJ | 460 U          | 430 U<br>430 U | 550 U<br>550 U | 910 UJ           |
| Butylbenzylphthalate                       | UG/KG<br>UG/KG | 0       | 0%        | 0        | 10         | 1.22E+07<br>2.43E+04 |             | 50000    |             | 1100 UJ<br>1100 UJ | 460 U<br>460 U | 430 U<br>430 U | 550 U          | 910 UJ<br>910 UJ |
| Carbazole                                  | UG/KG          | 1200    | 20%       | 2        | 10         | 6.21E+04             |             | 400      | 1           | 1100 UJ            | 460 U          | 430 U          | 240 J          | 910 UJ           |
| Chrysene                                   | UG/KG          | 0       | 0%        | 0        | 10         | 6.21E+04<br>6.11E+06 |             | 8100     | 1           | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Di-n-butylphthalate<br>Di-n-octylphthalate | UG/KG          | 0       | 0%        | 0        | 10         | 2.44E+06             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Dibenz(a,h)anthracene                      | UG/KG          | 0       | 0%        | 0        | 10         | 6.21E+01             |             | 14       |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Dibenzofuran                               | UG/KG          | 0       | 0%        | 0        | 10         | 1.45E+05             |             | 6200     |             | 1100 UJ            | 460 UJ         | 430 UJ         | 550 U          | 910 UJ           |
| Diethyl phthalate                          | UG/KG          | 0       | 0%        | 0        | 10         | 4.89E+07             |             | 7100     |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Dimethylphthalate                          | UG/KG          | 0       | 0%        | 0        | 10         | 1.00E+08             |             | 2000     |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Fluoranthene                               | UG/KG          | 2100    | 20%       | 2        | 10         | 2.29E+06             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 520 J          | 910 UJ           |
| Fluorene                                   | UG/KG          | 0       | 0%        | 0        | 10         | 2.75E+06             |             | 50000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Hexachlorobenzene                          | UG/KG          | 0       | 0%        | 0        | 10         | 3.04E+02             |             | 410      |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Hexachlorobutadiene                        | UG/KG          | 0       | 0%        | 0        | 10         | 6.24E+03             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Hexachlorocyclopentadiene                  | UG/KG          | 0       | 0%        | 0        | 10         | 3.65E+05             |             |          |             | 1100 UJ            | 460 UJ         | 430 UJ         | 550 U          | 910 UJ           |
| Hexachloroethane                           | UG/KG          | 0       | 0%        | 0        | 10         | 3.47E+04             |             | 1        |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Indeno(1,2,3-cd)pyrene                     | UG/KG          | 270     | 10%       | 1        | 10         | 6.21E+02             |             | 3200     |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| Isophorone                                 | UG/KG          | 0       | 0%        | 0        | 10         | 5.12E+05             |             | 4400     |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| N-Nitrosodiphenylamine                     | UG/KG          | 0       | 0%        | 0        | 10         | 9.93E+04             |             |          |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
| N-Nitrosodipropylamine                     | UG/KG          | 0       | 0%        | 0        | 10         | 6.95E+01             |             | 1        |             | 1100 UJ            | 460 UJ         | 430 UJ         | 550 U          | 910 UJ           |
| Naphthalene                                | UG/KG          | 0       | 0%        | 0        | 10         | 5.59E+04             |             | 13000    |             | 1100 UJ            | 460 U          | 430 U          | 550 U          | 910 UJ           |
|  |                | -       |           | -        |            |                      |             |          |             |                    |                |                |                |                  |

|                              | Facility<br>Location ID<br>Matrix<br>Sample ID |            |                 |          |                |           |             |          |             | SEAD-121C<br>SDDRMO-8<br>DITCHSOIL<br>DRMO-4008 | SEAD-121C<br>SDDRMO-6<br>DITCHSOIL<br>DRMO-4006 | SEAD-121C<br>SDDRMO-7<br>DITCHSOIL<br>DRMO-4007 | SEAD-121C<br>SDDRMO-9<br>DITCHSOIL<br>DRMO-4009 | SEAD-121C<br>SDDRMO-10<br>DITCHSOIL<br>DRMO-4010 |
|------------------------------|--|------------|-----------------|----------|----------------|-----------|-------------|----------|-------------|---|---|---|---|--|
| Sample Depth to Be           | o Top of Sample                                |            |                 |          |                |           |             |          |             | 0 2   | 0 2   | 0 2   | 0 2   | 0<br>2   |
| Sample Deput to Bo           | Sample Date                                    |            |                 |          |                |           |             |          |             | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002                                       | 11/5/2002  |
|                              | OC Code  |            |                 |          |                | Region IX |             |          |             | SA  | SA  | SA  | SA  | SA   |
|                              | Study ID                                       |            | Frequency       | Number   | Number         | PRG       |             | NYSDEC   |             | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI   |
|                              | Study ID                                       | Maximun    |                 | of Times | of             | Criteria  |             | Criteria |             | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1           | 1   | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1           | FID-KI  | 1 1  |
| D                            | TT24   |            |                 |          |                | Value 2   | F1          |          | E           | =   | Value (O)                                       | -   | V-1 (0)   | -  |
| Parameter<br>Nitrobenzene    | Units<br>UG/KG                                 | Value<br>0 | Detection<br>0% | 0        | Anaiyses<br>10 | 1.96E+04  | Exceedances | 200      | Exceedances | Value (Q)<br>1100 UJ                            | 460 U   | Value (Q)<br>430 U                              | Value (Q)<br>550 U                              | Value (Q)<br>910 UJ                              |
| Pentachlorophenol            | UG/KG  | 0          | 0%              | 0        | 10             | 2.98E+03  |             | 1000     |             | 2600 UJ   | 1200 U  | 1100 U  | 1400 U  | 2300 UJ  |
| Phenanthrene                 | UG/KG  | 1100       | 20%             | 2        | 10             | 2.96E+03  |             | 50000    |             | 1100 UJ   | 460 U   | 430 U   | 410 J   | 910 UJ   |
| Phenol                       | UG/KG  | 0          | 0%              | 0        | 10             | 1.83E+07  |             | 30000    |             | 1100 UJ   | 460 U   | 430 U   | 550 U   | 910 UJ<br>910 UJ                                 |
| Pyrene                       | UG/KG  | 2100       | 20%             | 2        | 10             | 2.32E+06  |             | 50000    |             | 1100 UJ   | 460 U   | 430 U   | 440 J   | 910 UJ   |
| Pesticides/PCBs              | UG/KG  | 2100       | 20%             | 2        | 10             | 2.32E+00  |             | 30000    |             | 1100 UJ   | 400 U   | 430 U   | 440 J   | 910 UJ   |
|                              | HOMO   | 0          | 00/             | 0        | 10             | 2 445 02  |             | 2000     |             | 0.55 111  | 0.20 111  | 0.26 111  | 0.24 111  | 0.56 111   |
| 4,4'-DDD                     | UG/KG  | 0          | 0%              | 0        | 10             | 2.44E+03  |             | 2900     |             | 0.65 UJ   | 0.29 UJ   | 0.26 UJ   | 0.34 UJ   | 0.56 UJ  |
| 4,4'-DDE                     | UG/KG  | 0          | 0%              | 0        | 10             | 1.72E+03  |             | 2100     |             | 0.65 UJ   | 0.29 U  | 0.26 U  | 0.34 U  | 0.56 UJ  |
| 4,4'-DDT                     | UG/KG  | 0          | 0%              | 0        | 10             | 1.72E+03  |             | 2100     |             | 0.65 UJ   | 0.29 UJ   | 0.26 UJ   | 0.34 UJ   | 0.56 UJ  |
| Aldrin                       | UG/KG  | 0          | 0%              | 0        | 10             | 2.86E+01  |             | 41       |             | 0.32 UJ   | 0.14 UJ   | 0.13 UJ   | 0.17 UJ   | 0.28 UJ  |
| Alpha-BHC                    | UG/KG  | 0          | 0%              | 0        | 10             | 9.02E+01  |             | 110      |             | 3.9 UJ  | 1.7 UJ  | 1.6 UJ  | 2 UJ  | 3.3 UJ   |
| Alpha-Chlordane              | UG/KG  | 0          | 0%              | 0        | 10             |           |             |          |             | 0.97 UJ   | 0.43 UJ   | 0.39 UJ   | 0.51 UJ   | 0.83 UJ  |
| Beta-BHC                     | UG/KG  | 0          | 0%              | 0        | 10             | 3.16E+02  |             | 200      |             | 0.32 UJ   | 0.14 U  | 0.13 U  | 0.17 U  | 0.28 UJ  |
| Chlordane                    | UG/KG  | 0          | 0%              | 0        | 10             |           |             |          |             | 6.1 UJ  | 2.7 U   | 2.5 U   | 3.2 U   | 5.3 UJ   |
| Delta-BHC                    | UG/KG  | 0          | 0%              | 0        | 10             |           |             | 300      |             | 0.65 UJ   | 0.29 UJ   | 0.26 UJ   | 0.34 UJ   | 0.56 UJ  |
| Dieldrin                     | UG/KG  | 0          | 0%              | 0        | 10             | 3.04E+01  |             | 44       |             | 0.32 UJ   | 0.14 UJ   | 0.13 UJ   | 0.17 UJ   | 0.28 UJ  |
| Endosulfan I                 | UG/KG  | 0          | 0%              | 0        | 10             |           |             | 900      |             | 1.6 UJ  | 0.71 UJ   | 0.66 UJ   | 0.85 UJ   | 1.4 UJ   |
| Endosulfan II                | UG/KG  | 0          | 0%              | 0        | 10             |           |             | 900      |             | 0.97 UJ   | 0.43 UJ   | 0.39 UJ   | 0.51 UJ   | 0.83 UJ  |
| Endosulfan sulfate           | UG/KG  | 0          | 0%              | 0        | 10             |           |             | 1000     |             | 1.9 UJ  | 0.86 UJ   | 0.79 UJ   | 1 UJ  | 1.7 UJ   |
| Endrin                       | UG/KG  | 0          | 0%              | 0        | 10             | 1.83E+04  |             | 100      |             | 2.6 UJ  | 1.1 UJ  | 1.1 UJ  | 1.4 UJ  | 2.2 UJ   |
| Endrin aldehyde              | UG/KG  | 0          | 0%              | 0        | 10             |           |             |          |             | 2.6 UJ  | 1.1 UJ  | 1.1 UJ  | 1.4 UJ  | 2.2 UJ   |
| Endrin ketone                | UG/KG  | 0          | 0%              | 0        | 10             |           |             |          |             | 0.32 UJ   | 0.14 UJ   | 0.13 UJ   | 0.17 UJ   | 0.28 UJ  |
| Gamma-BHC/Lindane            | UG/KG  | 0          | 0%              | 0        | 10             | 4.37E+02  |             | 60       |             | 0.32 UJ   | 0.14 UJ   | 0.13 UJ   | 0.17 UJ   | 0.28 UJ  |
| Gamma-Chlordane              | UG/KG  | 0          | 0%              | 0        | 10             |           |             | 540      |             | 0.97 UJ   | 0.43 UJ   | 0.39 UJ   | 0.51 UJ   | 0.83 UJ  |
| Heptachlor                   | UG/KG  | 0          | 0%              | 0        | 10             | 1.08E+02  |             | 100      |             | 3.2 UJ  | 1.4 UJ  | 1.3 UJ  | 1.7 UJ  | 2.8 UJ   |
| Heptachlor epoxide           | UG/KG  | 0          | 0%              | 0        | 10             | 5.34E+01  |             | 20       |             | 0.97 UJ   | 0.43 U  | 0.39 U  | 0.51 U  | 0.83 UJ  |
| Methoxychlor                 | UG/KG  | 0          | 0%              | 0        | 10             | 3.06E+05  |             | 20       |             | 0.32 UJ   | 0.14 U  | 0.13 U  | 0.17 U  | 0.28 UJ  |
| Toxaphene                    | UG/KG  | 0          | 0%              | 0        | 10             | 4.42E+02  |             |          |             | 10 UJ   | 4.6 U   | 4.2 U   | 5.4 U   | 8.9 UJ   |
| Aroclor-1016                 | UG/KG  | 0          | 0%              | 0        | 9              | 3.93E+03  |             |          |             | 10 UJ   | 7.4 U   | 6.7 U   | 8.7 U   | 14 R   |
| Aroclor-1016<br>Aroclor-1221 | UG/KG  | 0          | 0%              | 0        | 9              | 3.93E+03  |             |          |             | 4.2 UJ  | 1.8 U   | 1.7 U   | 2.2 U   | 3.6 R  |
|                              |  |            | 0%              | 0        | 9              |           |             |          |             | 4.2 UJ<br>26 UJ                                 |   |   |   |  |
| Aroclor-1232                 | UG/KG  | 0          |                 |          |                |           |             |          |             |   | 11 U  | 10 U  | 13 U  | 22 R   |
| Aroclor-1242                 | UG/KG  | 0          | 0%              | 0        | 9              |           |             |          |             | 7 UJ  | 3.1 U   | 2.8 U   | 3.7 U   | 6.1 R  |
| Aroclor-1248                 | UG/KG  | 0          | 0%              | 0        | 9              |           |             | 40000    |             | 18 UJ   | 7.8 U   | 7.1 U   | 9.2 U   | 15 R   |
| Aroclor-1254                 | UG/KG  | 0          | 0%              | 0        | 9              | 2.22E+02  |             | 10000    |             | 34 UJ   | 15 U  | 14 U  | 18 U  | 29 R   |
| Aroclor-1260                 | UG/KG  | 0          | 0%              | 0        | 9              |           |             | 10000    |             | 6.4 UJ  | 2.8 UJ  | 2.6 UJ  | 3.4 U   | 5.5 R  |
| Metals and Cyanide           |  |            |                 |          |                |           |             |          |             |   |   |   |   |  |
| Aluminum                     | MG/KG  | 21500      | 100%            | 10       | 10             | 7.61E+04  |             | 19300    | 1           | 14700 J   | 9670  | 7620  | 21500   | 9680 J   |
| Antimony                     | MG/KG  | 4.9        | 50%             | 5        | 10             | 3.13E+01  |             | 5.9      |             | 2.9 UJ  | 1.3 UJ  | 1.2 UJ  | 4.9 J   | 2.5 UJ   |
| Arsenic                      | MG/KG  | 6.1        | 100%            | 10       | 10             | 3.90E-01  | 1           | 8.2      |             | 5.9 J   | 3.3   | 3.6   | 4.3   | 2.2 J  |
| Barium                       | MG/KG  | 291        | 100%            | 10       | 10             | 5.37E+03  |             | 300      |             | 122 J   | 47.1 J  | 50.9 J  | 291   | 120 J  |
| Beryllium                    | MG/KG  | $0.8^{-4}$ | 80%             | 8        | 10             | 1.54E+02  |             | 1.1      |             | 1 J   | 0.6   | 0.52  | 0.33  | 0.69 J   |
| Cadmium                      | MG/KG  | 14.3       | 50%             | 5        | 10             | 3.70E+01  |             | 2.3      | 3           | 0.39 UJ   | 0.17 U  | 0.16 U  | 14.3  | 0.33 UJ  |
| Calcium                      | MG/KG  | 161000     | 100%            | 10       | 10             | 1         |             | 121000   | 2           | 34500 J   | 13200   | 16300   | 161000  | 21600 J  |
| Chromium                     | MG/KG  | 29.8       | 100%            | 10       | 10             |           |             | 29.6     | 1           | 32.7 J  | 17.1  | 14  | 18.3  | 27.9 J   |
| Cobalt                       | MG/KG  | 15.8 4     | 100%            | 10       | 10             | 9.03E+02  |             | 30       |             | 20.2 J  | 10.6  | 11.5  | 8.5   | 10 J   |
| Copper                       | MG/KG<br>MG/KG                                 | 1190       | 100%            | 10       | 10             | 3.13E+03  |             | 33       | 7           | 50.6 J  | 16.2  | 18.8  | 1190  | 55.1 J   |
|                              | MG/KG<br>MG/KG                                 | 2.36       | 100%            | 10       | 10             | J.13E+03  |             | 33       | ′           | 1.59 UJ   | 0.71 U  | 0.66 U  | 0.84 U  | 1.4 UJ   |
| Cyanide, Amenable            | MG/KG  | 2.30       | 10%             | 1        | 10             |           |             | I        |             | 1.39 UJ   | U./1 U  | 0.00 U  | 0.84 U  | 1.4 UJ   |

|                              | Facility    | ,       |           |          |            |           |             |          |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------|-----------|-----------|-----------|-----------|
| 1                            | Location ID | )       |           |          |            |           |             |          |             | SDDRMO-8  | SDDRMO-6  | SDDRMO-7  | SDDRMO-9  | SDDRMO-10 |
|                              | Matrix      |         |           |          |            |           |             |          |             | DITCHSOIL | DITCHSOIL | DITCHSOIL | DITCHSOIL | DITCHSOIL |
|                              | Sample ID   | )       |           |          |            |           |             |          |             | DRMO-4008 | DRMO-4006 | DRMO-4007 | DRMO-4009 | DRMO-4010 |
| Sample Depth to To           | p of Sample |         |           |          |            |           |             |          |             | 0         | 0         | 0         | 0         | 0         |
| Sample Depth to Botton       | n of Sample |         |           |          |            |           |             |          |             | 2         | 2         | 2         | 2         | 2         |
| S                            | Sample Date | ,       |           |          |            |           |             |          |             | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 |
|                              | QC Code     |         |           |          |            | Region IX |             |          |             | SA        | SA        | SA        | SA        | SA        |
|                              | Study ID    | )       | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI    | PID-RI    | PID-RI    | PID-RI    | PID-RI    |
|                              |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             | 1         | 1         | 1         | 1         | 1         |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Cyanide, Total               | MG/KG       | 2.36    | 10%       | 1        | 10         |           |             |          |             | 1.59 UJ   | 0.713 U   | 0.662 U   | 0.84 U    | 1.4 UJ    |
| Iron                         | MG/KG       | 27300 4 | 100%      | 10       | 10         | 2.35E+04  | 1           | 36500    |             | 34100 J   | 21200     | 20500     | 15400     | 17100 J   |
| Lead                         | MG/KG       | 436     | 100%      | 10       | 10         | 4.00E+02  | 1           | 24.8     | 8           | 85.2 J    | 14        | 13.3      | 436       | 132 J     |
| Magnesium                    | MG/KG       | 17600   | 100%      | 10       | 10         |           |             | 21500    |             | 7310 J    | 4480      | 3540      | 17600     | 7810 J    |
| Manganese                    | MG/KG       | 918     | 100%      | 10       | 10         | 1.76E+03  |             | 1060     |             | 885 J     | 610       | 577       | 504       | 510 J     |
| Mercury                      | MG/KG       | 0.3     | 100%      | 10       | 10         | 2.35E+01  |             | 0.1      | 6           | 0.18 J    | 0.04      | 0.09      | 0.26      | 0.12 J    |
| Nickel                       | MG/KG       | 42.7    | 100%      | 10       | 10         | 1.56E+03  |             | 49       |             | 45.3 J    | 29.5      | 24        | 32.1      | 29 J      |
| Potassium                    | MG/KG       | 1410    | 100%      | 10       | 10         |           |             | 2380     |             | 1270 J    | 810       | 558       | 1020      | 1070 J    |
| Selenium                     | MG/KG       | 2.5     | 40%       | 4        | 10         | 3.91E+02  |             | 2        | 2           | 1.4 UJ    | 0.59 U    | 0.55 U    | 0.69 U    | 1.2 UJ    |
| Silver                       | MG/KG       | 2.6     | 50%       | 5        | 10         | 3.91E+02  |             | 0.75     | 5           | 1 J       | 0.38 U    | 0.35 U    | 1.8       | 0.75 UJ   |
| Sodium                       | MG/KG       | 1120    | 100%      | 10       | 10         |           |             | 172      | 9           | 656 J     | 297       | 167       | 398       | 595 J     |
| Thallium                     | MG/KG       | 0       | 0%        | 0        | 10         | 5.16E+00  |             | 0.7      |             | 1 UJ      | 0.43 U    | 0.4 U     | 0.51 U    | 0.86 UJ   |
| Vanadium                     | MG/KG       | 29.1    | 100%      | 10       | 10         | 7.82E+01  |             | 150      |             | 27.3 J    | 15.6      | 13.9      | 10.8      | 19.1 J    |
| Zinc                         | MG/KG       | 566     | 100%      | 10       | 10         | 2.35E+04  |             | 110      | 7           | 195 J     | 62.8 J    | 51.4 J    | 528       | 236 J     |
| Other                        |             |         |           |          |            |           |             |          |             |           |           |           |           |           |
| Total Organic Carbon         | MG/KG       | 9100    | 100%      | 10       | 10         |           |             |          |             | 7100 J    | 4900      | 4200      | 8300      | 9100 J    |
| Total Petroleum Hydrocarbons | MG/KG       | 2600    | 20%       | 2        | 10         |           |             |          |             | 130 UJ    | 57 U      | 53 U      | 68 U      | 110 UJ    |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 199
- 4) The maximum detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate DRMO-4005 at Loc ID SDDRMO-8.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

Facility
Location ID
Matrix
Sample ID
Sample Depth to Top of Sample
Sample Depth to Bottom of Sample
Sample Date
Sample Date

SEAD-121C SB121C-1 SOIL SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SB121C-2 SB121C-3 SB121C-4 SBDRMO-10 SBDRMO-11 SBDRMO-12 SOIL SOIL SOIL SOIL SOIL SOIL EB232 EB228 EB234 EB230 DRMO-1057 DRMO-1060 DRMO-1063 2.5 2.5 2.5 2 2

| Sample Depth to Botto        |             |         |           |          |          |           |             |          |             | 3         | 2.5       | 3         | 3         | 6          | 6          | 6          |
|------------------------------|-------------|---------|-----------|----------|----------|-----------|-------------|----------|-------------|-----------|-----------|-----------|-----------|------------|------------|------------|
|                              | Sample Date |         |           |          |          |           |             |          |             | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 10/25/2002 | 10/26/2002 | 10/25/2002 |
|                              | QC Code     |         |           |          |          | Region IX |             |          |             | SA        | SA        | SA        | SA        | SA         | SA         | SA         |
|                              | Study ID    |         | Frequency | Number   | Number   | PRG       |             | NYSDEC   |             | EBS       | EBS       | EBS       | EBS       | PID-RI     | PID-RI     | PID-RI     |
|                              |             | Maximum | of        | of Times | of       | Criteria  |             | Criteria |             |           |           |           |           |            |            |            |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses | Value 1   | Exceedances | Value 2  | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  | Value (Q)  |
| Volatile Organic Compounds   |             |         |           |          |          |           |             |          |             |           |           |           |           | -          |            |            |
| 1,1,1-Trichloroethane        | UG/KG       | 0       | 0%        | 0        | 20       | 1.20E+06  |             | 800      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 UJ     | 2.8 UJ     | 3.1 UJ     |
| 1,1,2,2-Tetrachloroethane    | UG/KG       | 0       | 0%        | 0        | 20       | 4.08E+02  |             | 600      |             | 12 U      | 11 UJ     | 11 U      | 11 U      | 2.6 U      | 2.8 UJ     | 3.1 U      |
| 1,1,2-Trichloroethane        | UG/KG       | 0       | 0%        | 0        | 20       | 7.29E+02  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 U      | 2.6 U      | 2.8 UJ     | 3.1 U      |
| 1,1-Dichloroethane           | UG/KG       | 0       | 0%        | 0        | 20       | 5.06E+05  |             | 200      |             | 12 U      | 11 UJ     | 11 U      | 11 U      | 2.6 U      | 2.8 UJ     | 3.1 U      |
| 1,1-Dichloroethene           | UG/KG       | 0       | 0%        | 0        | 20       | 1.24E+05  |             | 400      |             | 12 U      | 11 UJ     | 11 U      | 11 U      | 2.6 U      | 2.8 UJ     | 3.1 U      |
| 1,2-Dichloroethane           | UG/KG       | 0       | 0%        | 0        | 20       | 2.78E+02  |             | 100      |             | 12 U      | 11 UJ     | 11 U      | 11 U      | 2.6 UJ     | 2.8 UJ     | 3.1 UJ     |
| 1,2-Dichloroethene (total)   | UG/KG       | 0       | 0%        | 0        | 4        |           |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 U      |            |            |            |
| 1,2-Dichloropropane          | UG/KG       | 0       | 0%        | 0        | 20       | 3.42E+02  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Acetone                      | UG/KG       | 28      | 45%       | 9        | 20       | 1.41E+07  |             | 200      |             | 14        | 11 UJ     | 16        | 28 J      | 2.6 U      | 2.8 UJ     | 24 J       |
| Benzene                      | UG/KG       | 1800    | 10%       | 2        | 20       | 6.43E+02  | 1           | 60       | 1           | 12 U      | 2 J       | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Bromodichloromethane         | UG/KG       | 0       | 0%        | 0        | 20       | 8.24E+02  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Bromoform                    | UG/KG       | 0       | 0%        | 0        | 20       | 6.16E+04  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Carbon disulfide             | UG/KG       | 0       | 0%        | 0        | 20       | 3.55E+05  |             | 2700     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Carbon tetrachloride         | UG/KG       | 0       | 0%        | 0        | 20       | 2.51E+02  |             | 600      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 UJ     | 2.8 UJ     | 3.1 U      |
| Chlorobenzene                | UG/KG       | 0       | 0%        | 0        | 20       | 1.51E+05  |             | 1700     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Chlorodibromomethane         | UG/KG       | 0       | 0%        | 0        | 20       | 1.11E+03  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Chloroethane                 | UG/KG       | 0       | 0%        | 0        | 20       | 3.03E+03  |             | 1900     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Chloroform                   | UG/KG       | 4       | 10%       | 2        | 20       | 2.21E+02  |             | 300      |             | 12 U      | 4 J       | 11 U      | 2 J       | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Cis-1,2-Dichloroethene       | UG/KG       | 0       | 0%        | 0        | 16       | 4.29E+04  |             |          |             |           |           |           |           | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Cis-1,3-Dichloropropene      | UG/KG       | 0       | 0%        | 0        | 20       |           |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Ethyl benzene                | UG/KG       | 24000   | 5%        | 1        | 20       | 3.95E+05  |             | 5500     | 1           | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Meta/Para Xylene             | UG/KG       | 130000  | 6%        | 1        | 16       |           |             |          |             |           |           |           |           | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Methyl bromide               | UG/KG       | 0       | 0%        | 0        | 20       | 3.90E+03  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 UJ     | 2.8 UJ     | 3.1 UJ     |
| Methyl butyl ketone          | UG/KG       | 0       | 0%        | 0        | 20       |           |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 UJ     | 2.8 UJ     | 3.1 UJ     |
| Methyl chloride              | UG/KG       | 0       | 0%        | 0        | 20       | 4.69E+04  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Methyl ethyl ketone          | UG/KG       | 7.6     | 10%       | 2        | 20       | 2.23E+07  |             | 300      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Methyl isobutyl ketone       | UG/KG       | 0       | 0%        | 0        | 20       | 5.28E+06  |             | 1000     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Methylene chloride           | UG/KG       | 3.5     | 10%       | 2        | 20       | 9.11E+03  |             | 100      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 3.5 UJ     | 2.6 J      |
| Ortho Xylene                 | UG/KG       | 75      | 6%        | 1        | 16       |           |             |          |             |           |           |           |           | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Styrene                      | UG/KG       | 2.7     | 5%        | 1        | 20       | 1.70E+06  |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Tetrachloroethene            | UG/KG       | 0       | 0%        | 0        | 20       | 4.84E+02  |             | 1400     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Toluene                      | UG/KG       | 84      | 20%       | 4        | 20       | 5.20E+05  |             | 1500     |             | 7 J       | 5 UJ      | 9 J       | 4 J       | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Total Xylenes                | UG/KG       | 0       | 0%        | 0        | 4        | 2.71E+05  |             | 1200     |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     |            |            |            |
| Trans-1,2-Dichloroethene     | UG/KG       | 0       | 0%        | 0        | 16       | 6.95E+04  |             | 300      |             |           |           |           |           | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Trans-1,3-Dichloropropene    | UG/KG       | 0       | 0%        | 0        | 20       |           |             |          |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Trichloroethene              | UG/KG       | 0       | 0%        | 0        | 20       | 5.30E+01  |             | 700      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Vinyl chloride               | UG/KG       | 0       | 0%        | 0        | 20       | 7.91E+01  |             | 200      |             | 12 U      | 11 UJ     | 11 U      | 11 UJ     | 2.6 U      | 2.8 UJ     | 3.1 U      |
| Semivolatile Organic Compoun | ıds         |         |           |          |          |           |             |          |             |           |           |           |           |            |            |            |
| 1,2,4-Trichlorobenzene       | UG/KG       | 0       | 0%        | 0        | 20       | 6.22E+04  |             | 3400     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 1,2-Dichlorobenzene          | UG/KG       | Õ       | 0%        | 0        | 20       | 6.00E+05  |             | 7900     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 U      |
| 1,3-Dichlorobenzene          | UG/KG       | 0       | 0%        | 0        | 20       | 5.31E+05  |             | 1600     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 U      |
| 1,4-Dichlorobenzene          | UG/KG       | Õ       | 0%        | 0        | 20       | 3.45E+03  |             | 8500     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 U      |
| 2,4,5-Trichlorophenol        | UG/KG       | 0       | 0%        | 0        | 20       | 6.11E+06  |             | 100      |             | 190 U     | 180 U     | 190 U     | 180 U     | 920 U      | 920 U      | 1000 UJ    |
| 2,4,6-Trichlorophenol        | UG/KG       | 0       | 0%        | 0        | 20       | 6.11E+03  |             | I        |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2,4-Dichlorophenol           | UG/KG       | 0       | 0%        | 0        | 20       | 1.83E+05  |             | 400      |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2,4-Dimethylphenol           | UG/KG       | 0       | 0%        | 0        | 20       | 1.22E+06  |             |          |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2,4-Dinitrophenol            | UG/KG       | 0       | 0%        | 0        | 19       | 1.22E+05  |             | 200      |             | 190 U     | 180 U     | 190 U     | 180 U     | 920 UJ     | 920 UJ     | 1000 UJ    |
| 2,4-Dinitrotoluene           | UG/KG       | 0       | 0%        | 0        | 20       | 1.22E+05  |             | 1 200    |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2.6-Dinitrotoluene           | UG/KG       | 0       | 0%        | 0        | 20       | 6.11E+04  |             | 1000     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2-Chloronaphthalene          | UG/KG       | 0       | 0%        | 0        | 20       | 4.94E+06  |             | 1000     |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 UJ     |
| 2-Chlorophenol               | UG/KG       | 0       | 0%        | 0        | 20       | 6.34E+04  |             | 800      |             | 77 U      | 75 U      | 77 U      | 76 U      | 370 U      | 370 U      | 410 U      |
| 2 Canorophenor               | 00/10       |         | 070       |          | 20       | 0.54E104  |             | 000      |             | 11.0      | 75 0      | 77.0      | 70 0      | 370 0      | 370 0      | 410 0      |

|  | Facility              |             |                  |                    |                |                      |             |                    |             | SEAD-121C        | SEAD-121C        | SEAD-121C          | SEAD-121C         | SEAD-121C                                | SEAD-121C          | SEAD-121C           |
|--|-----------------------|-------------|------------------|--------------------|----------------|----------------------|-------------|--------------------|-------------|------------------|------------------|--------------------|-------------------|--|--------------------|---------------------|
|  | Location ID<br>Matrix |             |                  |                    |                |                      |             |                    |             | SB121C-1<br>SOIL | SB121C-2<br>SOIL | SB121C-3<br>SOIL   | SB121C-4<br>SOIL  | SBDRMO-10<br>SOIL                        | SBDRMO-11<br>SOIL  | SBDRMO-12<br>SOIL   |
|  | Sample ID             |             |                  |                    |                |                      |             |                    |             | EB232            | EB228            | EB234              | EB230             | DRMO-1057                                | DRMO-1060          | DRMO-1063           |
| Sample Depth to 7                          | •                     |             |                  |                    |                |                      |             |                    |             | 2.5              | 2                | 2.5                | 2.5               | 2  | 2                  | 2                   |
| Sample Depth to Bott                       |                       |             |                  |                    |                |                      |             |                    |             | 3                | 2.5              | 3                  | 3                 | 6  | 6                  | 6                   |
|  | Sample Date           |             |                  |                    |                |                      |             |                    |             | 3/9/1998         | 3/9/1998         | 3/9/1998           | 3/9/1998          | 10/25/2002                               | 10/26/2002         | 10/25/2002          |
|  | QC Code               |             | _                |                    |                | Region IX            |             |                    |             | SA               | SA               | SA                 | SA                | SA                                       | SA                 | SA                  |
|  | Study ID              | Maximum     | Frequency<br>of  | Number<br>of Times | Number<br>of   | PRG<br>Criteria      |             | NYSDEC<br>Criteria |             | EBS              | EBS              | EBS                | EBS               | PID-RI                                   | PID-RI             | PID-RI              |
|  | ** *.                 |             |                  |                    |                |                      |             | Value 2            |             | ***              | ***              | ***                | ***               | ** | ***                | ***                 |
| Parameter 2-Methylnaphthalene              | Units<br>UG/KG        | 2500        | Detection<br>20% | Detected<br>4      | Analyses<br>20 | Value 1              | Exceedances | 36400              | Exceedances | Value (Q) 77 U   | Value (Q)        | Value (Q)<br>8.3 J | Value (Q)<br>76 U | Value (Q)<br>370 U                       | Value (Q)<br>370 U | Value (Q)<br>2500 J |
| 2-Methylphenol                             | UG/KG                 | 0           | 0%               | 0                  | 20             | 3.06E+06             |             | 100                |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| 2-Nitroaniline                             | UG/KG                 | 0           | 0%               | 0                  | 20             | 1.83E+05             |             | 430                |             | 190 U            | 180 U            | 190 U              | 180 U             | 920 U                                    | 920 U              | 1000 UJ             |
| 2-Nitrophenol                              | UG/KG                 | 0           | 0%               | 0                  | 20             |                      |             | 330                |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| 3 or 4-Methylphenol                        | UG/KG                 | 0           | 0%               | 0                  | 16             |                      |             |                    |             |                  |                  |                    |                   | 370 U                                    | 370 U              | 410 UJ              |
| 3,3'-Dichlorobenzidine                     | UG/KG                 | 0           | 0%               | 0                  | 20             | 1.08E+03             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| 3-Nitroaniline                             | UG/KG                 | 0           | 0%               | 0                  | 20             | 1.83E+04             |             | 500                |             | 190 U            | 180 U            | 190 U              | 180 U             | 920 U                                    | 920 U              | 1000 UJ             |
| 4,6-Dinitro-2-methylphenol                 | UG/KG                 | 0           | 0%               | 0                  | 20             | 6.11E+03             |             |                    |             | 190 U            | 180 U            | 190 U              | 180 U             | 920 UJ                                   | 920 U              | 1000 UJ             |
| 4-Bromophenyl phenyl ether                 | UG/KG                 | 0           | 0%               | 0                  | 20             |                      |             | 240                |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| 4-Chloro-3-methylphenol<br>4-Chloroaniline | UG/KG<br>UG/KG        | 0           | 0%<br>0%         | 0                  | 20<br>20       | 2.44E+05             |             | 240<br>220         |             | 77 U<br>77 U     | 75 U<br>75 U     | 77 U<br>77 U       | 76 U<br>76 U      | 370 U<br>370 U                           | 370 U<br>370 U     | 410 UJ<br>410 UJ    |
| 4-Chlorophenyl phenyl ether                | UG/KG                 | 0           | 0%               | 0                  | 20             | 2.44E+03             |             | 220                |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| 4-Methylphenol                             | UG/KG                 | 0           | 0%               | 0                  | 4              | 3.06E+05             |             | 900                |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 0                                    | 370 0              | 410 03              |
| 4-Nitroaniline                             | UG/KG                 | 0           | 0%               | 0                  | 20             | 2.32E+04             |             |                    |             | 190 U            | 180 U            | 190 U              | 180 U             | 920 U                                    | 920 U              | 1000 UJ             |
| 4-Nitrophenol                              | UG/KG                 | 0           | 0%               | 0                  | 20             |                      |             | 100                |             | 190 U            | 180 U            | 190 U              | 180 U             | 920 U                                    | 920 U              | 1000 UJ             |
| Acenaphthene                               | UG/KG                 | 50          | 15%              | 3                  | 20             | 3.68E+06             |             | 50000              |             | 77 U             | 20 J             | 13 J               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Acenaphthylene                             | UG/KG                 | 220         | 10%              | 2                  | 20             |                      |             | 41000              |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Anthracene                                 | UG/KG                 | 240         | 15%              | 3<br>7             | 20             | 2.19E+07             |             | 50000              |             | 77 U             | 41 J             | 19 J               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Benzo(a)anthracene                         | UG/KG<br>UG/KG        | 5200<br>920 | 35%<br>32%       | 6                  | 20<br>19       | 6.21E+02             | 2 3         | 224<br>61          | 2 3         | 4.6 J<br>6.3 J   | 140<br>100       | 68 J<br>58 J       | 4.6 J<br>6 J      | 370 U<br>370 U                           | 370 U<br>370 U     | 410 UJ<br>410 R     |
| Benzo(a)pyrene<br>Benzo(b)fluoranthene     | UG/KG<br>UG/KG        | 1300        | 32%<br>42%       | 8                  | 19             | 6.21E+01<br>6.21E+02 | 3<br>1      | 1100               | 3<br>1      | 6.6 J            | 110              | 74 J               | 5.8 J             | 370 U                                    | 370 U              | 410 R<br>410 R      |
| Benzo(ghi)perylene                         | UG/KG                 | 210         | 37%              | 7                  | 19             | 0.212+02             | 1           | 50000              | 1           | 12 J             | 65 J             | 54 J               | 6.2 J             | 370 U                                    | 370 U              | 410 R               |
| Benzo(k)fluoranthene                       | UG/KG                 | 490         | 32%              | 6                  | 19             | 6.21E+03             |             | 1100               |             | 5.7 J            | 120              | 70 J               | 6.7 J             | 370 U                                    | 370 U              | 410 R               |
| Bis(2-Chloroethoxy)methane                 | UG/KG                 | 0           | 0%               | 0                  | 20             |                      |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Bis(2-Chloroethyl)ether                    | UG/KG                 | 0           | 0%               | 0                  | 20             | 2.18E+02             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Bis(2-Chloroisopropyl)ether                | UG/KG                 | 0           | 0%               | 0                  | 20             | 2.88E+03             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| Bis(2-Ethylhexyl)phthalate                 | UG/KG                 | 87          | 40%              | 8                  | 20             | 3.47E+04             |             | 50000              |             | 10 J             | 21 J             | 39 J               | 14 J              | 370 U                                    | 370 U              | 410 UJ              |
| Butylbenzylphthalate                       | UG/KG<br>UG/KG        | 39<br>56    | 10%<br>15%       | 2                  | 20<br>20       | 1.22E+07<br>2.43E+04 |             | 50000              |             | 77 U<br>77 U     | 6.4 J<br>56 J    | 77 U<br>34 J       | 76 U<br>76 U      | 39 J<br>370 U                            | 370 U<br>370 U     | 410 UJ              |
| Carbazole<br>Chrysene                      | UG/KG<br>UG/KG        | 4900        | 35%              | 3<br>7             | 20             | 6.21E+04             |             | 400                | 2           | 5.5 J            | 160              | 34 J<br>82         | 7.8 J             | 370 U                                    | 370 U<br>370 U     | 410 UJ<br>410 UJ    |
| Di-n-butylphthalate                        | UG/KG                 | 19          | 10%              | 2                  | 20             | 6.21E+04<br>6.11E+06 |             | 8100               | 2           | 77 U             | 19 J             | 5.3 J              | 7.8 J<br>76 U     | 370 U                                    | 370 U              | 410 UJ              |
| Di-n-octylphthalate                        | UG/KG                 | 17          | 15%              | 3                  | 20             | 2.44E+06             |             | 50000              |             | 9.8 J            | 17 J             | 77 U               | 3.9 J             | 370 U                                    | 370 U              | 410 UJ              |
| Dibenz(a,h)anthracene                      | UG/KG                 | 33          | 16%              | 3                  | 19             | 6.21E+01             |             | 14                 | 2           | 9.7 J            | 33 J             | 26 J               | 76 U              | 370 U                                    | 370 U              | 410 R               |
| Dibenzofuran                               | UG/KG                 | 45          | 15%              | 3                  | 20             | 1.45E+05             |             | 6200               |             | 77 U             | 13 J             | 8 J                | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Diethyl phthalate                          | UG/KG                 | 250         | 25%              | 5                  | 20             | 4.89E+07             |             | 7100               |             | 8.9 J            | 6.8 J            | 18 J               | 4.7 J             | 370 U                                    | 370 U              | 410 UJ              |
| Dimethylphthalate                          | UG/KG                 | 0           | 0%               | 0                  | 20             | 1.00E+08             |             | 2000               |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| Fluoranthene                               | UG/KG                 | 1600        | 40%              | 8                  | 20             | 2.29E+06             |             | 50000              |             | 4.8 J            | 390              | 160                | 9.6 J             | 370 U                                    | 370 U              | 410 UJ              |
| Fluorene                                   | UG/KG                 | 160         | 20%<br>0%        | 4                  | 20<br>20       | 2.75E+06             |             | 50000              |             | 77 U             | 22 J<br>75 U     | 12 J               | 76 U              | 370 U                                    | 370 U<br>370 U     | 410 UJ              |
| Hexachlorobenzene<br>Hexachlorobutadiene   | UG/KG<br>UG/KG        | 0           | 0%               | 0                  | 20             | 3.04E+02<br>6.24E+03 |             | 410                |             | 77 U<br>77 U     | 75 U<br>75 U     | 77 U<br>77 U       | 76 U<br>76 U      | 370 U<br>370 U                           | 370 U<br>370 U     | 410 UJ<br>410 UJ    |
| Hexachlorocyclopentadien                   | UG/KG                 | 0           | 0%               | 0                  | 20             | 3.65E+05             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 UJ                                   | 370 UJ             | 410 UJ              |
| Hexachloroethane                           | UG/KG                 | 0           | 0%               | 0                  | 20             | 3.47E+04             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| Indeno(1,2,3-cd)pyrene                     | UG/KG                 | 150         | 30%              | 6                  | 20             | 6.21E+02             |             | 3200               |             | 8.6 J            | 58 J             | 48 J               | 5.9 J             | 370 U                                    | 370 U              | 410 UJ              |
| Isophorone                                 | UG/KG                 | 0           | 0%               | 0                  | 20             | 5.12E+05             |             | 4400               |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 UJ              |
| N-Nitrosodiphenylamine                     | UG/KG                 | 0           | 0%               | 0                  | 20             | 9.93E+04             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| N-Nitrosodipropylamine                     | UG/KG                 | 0           | 0%               | 0                  | 20             | 6.95E+01             |             |                    |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| Naphthalene                                | UG/KG                 | 1900        | 20%              | 4                  | 20             | 5.59E+04             |             | 13000              |             | 77 U             | 12 J             | 6.9 J              | 76 U              | 370 U                                    | 370 U              | 1900 J              |
| Nitrobenzene                               | UG/KG<br>UG/KG        | 0           | 0%<br>0%         | 0                  | 20<br>20       | 1.96E+04<br>2.98E+03 |             | 200<br>1000        |             | 77 U<br>190 U    | 75 U<br>180 UJ   | 77 U<br>190 U      | 76 U<br>180 UJ    | 370 U<br>920 U                           | 370 U<br>920 U     | 410 UJ<br>1000 UJ   |
| Pentachlorophenol<br>Phenanthrene          | UG/KG<br>UG/KG        | 1000        | 40%              | 8                  | 20             | 2.98E+03             |             | 50000              |             | 190 U<br>77 U    | 180 UJ<br>280    | 190 U<br>110       | 180 UJ<br>5.9 J   | 920 U<br>370 U                           | 920 U<br>370 U     | 74 J                |
| Phenol                                     | UG/KG                 | 0           | 0%               | 0                  | 20             | 1.83E+07             |             | 30                 |             | 77 U             | 75 U             | 77 U               | 76 U              | 370 U                                    | 370 U              | 410 U               |
| Pyrene                                     | UG/KG                 | 1700        | 40%              | 8                  | 20             | 2.32E+06             |             | 50000              |             | 4.7 J            | 290              | 130                | 8.1 J             | 370 U                                    | 370 U              | 410 U               |

Seneca Army Depot Activity
Facility
SEAD-121C

| Sample Depth to T<br>Sample Depth to Botte |                | Maximum | Frequency<br>of | Number<br>of Times | Number<br>of | Region IX<br>PRG<br>Criteria |             | NYSDEC<br>Criteria |             | SEAD-121C<br>SB121C-1<br>SOIL<br>EB232<br>2.5<br>3<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-2<br>SOIL<br>EB228<br>2<br>2.5<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-3<br>SOIL<br>EB234<br>2.5<br>3<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SB121C-4<br>SOIL<br>EB230<br>2.5<br>3<br>3/9/1998<br>SA<br>EBS | SEAD-121C<br>SBDRMO-10<br>SOIL<br>DRMO-1057<br>2<br>6<br>10/25/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-11<br>SOIL<br>DRMO-1060<br>2<br>6<br>10/26/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-12<br>SOIL<br>DRMO-1063<br>2<br>6<br>10/25/2002<br>SA<br>PID-RI |
|--|----------------|---------|-----------------|--------------------|--------------|------------------------------|-------------|--------------------|-------------|---|---|---|---|---|---|---|
| Parameter                                  | Units          | Value   | Detection       | Detected           | Analyses     | Value 1                      | Exceedances | Value 2            | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| Pesticides/PCBs                            |                |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |   |
| 4,4'-DDD                                   | UG/KG          | 0       | 0%              | 0                  | 16           | 2.44E+03                     |             | 2900               |             | 3.8 U   | 3.8 U   | 3.8 U   | 3.8 U   | 1.9 R   | 1.9 UJ  | 2.1 R   |
| 4,4'-DDE                                   | UG/KG          | 17      | 15%             | 3                  | 20           | 1.72E+03                     |             | 2100               |             | 3.8 U   | 13  | 17  | 2.5 J   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| 4,4'-DDT                                   | UG/KG          | 16      | 15%             | 3                  | 20           | 1.72E+03                     |             | 2100               |             | 3.8 U   | 9.8   | 16  | 3.8 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Aldrin                                     | UG/KG          | 11      | 5%              | 1                  | 20           | 2.86E+01                     |             | 41                 |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Alpha-BHC                                  | UG/KG          | 0       | 0%              | 0                  | 20           | 9.02E+01                     |             | 110                |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Alpha-Chlordane                            | UG/KG          | 0       | 0%              | 0                  | 20           | 2.165.02                     |             | 200                |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Beta-BHC                                   | UG/KG          | 0       | 0%              | 0                  | 20           | 3.16E+02                     |             | 200                |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 U   | 1.9 UJ  | 2.1 U   |
| Chlordane                                  | UG/KG          | 0       | 0%              | 0                  | 16           |                              |             | 200                |             | 2.11  | 12.1  | 2.11  | 2.11  | 19 U  | 19 U  | 21 U  |
| Delta-BHC<br>Dieldrin                      | UG/KG          | 1.3     | 5%              | 1                  | 20<br>19     | 2.04E+01                     |             | 300                |             | 2 U<br>3.8 U  | 1.3 J   | 2 U   | 2 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
|  | UG/KG          | 0       | 0%              | 0                  |              | 3.04E+01                     |             | 44                 |             |   | 3.8 U   | 3.8 U   | 3.8 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Endosulfan I                               | UG/KG          | 78<br>0 | 5%              | 0                  | 20<br>20     |                              |             | 900<br>900         |             | 2 U<br>3.8 U  | 1.9 U   | 2 U<br>3.8 U  | 2 U<br>3.8 U  | 1.9 U<br>1.9 U  | 1.9 U<br>1.9 U  | 2.1 U   |
| Endosulfan II                              | UG/KG          | 0       | 0%<br>0%        | 0                  | 20           |                              |             | 1000               |             | 3.8 U   | 3.8 U<br>3.8 U  |   | 3.8 U   |   |   | 2.1 U   |
| Endosulfan sulfate                         | UG/KG<br>UG/KG | 23      | 5%              | 0                  | 20           | 1.025.04                     |             | 1000               |             | 3.8 U   | 3.8 U   | 3.8 U<br>3.8 U  | 3.8 U   | 1.9 U<br>1.9 UJ   | 1.9 U<br>1.9 U  | 2.1 U<br>2.1 UJ   |
| Endrin<br>Endrin aldehyde                  | UG/KG<br>UG/KG | 0       | 5%<br>0%        | 0                  | 20           | 1.83E+04                     |             | 100                |             | 3.8 U<br>3.8 U  | 3.8 U   | 3.8 U   | 3.8 U<br>3.8 U  | 1.9 UJ<br>1.9 U   | 1.9 U<br>1.9 U  | 2.1 UJ<br>2.1 U   |
| Endrin aldenyde<br>Endrin ketone           | UG/KG<br>UG/KG | 9.7     | 5%              | 0                  | 20           |                              |             |                    |             | 3.8 U   | 3.8 U   | 3.8 U   | 3.8 U   | 1.9 U   | 1.9 U   | 2.1 U   |
| Gamma-BHC/Lindane                          | UG/KG<br>UG/KG | 0       | 0%              | 0                  | 20           | 4.37E+02                     |             | 60                 |             | 3.8 U<br>2 U  | 1.9 U   | 2 U   | 2 U   | 1.9 UJ  | 1.9 UJ  | 2.1 UJ  |
| Gamma-Chlordane                            | UG/KG          | 0       | 0%              | 0                  | 20           | 4.37E+02                     |             | 540                |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 U   | 1.9 UJ  | 2.1 UJ<br>2.1 U   |
| Heptachlor                                 | UG/KG          | 0       | 0%              | 0                  | 20           | 1.08E+02                     |             | 100                |             | 2 U   | 1.9 U   | 2 U   | 2 U   | 1.9 U   | 1.9 UJ  | 2.1 U   |
| Heptachlor epoxide                         | UG/KG<br>UG/KG | 1.1     | 5%              | 1                  | 19           | 5.34E+01                     |             | 20                 |             | 2 U   | 1.9 U<br>1.1 J  | 2 U   | 2 U   | 1.9 U   | 1.9 UJ  | 2.1 U   |
| Methoxychlor                               | UG/KG          | 0       | 0%              | 0                  | 20           | 3.06E+05                     |             | 20                 |             | 20 U  | 1.1 J<br>19 U   | 20 U  | 20 U  | 1.9 UJ  | 1.9 U   | 2.1 UJ  |
| Toxaphene                                  | UG/KG          | 0       | 0%              | 0                  | 20           | 4.42E+02                     |             |                    |             | 200 U   | 190 U   | 200 U   | 200 U   | 1.9 U   | 1.9 U   | 2.1 UJ<br>21 U  |
| Aroclor-1016                               | UG/KG          | 0       | 0%              | 0                  | 20           | 3.93E+03                     |             |                    |             | 38 U  | 38 U  | 38 U  | 38 U  | 19 UJ   | 19 U  | 21 UJ   |
| Aroclor-1221                               | UG/KG          | 0       | 0%              | 0                  | 20           | 3.93E+03                     |             |                    |             | 78 U  | 76 U  | 78 U  | 77 U  | 19 U  | 19 U  | 21 U  |
| Aroclor-1221<br>Aroclor-1232               | UG/KG          | 0       | 0%              | 0                  | 20           |                              |             |                    |             | 38 U  | 38 U  | 38 U  | 38 U  | 19 UJ   | 19 U  | 21 UJ   |
| Aroclor-1242                               | UG/KG          | 0       | 0%              | 0                  | 20           |                              |             |                    |             | 38 U  | 38 U  | 38 U  | 38 U  | 19 UJ   | 19 U  | 21 UJ   |
| Aroclor-1242<br>Aroclor-1248               | UG/KG          | 0       | 0%              | 0                  | 20           |                              |             |                    |             | 38 U  | 38 U  | 38 U  | 38 U  | 19 U  | 19 U  | 21 U  |
| Aroclor-1254                               | UG/KG          | 0       | 0%              | 0                  | 20           | 2.22E+02                     |             | 10000              |             | 38 U  | 38 U  | 38 U  | 38 U  | 19 U  | 19 U  | 21 U  |
| Aroclor-1260                               | UG/KG          | 200     | 15%             | 3                  | 20           | 2.222.102                    |             | 10000              |             | 38 U  | 200   | 21 J  | 38 U  | 19 UJ   | 19 U  | 21 UJ   |
| Metals and Cyanide                         | 00/10          | 200     | 1370            | ,                  | 20           |                              |             | 10000              |             | 300   | 200   | 21 3  | 30 0  | 17 03   | 17 0  | 21 03   |
| Aluminum                                   | MG/KG          | 17600   | 100%            | 20                 | 20           | 7.61E+04                     |             | 19300              |             | 13400   | 16200   | 8880  | 15700   | 15000   | 10100   | 16100   |
| Antimony                                   | MG/KG          | 11.5    | 20%             | 4                  | 20           | 3.13E+01                     |             | 5.9                | 1           | 1.4 J   | 11.5 J  | 0.98 J  | 0.69 UJ   | 0.99 U  | 1 U   | 1.1 U   |
| Arsenic                                    | MG/KG          | 8.1     | 100%            | 20                 | 20           | 3.90E-01                     | 20          | 8.2                | -           | 4.4   | 8.1   | 4.6   | 6.4   | 5.7   | 4.6   | 6.9   |
| Barium                                     | MG/KG          | 1050    | 100%            | 20                 | 20           | 5.37E+03                     | 20          | 300                | 1           | 64.2  | 1050  | 46.3  | 72.4  | 58.6 J  | 55.2 J  | 64.9 J  |
| Beryllium                                  | MG/KG          | 1       | 100%            | 20                 | 20           | 1.54E+02                     |             | 1.1                | -           | 0.72  | 0.43  | 0.32  | 0.63  | 0.87  | 0.63  | 1   |
| Cadmium                                    | MG/KG          | 8.1     | 10%             | 2                  | 20           | 3.70E+01                     |             | 2.3                | 1           | 0.07 U  | 8.1   | 0.07 U  | 0.06 U  | 0.13 U  | 0.13 U  | 0.15 U  |
| Calcium                                    | MG/KG          | 97200   | 100%            | 20                 | 20           |                              |             | 121000             |             | 2280  | 31600   | 97200   | 13000   | 23000 J   | 43800 J   | 6830 J  |
| Chromium                                   | MG/KG          | 37      | 100%            | 20                 | 20           |                              |             | 29.6               | 3           | 21  | 37  | 13.1  | 30  | 25.6  | 17  | 26.3  |
| Cobalt                                     | MG/KG          | 19.7    | 100%            | 20                 | 20           | 9.03E+02                     |             | 30                 |             | 9.4   | 16  | 7.7   | 19.7  | 15.8  | 11.1  | 18.7  |
| Copper                                     | MG/KG          | 2440    | 100%            | 20                 | 20           | 3.13E+03                     |             | 33                 | 6           | 18.7 J  | 2440 J  | 20.6 J  | 39.1 J  | 26.4 J  | 35.7 J  | 27.3 J  |
| Cyanide                                    | MG/KG          | 0       | 0%              | 0                  | 4            | 1.22E+06                     |             | 0.35               |             | 0.65 U  | 0.63 U  | 0.58 U  | 0.63 U  |   |   |   |
| Cyanide, Amenable                          | MG/KG          | 0       | 0%              | 0                  | 16           |                              |             |                    |             |   |   |   |   | 0.56 U  | 0.56 U  | 0.62 U  |
| Cyanide, Total                             | MG/KG          | 0       | 0%              | 0                  | 16           |                              |             |                    |             |   |   |   |   | 0.565 U   | 0.56 U  | 0.623 U   |
| Iron                                       | MG/KG          | 54100   | 100%            | 20                 | 20           | 2.35E+04                     | 15          | 36500              | 1           | 23800   | 54100   | 16500   | 35600   | 30700   | 21100   | 34400   |
| Lead                                       | MG/KG          | 1780    | 100%            | 20                 | 20           | 4.00E+02                     | 1           | 24.8               | 7           | 14.1 J  | 1780  | 39.9 J  | 26 J  | 8.4   | 14.4  | 11.3  |
| Magnesium                                  | MG/KG          | 24900   | 100%            | 20                 | 20           |                              |             | 21500              | 1           | 4040  | 6480  | 8000  | 7500  | 6700  | 11700   | 5890  |
| Manganese                                  | MG/KG          | 790     | 100%            | 20                 | 20           | 1.76E+03                     |             | 1060               |             | 299   | 752   | 473   | 394   | 550   | 378   | 591   |
| Mercury                                    | MG/KG          | 0.07    | 95%             | 18                 | 19           | 2.35E+01                     |             | 0.1                |             | 0.05  | 0.07  | 0.06 U  | 0.06  | 0.02  | 0.03  | 0.03  |
| Nickel                                     | MG/KG          | 69.7    | 100%            | 20                 | 20           | 1.56E+03                     |             | 49                 | 3           | 35.8  | 56.6  | 22.3  | 69.7  | 44.5 J  | 32.1 J  | 41.9 J  |
| Potassium                                  | MG/KG          | 1870    | 100%            | 20                 | 20           |                              |             | 2380               |             | 1670  | 1220  | 1500  | 1870  | 1360 J  | 951 J   | 1220 J  |
| Selenium                                   | MG/KG          | 0       | 0%              | 0                  | 20           | 3.91E+02                     |             | 2                  |             | 1.1 U   | 0.97 U  | 1.1 U   | 0.92 U  | 0.46 U  | 0.47 U  | 0.52 U  |
|  |                |         |                 |                    |              |                              |             |                    |             |   |   |   |   |   |   |   |

|                              | Facility      |         |           |          |          |           |             |          |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C  | SEAD-121C  | SEAD-121C  |
|------------------------------|---------------|---------|-----------|----------|----------|-----------|-------------|----------|-------------|-----------|-----------|-----------|-----------|------------|------------|------------|
|                              | Location ID   |         |           |          |          |           |             |          |             | SB121C-1  | SB121C-2  | SB121C-3  | SB121C-4  | SBDRMO-10  | SBDRMO-11  | SBDRMO-12  |
|                              | Matrix        |         |           |          |          |           |             |          |             | SOIL      | SOIL      | SOIL      | SOIL      | SOIL       | SOIL       | SOIL       |
|                              | Sample ID     |         |           |          |          |           |             |          |             | EB232     | EB228     | EB234     | EB230     | DRMO-1057  | DRMO-1060  | DRMO-1063  |
| Sample Depth to 7            | Γop of Sample |         |           |          |          |           |             |          |             | 2.5       | 2         | 2.5       | 2.5       | 2          | 2          | 2          |
| Sample Depth to Bott         | tom of Sample |         |           |          |          |           |             |          |             | 3         | 2.5       | 3         | 3         | 6          | 6          | 6          |
|                              | Sample Date   |         |           |          |          |           |             |          |             | 3/9/1998  | 3/9/1998  | 3/9/1998  | 3/9/1998  | 10/25/2002 | 10/26/2002 | 10/25/2002 |
|                              | QC Code       |         |           |          |          | Region IX |             |          |             | SA        | SA        | SA        | SA        | SA         | SA         | SA         |
|                              | Study ID      |         | Frequency | Number   | Number   | PRG       |             | NYSDEC   |             | EBS       | EBS       | EBS       | EBS       | PID-RI     | PID-RI     | PID-RI     |
|                              |               | Maximum | of        | of Times | of       | Criteria  |             | Criteria |             |           |           |           |           |            |            |            |
| Parameter                    | Units         | Value   | Detection | Detected | Analyses | Value 1   | Exceedances | Value 2  | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  | Value (Q)  |
| Silver                       | MG/KG         | 0.72    | 10%       | 2        | 20       | 3.91E+02  |             | 0.75     |             | 0.48 U    | 0.43 U    | 0.49 U    | 0.41 U    | 0.3 U      | 0.3 U      | 0.34 U     |
| Sodium                       | MG/KG         | 214     | 70%       | 14       | 20       |           |             | 172      | 2           | 138 U     | 214       | 141 U     | 119 U     | 166        | 203        | 125 U      |
| Thallium                     | MG/KG         | 1.8     | 10%       | 2        | 20       | 5.16E+00  |             | 0.7      | 2           | 1.4 UJ    | 1.3 UJ    | 1.5 UJ    | 1.2 UJ    | 0.34 U     | 0.35 U     | 0.39 U     |
| Vanadium                     | MG/KG         | 27      | 100%      | 20       | 20       | 7.82E+01  |             | 150      |             | 21.8      | 19.3      | 14.4      | 21.7      | 23         | 15.8       | 25.3       |
| Zinc                         | MG/KG         | 691     | 100%      | 20       | 20       | 2.35E+04  |             | 110      | 7           | 70.5      | 691       | 77.6      | 158       | 85.1       | 66.7       | 123        |
| Other                        |               |         |           |          |          |           |             | 1        |             |           |           |           |           |            |            |            |
| Total Organic Carbon         | MG/KG         | 9500    | 100%      | 16       | 16       | II .      |             |          |             |           |           |           |           | 4600       | 5000       | 4000       |
| Total Petroleum Hydrocarbons | MG/KG         | 3700    | 25%       | 10       | 16       | II .      |             |          |             |           |           |           |           | 45 UJ      | 45 UJ      | 50 UJ      |

- 1) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004
- 2) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 199-
- U = compound was not detected
- J = the reported value is an estimated concentration
  UJ = the compound was not detected; the associated reporting limit is approximat
- R = the data was rejected in the data validating process
  NJ = compound was "tentatively identified" and the associated numerical value is approximated to the compound was "tentatively identified" and the associated numerical value is approximated.

|  | Facility              |                 |                 |                    |              |                      |             |          |             | SEAD-121C         |
|--|-----------------------|-----------------|-----------------|--------------------|--------------|----------------------|-------------|----------|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  | Location ID<br>Matrix |                 |                 |                    |              |                      |             |          |             | SBDRMO-13<br>SOIL | SBDRMO-14<br>SOIL | SBDRMO-16<br>SOIL | SBDRMO-17<br>SOIL | SBDRMO-18<br>SOIL | SBDRMO-20<br>SOIL | SBDRMO-21<br>SOIL |
|  | Sample ID             |                 |                 |                    |              |                      |             |          |             | DRMO-1066         | DRMO-1069         | DRMO-1075         | DRMO-1078         | DRMO-1082         | DRMO-1088         | DRMO-1102         |
| Sample Depth to To                                     |                       |                 |                 |                    |              |                      |             |          |             | 2                 | 2                 | 2                 | 2                 | 2                 | 2                 | 2                 |
| Sample Depth to Botto                                  |                       |                 |                 |                    |              |                      |             |          |             | 6                 | 6                 | 6                 | 6                 | 6                 | 6                 | 6                 |
| ;  | Sample Date           |                 |                 |                    |              |                      |             |          |             | 10/26/2002        | 10/25/2002        | 10/27/2002        | 10/28/2002        | 10/27/2002        | 10/26/2002        | 10/27/2002        |
|  | QC Code               |                 |                 | N. 1               | N 1          | Region IX<br>PRG     |             | NYSDEC   |             | SA                | SA<br>PID-RI      | SA<br>PID-RI      | SA<br>PID-RI      | SA                | SA<br>PID-RI      | SA                |
|  | Study ID              | Maximum         | Frequency<br>of | Number<br>of Times | Number<br>of | Criteria             |             | Criteria |             | PID-RI            | PID-KI            | PID-RI            | PID-KI            | PID-RI            | PID-KI            | PID-RI            |
| Parameter  | Units                 | Value           | Detection       | Detected           | Analyses     | Value 1              | Exceedances | Value 2  | Exceedances | Value (Q)         | Value (Q)         | Value (Q)         | Value (Q)         | Value (Q)         | Value (Q)         | Value (Q)         |
| Volatile Organic Compounds                             |                       |                 |                 |                    | •            |                      |             |          |             |                   |                   |                   |                   | (0)               |                   |                   |
| 1,1,1-Trichloroethane                                  | UG/KG                 | 0               | 0%              | 0                  | 20           | 1.20E+06             |             | 800      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 U             |
| 1,1,2,2-Tetrachloroethane                              | UG/KG                 | 0               | 0%              | 0                  | 20           | 4.08E+02             |             | 600      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 U             |
| 1,1,2-Trichloroethane<br>1,1-Dichloroethane            | UG/KG<br>UG/KG        | 0               | 0%<br>0%        | 0                  | 20<br>20     | 7.29E+02<br>5.06E+05 |             | 200      |             | 3.1 U<br>3.1 U    | 3 U<br>3 U        | 3 U<br>3 U        | 2.7 UJ<br>2.7 UJ  | 2.7 U<br>2.7 U    | 2.8 U<br>2.8 U    | 2.9 U<br>2.9 U    |
| 1,1-Dichloroethene                                     | UG/KG<br>UG/KG        | 0               | 0%              | 0                  | 20           | 1.24E+05             |             | 400      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| 1.2-Dichloroethane                                     | UG/KG                 | 0               | 0%              | 0                  | 20           | 2.78E+02             |             | 100      |             | 3.1 U             | 3 UJ              | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 U             |
| 1,2-Dichloroethene (total)                             | UG/KG                 | 0               | 0%              | 0                  | 4            |                      |             |          |             |                   |                   |                   |                   |                   |                   |                   |
| 1,2-Dichloropropane                                    | UG/KG                 | 0               | 0%              | 0                  | 20           | 3.42E+02             |             |          |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Acetone  | UG/KG                 | 28              | 45%             | 9                  | 20           | 1.41E+07             |             | 200      |             | 13 J              | 30 UJ             | 3 UJ              | 8.8 UJ            | 17 J              | 3.7 J             | 2.9 U             |
| Benzene  | UG/KG                 | 1800            | 10%             | 2                  | 20           | 6.43E+02             | 1           | 60       | 1           | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Bromodichloromethane                                   | UG/KG                 | 0               | 0%              | 0                  | 20           | 8.24E+02             |             |          |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 U             |
| Bromoform<br>Carbon disulfide                          | UG/KG<br>UG/KG        | 0               | 0%<br>0%        | 0                  | 20<br>20     | 6.16E+04<br>3.55E+05 |             | 2700     |             | 3.1 UJ<br>3.1 U   | 3 U<br>3 U        | 3 UJ<br>3 U       | 2.7 UJ<br>2.7 UJ  | 2.7 UJ<br>2.7 U   | 2.8 U<br>2.8 U    | 2.9 U<br>2.9 U    |
| Carbon tetrachloride                                   | UG/KG                 | 0               | 0%              | 0                  | 20           | 2.51E+02             |             | 600      |             | 3.1 U             | 3 UJ              | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 UJ            |
| Chlorobenzene  | UG/KG                 | 0               | 0%              | 0                  | 20           | 1.51E+05             |             | 1700     |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Chlorodibromomethane                                   | UG/KG                 | 0               | 0%              | 0                  | 20           | 1.11E+03             |             |          |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Chloroethane   | UG/KG                 | 0               | 0%              | 0                  | 20           | 3.03E+03             |             | 1900     |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Chloroform   | UG/KG                 | 4               | 10%             | 2                  | 20           | 2.21E+02             |             | 300      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Cis-1,2-Dichloroethene                                 | UG/KG                 | 0               | 0%              | 0                  | 16           | 4.29E+04             |             |          |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Cis-1,3-Dichloropropene                                | UG/KG                 | 0               | 0%              | 0                  | 20           | 2.055.05             |             | 5500     |             | 3.1 U             | 3 U<br>3 U        | 3 U<br>3 U        | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Ethyl benzene<br>Meta/Para Xylene                      | UG/KG<br>UG/KG        | 24000<br>130000 | 5%<br>6%        | 1                  | 20<br>16     | 3.95E+05             |             | 5500     | 1           | 3.1 U<br>3.1 U    | 3 U               | 3 U               | 2.7 UJ<br>2.7 UJ  | 2.7 U<br>2.7 U    | 2.8 U<br>2.8 U    | 2.9 U<br>2.9 U    |
| Methyl bromide   | UG/KG                 | 0               | 0%              | 0                  | 20           | 3.90E+03             |             |          |             | 3.1 U             | 3 UJ              | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 UJ            |
| Methyl butyl ketone                                    | UG/KG                 | 0               | 0%              | 0                  | 20           | 3.70E103             |             |          |             | 3.1 U             | 3 UJ              | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 UJ            |
| Methyl chloride  | UG/KG                 | 0               | 0%              | 0                  | 20           | 4.69E+04             |             |          |             | 3.1 UJ            | 3 UJ              | 3 UJ              | 2.7 UJ            | 2.7 UJ            | 2.8 UJ            | 2.9 U             |
| Methyl ethyl ketone                                    | UG/KG                 | 7.6             | 10%             | 2                  | 20           | 2.23E+07             |             | 300      |             | 3.1 U             | 7.6 J             | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 UJ            |
| Methyl isobutyl ketone                                 | UG/KG                 | 0               | 0%              | 0                  | 20           | 5.28E+06             |             | 1000     |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 UJ            | 2.9 UJ            |
| Methylene chloride                                     | UG/KG                 | 3.5             | 10%             | 2                  | 20           | 9.11E+03             |             | 100      |             | 3.1 U             | 3 U               | 3 U               | 3.7 UJ            | 2.7 U             | 2.8 U             | 3 UJ              |
| Ortho Xylene   | UG/KG                 | 75              | 6%<br>5%        | 1                  | 16<br>20     | 1.70E+06             |             |          |             | 3.1 U             | 3 U<br>3 U        | 3 U<br>3 UJ       | 2.7 UJ            | 2.7 U<br>2.7 UJ   | 2.8 U<br>2.8 U    | 2.9 U<br>2.9 U    |
| Styrene<br>Tetrachloroethene                           | UG/KG<br>UG/KG        | 2.7             | 0%              | 0                  | 20           | 4.84E+02             |             | 1400     |             | 3.1 UJ<br>3.1 UJ  | 3 U               | 3 UJ              | 2.7 UJ<br>2.7 UJ  | 2.7 UJ            | 2.8 U             | 2.9 U             |
| Toluene  | UG/KG                 | 84              | 20%             | 4                  | 20           | 5.20E+05             |             | 1500     |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Total Xylenes  | UG/KG                 | 0               | 0%              | 0                  | 4            | 2.71E+05             |             | 1200     |             | 3.1 0             | 5 0               | 3.0               | 2.7 03            | 2.7 0             | 2.0 0             | 2.7 0             |
| Trans-1,2-Dichloroethene                               | UG/KG                 | 0               | 0%              | 0                  | 16           | 6.95E+04             |             | 300      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Trans-1,3-Dichloropropene                              | UG/KG                 | 0               | 0%              | 0                  | 20           |                      |             |          |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Trichloroethene  | UG/KG                 | 0               | 0%              | 0                  | 20           | 5.30E+01             |             | 700      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Vinyl chloride   | UG/KG                 | 0               | 0%              | 0                  | 20           | 7.91E+01             |             | 200      |             | 3.1 U             | 3 U               | 3 U               | 2.7 UJ            | 2.7 U             | 2.8 U             | 2.9 U             |
| Semivolatile Organic Compoun<br>1,2,4-Trichlorobenzene | ug/KG                 | 0               | 0%              | 0                  | 20           | 6.22E+04             |             | 3400     |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 1,2-Dichlorobenzene                                    | UG/KG<br>UG/KG        | 0               | 0%              | 0                  | 20           | 6.22E+04<br>6.00E+05 |             | 7900     |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 1.3-Dichlorobenzene                                    | UG/KG                 | 0               | 0%              | 0                  | 20           | 5.31E+05             |             | 1600     |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 1,4-Dichlorobenzene                                    | UG/KG                 | 0               | 0%              | 0                  | 20           | 3.45E+03             |             | 8500     |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2,4,5-Trichlorophenol                                  | UG/KG                 | 0               | 0%              | 0                  | 20           | 6.11E+06             |             | 100      |             | 1000 U            | 1000 U            | 900 U             | 930 U             | 880 U             | 1000 U            | 970 U             |
| 2,4,6-Trichlorophenol                                  | UG/KG                 | 0               | 0%              | 0                  | 20           | 6.11E+03             |             |          |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2,4-Dichlorophenol                                     | UG/KG                 | 0               | 0%              | 0                  | 20           | 1.83E+05             |             | 400      |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2,4-Dimethylphenol                                     | UG/KG                 | 0               | 0%              | 0                  | 20           | 1.22E+06             |             | 200      |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2,4-Dinitrophenol<br>2,4-Dinitrotoluene                | UG/KG<br>UG/KG        | 0               | 0%<br>0%        | 0                  | 19<br>20     | 1.22E+05<br>1.22E+05 |             | 200      |             | 1000 U<br>400 U   | 1000 R<br>410 U   | 900 U<br>360 U    | 930 UJ<br>370 U   | 880 U<br>350 U    | 1000 UJ<br>400 U  | 970 U<br>390 U    |
| 2,4-Dinitrotoluene<br>2,6-Dinitrotoluene               | UG/KG<br>UG/KG        | 0               | 0%              | 0                  | 20           | 6.11E+04             |             | 1000     |             | 400 U<br>400 U    | 410 U<br>410 U    | 360 U             | 370 U             | 350 U<br>350 U    | 400 U<br>400 U    | 390 U<br>390 U    |
| 2-Chloronaphthalene                                    | UG/KG<br>UG/KG        | 0               | 0%              | 0                  | 20           | 6.11E+04<br>4.94E+06 |             | 1000     |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2-Chlorophenol   | UG/KG                 | 0               | 0%              | 0                  | 20           | 6.34E+04             |             | 800      |             | 400 U             | 410 U             | 360 U             | 370 U             | 350 U             | 400 U             | 390 U             |
| 2 Chrorophenor   | UJ/KU                 | · ·             | 0 /0            | J                  | 20           | 0.54ET04             |             | 000      |             | 400 0             | 410 0             | J00 U             | 370 0             | 330 U             | 400 0             | 370 0             |

Seneca Army Depot Activity

Facility SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SBDRMO-13 SBDRMO-14 SBDRMO-16 SBDRMO-17 SBDRMO-18 SBDRMO-20 SBDRMO-21 Location ID Matrix SOIL SOIL SOIL SOIL SOIL SOIL SOIL Sample ID DRMO-1066 DRMO-1069 DRMO-1075 DRMO-1078 DRMO-1082 DRMO-1088 DRMO-1102 Sample Depth to Top of Sample 2 2 Sample Depth to Bottom of Sample 6 Sample Date 10/26/2002 10/25/2002 10/27/2002 10/28/2002 10/27/2002 10/26/2002 10/27/2002 QC Code Region IX SA SA SA NYSDEC PID-RI PID-RI PID-RI PID-RI Study ID Number Number PRG PID-RI PID-RI PID-RI Frequency of Times Criteria Maximum of of Criteria Value 1 Value 2 Value (Q) Units Value Detection Detected Analyses Exceedances Exceedances Value (Q) Value (Q) Value (Q) Value (Q) Value (O) Value (Q) Parameter 2-Methylnaphthalene LIG/KG 2500 20% 20 36400 400 H 410 H 360 II 370 II 350 II 400 H 390 II -Methylphenol UG/KG 0 0% 20 3.06E+06 100 400 U 410 U 360 U 370 U 350 U 400 U 390 U -Nitroaniline UG/KG 0 0% 20 1.83E+05 430 1000 U 1000 UJ 900 U 930 U 880 U 1000 U 970 UJ 20 330 370 U 350 U 390 U 2-Nitrophenol UG/KG 400 U 410 U 360 U 400 U 0 0% 0 3 or 4-Methylphenol UG/KG 0 0% Λ 16 400 II 410 U 360 U 370 U 350 U 400 H 390 II 3,3'-Dichlorobenzidine UG/KG 0 0% 0 20 1.08F+03 400 II 410 U 360 II 370 II 350 II 400 H 390 U 20 1.83E+04 500 1000 U 1000 U 880 U 970 U -Nitroaniline UG/KG 0% 900 U 930 U 1000 U 20 1,6-Dinitro-2-methylphenol UG/KG 0 0% 0 6.11E+03 1000 U 1000 UJ 900 U 930 U 880 U 1000 UJ 970 U 20 UG/KG 400 U 410 U 360 U 370 U 350 U 400 U 390 U 4-Bromophenyl phenyl ether 0 0% 4-Chloro-3-methylphenol UG/KG 0% 20 240 400 U 410 U 360 U 370 U 350 U 400 U 390 U 0 UG/KG 0% 20 2.44E+05 220 400 U 410 U 360 U 370 U 350 II 400 U 390 U -Chloroaniline 4-Chlorophenyl phenyl ether UG/KG 20 400 U 410 U 360 U 370 U 350 U 400 U 390 U 0 0% 4 3.06E+05 900 4-Methylphenol UG/KG 0 0% 4-Nitroaniline UG/KG 0 0% 0 20 2.32E+04 1000 U 1000 U 900 U 930 U 880 U 1000 U 970 UJ 4-Nitrophenol UG/KG 20 100 1000 U 1000 UJ 900 U 930 U 880 U 1000 U 970 U Acenaphthene UG/KG 50 15% 20 3.68E+06 50000 400 U 410 U 360 U 370 U 350 U 400 U 390 U Acenaphthylene UG/KG 220 10% 20 41000 400 H 410 II 220 I 370 LI 350 II 400 H 390 II 20 2.19E+07 370 U 350 U Anthracene UG/KG 240 15% 50000 400 U 410 U 240 J 400 U 390 U Benzo(a)anthracene UG/KG 5200 35% 20 6.21E+02 224 400 U 410 U 940 370 U 350 U 400 U 390 U 19 UG/KG 920 32% 6.21E+01 400 U 410 U 920 J 370 UJ 350 U 400 U 390 U Benzo(a)pyrene 61 19 UG/KG 1300 42% 6.21E+02 1100 400 U 54 J 1300 J 370 UJ 350 U 400 U 390 U Benzo(b)fluoranthene Benzo(ghi)perylene UG/KG 210 37% 19 50000 400 H 67 I 210 I 370 III 350 III 400 H 390 III Benzo(k)fluoranthene UG/KG 490 32% 19 6.21E+03 1100 400 U 410 U 490 J 370 UJ 350 U 400 U 390 U Bis(2-Chloroethoxy)methane UG/KG 0 0% 20 400 U 410 U 360 U 370 U 350 U 400 U 390 U UG/KG 20 2.18E+02 400 U 410 U 360 UJ 370 U 350 UJ 400 U 390 U Bis(2-Chloroethyl)ether 0 0% Bis(2-Chloroisopropyl)ether 20 2 88F+03 350 II 390 II LIG/KG 400 H 410 H 360 II 370 II 400 H 0 0% 0 Bis(2-Ethylhexyl)phthalate UG/KG 87 40% 20 3.47E+04 50000 400 U 410 U 37 J 370 II 41 J 400 H 66 J Butylbenzylphthalate UG/KG 39 10% 20 1.22E+07 50000 400 U 410 U 360 U 370 U 350 U 400 U 390 UJ 20 Carbazole UG/KG 56 15% 2.43E+04 400 U 410 U 45 J 370 U 350 U 400 U 390 U UG/KG 4900 35% 20 6.21E+04 400 2 400 U 410 U 880 370 U 350 U 400 U 390 U Chrysene Di-n-butylphthalate UG/KG 19 10% 2 20 6.11E+06 8100 400 H 410 H 360 II 370 U 350 II 400 H 390 II Di-n-octylphthalate UG/KG 17 15% 20 2.44E+06 50000 400 U 410 U 360 II 370 U 350 II 400 U 390 U 2 Dibenz(a,h)anthracene UG/KG 33 16% 19 6.21E+01 14 400 U 410 UJ 360 UJ 370 UJ 350 UJ 400 U 390 UJ 20 6200 370 U 390 U Dibenzofuran UG/KG 45 1.45E+05 400 U 410 U 45 J 350 U 400 U 15% Diethyl phthalate UG/KG 250 25% 20 4.89E+07 7100 400 U 410 U 360 U 370 U 350 U 400 U 390 U Dimethylphthalate UG/KG 0 0% 20 1.00E+08 2000 400 U 410 U 360 U 370 U 350 U 400 U 390 U Fluoranthene UG/KG 1600 40% 20 2.29E+06 50000 400 U 110 J 1600 370 U 350 U 400 U 390 U UG/KG 160 20% 20 2.75E+06 50000 400 U 410 U 160 J 370 U 350 U 400 U 390 U Fluorene 20 3.04E+02 400 U 370 U 350 U 400 U 390 U Hexachlorobenzene UG/KG 0 0% 410 410 U 360 U Hexachlorobutadiene UG/KG 0 0% 20 6.24E+03 400 U 410 U 360 U 370 U 350 U 400 U 390 U 20 3.65E+05 400 UJ 410 UJ 360 U 370 UJ 350 U 400 UJ 390 U Hexachlorocyclopentadiene UG/KG 0% 20 UG/KG 3.47E+04 400 U 410 U 360 U 370 U 350 U 400 U 390 U Hexachloroethane 0 0% 0 Indeno(1,2,3-cd)pyrene UG/KG 150 20 6.21E+02 3200 400 U 410 UJ 150 J 370 U 350 UJ 400 U 390 UJ 30% sophorone UG/KG 0 0% 20 5.12E+05 4400 400 U 410 U 360 U 370 U 350 U 400 U 390 U UG/KG 20 9.93E+04 400 U 410 U 360 U 370 U 350 U 400 U 390 U N-Nitrosodiphenylamine 0 0% N-Nitrosodipropylamine UG/KG 0% 20 6.95E+01 400 U 410 UJ 360 U 370 U 350 II 400 U 390 UJ HG/KG 20 5.59E+04 13000 410 II 370 LI 350 II 400 H Nanhthalene 1900 20% 400 H 360 II 390 II Vitrobenzene UG/KG 0 0% 20 1.96E+04 200 400 II 410 U 360 U 370 U 350 U 400 H 390 U Pentachlorophenol UG/KG 20 2.98E+03 1000 1000 U 1000 U 900 U 930 U 880 U 1000 U 970 U 0% 20 Phenanthrene UG/KG 1000 40% 50000 400 U 66 J 1000 370 U 350 U 400 U 390 U 20 1.83E+07 410 U 360 U 370 U 350 U Phenol UG/KG 0% 30 400 U 400 U 390 U 0 0

390 III

20

2 32F+06

50000

400 H

120 I

1700

370 II

350 II

400 H

Pyrene

UG/KG

1700

40%

|                                      | Facility               |              |              |          |          |                      |             |              |             | SEAD-121C         | SEAD-121C         | SEAD-121C         | SEAD-121C          | SEAD-121C         | SEAD-121C         | SEAD-121C         |
|--------------------------------------|------------------------|--------------|--------------|----------|----------|----------------------|-------------|--------------|-------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
|                                      | Location ID<br>Matrix  |              |              |          |          |                      |             |              |             | SBDRMO-13<br>SOIL | SBDRMO-14<br>SOIL | SBDRMO-16<br>SOIL | SBDRMO-17<br>SOIL  | SBDRMO-18<br>SOIL | SBDRMO-20<br>SOIL | SBDRMO-21<br>SOIL |
|                                      | Sample ID              |              |              |          |          |                      |             |              |             | DRMO-1066         | DRMO-1069         | DRMO-1075         | DRMO-1078          | DRMO-1082         | DRMO-1088         | DRMO-1102         |
| Sample Depth to                      |                        |              |              |          |          |                      |             |              |             | 2                 | 2                 | 2                 | 2                  | 2                 | 2                 | 2                 |
| Sample Depth to Bot                  |                        |              |              |          |          |                      |             |              |             | 6                 | 6                 | 6                 | 6                  | 6                 | 6                 | 6                 |
|                                      | Sample Date<br>QC Code |              |              |          |          | Region IX            |             |              |             | 10/26/2002<br>SA  | 10/25/2002<br>SA  | 10/27/2002<br>SA  | 10/28/2002<br>SA   | 10/27/2002<br>SA  | 10/26/2002<br>SA  | 10/27/2002<br>SA  |
|                                      | Study ID               |              | Frequency    | Number   | Number   | PRG                  |             | NYSDEC       |             | PID-RI            | PID-RI            | PID-RI            | PID-RI             | PID-RI            | PID-RI            | PID-RI            |
|                                      |                        | Maximum      | of           | of Times | of       | Criteria             |             | Criteria     |             |                   |                   |                   |                    |                   |                   |                   |
| Parameter                            | Units                  | Value        | Detection    | Detected | Analyses | Value 1              | Exceedances | Value 2      | Exceedances | Value (Q)         | Value (Q)         | Value (Q)         | Value (Q)          | Value (Q)         | Value (Q)         | Value (Q)         |
| Pesticides/PCBs                      |                        |              |              |          |          |                      |             |              |             |                   |                   |                   |                    |                   |                   |                   |
| 4,4'-DDD<br>4,4'-DDE                 | UG/KG<br>UG/KG         | 0<br>17      | 0%<br>15%    | 0        | 16<br>20 | 2.44E+03<br>1.72E+03 |             | 2900<br>2100 |             | 2 UJ<br>2 UJ      | 2.1 R<br>2.1 UJ   | 1.9 UJ<br>1.9 UJ  | 0.22 U<br>0.22 UJ  | 1.8 UJ<br>1.8 UJ  | 2.1 UJ<br>2.1 UJ  | 2 UJ<br>2 UJ      |
| 4,4'-DDT                             | UG/KG                  | 16           | 15%          | 3        | 20       | 1.72E+03             |             | 2100         |             | 2 UJ              | 2.1 UJ            | 1.9 GJ<br>14 J    | 0.22 UJ            | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Aldrin                               | UG/KG                  | 11           | 5%           | 1        | 20       | 2.86E+01             |             | 41           |             | 2 UJ              | 2.1 UJ            | 11 J              | 0.11 U             | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Alpha-BHC                            | UG/KG                  | 0            | 0%           | 0        | 20       | 9.02E+01             |             | 110          |             | 2 UJ              | 2.1 UJ            | 1.9 UJ            | 1.3 U              | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Alpha-Chlordane                      | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             |              |             | 2 UJ              | 2.1 UJ            | 1.9 UJ            | 0.34 U             | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Beta-BHC                             | UG/KG                  | 0            | 0%           | 0        | 20       | 3.16E+02             |             | 200          |             | 2 UJ              | 2.1 U             | 1.9 UJ            | 0.11 U             | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Chlordane                            | UG/KG                  | 0            | 0%           | 0        | 16       |                      |             | 200          |             | 20 U<br>2 UJ      | 21 U              | 19 U              | 2.1 U              | 18 U              | 21 U              | 20 U<br>2 UJ      |
| Delta-BHC<br>Dieldrin                | UG/KG<br>UG/KG         | 1.3<br>0     | 5%<br>0%     | 0        | 20<br>19 | 3.04E+01             |             | 300<br>44    |             | 2 UJ              | 2.1 UJ<br>2.1 UJ  | 1.9 UJ<br>65 R    | 0.22 UJ<br>0.11 UJ | 1.8 UJ<br>1.8 UJ  | 2.1 UJ<br>2.1 UJ  | 2 UJ<br>2 UJ      |
| Endosulfan I                         | UG/KG                  | 78           | 5%           | 1        | 20       | 3.04L+01             |             | 900          |             | 2 U               | 2.1 U             | 78                | 0.56 U             | 1.8 U             | 2.1 U             | 2 U               |
| Endosulfan II                        | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             | 900          |             | 2 U               | 2.1 U             | 1.9 U             | 0.34 U             | 1.8 U             | 2.1 U             | 2 U               |
| Endosulfan sulfate                   | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             | 1000         |             | 2 U               | 2.1 U             | 1.9 U             | 0.67 U             | 1.8 U             | 2.1 U             | 2 U               |
| Endrin                               | UG/KG                  | 23           | 5%           | 1        | 20       | 1.83E+04             |             | 100          |             | 2 UJ              | 2.1 UJ            | 23 J              | 0.9 UJ             | 1.8 UJ            | 2.1 U             | 2 U               |
| Endrin aldehyde                      | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             |              |             | 2 U               | 2.1 U             | 1.9 U             | 0.9 UJ             | 1.8 U             | 2.1 U             | 2 U               |
| Endrin ketone<br>Gamma-BHC/Lindane   | UG/KG<br>UG/KG         | 9.7<br>0     | 5%<br>0%     | 1        | 20<br>20 | 4.37E+02             |             | 60           |             | 2 U<br>2 UJ       | 2.1 U<br>2.1 UJ   | 9.7 NJ<br>1.9 UJ  | 0.11 U<br>0.11 U   | 1.8 U<br>1.8 UJ   | 2.1 U<br>2.1 UJ   | 2 U<br>2 UJ       |
| Gamma-BHC/Lindane<br>Gamma-Chlordane | UG/KG<br>UG/KG         | 0            | 0%           | 0        | 20       | 4.3/E+02             |             | 540          |             | 2 UJ              | 2.1 UJ<br>2.1 U   | 1.9 UJ            | 0.11 U<br>0.34 U   | 1.8 UJ            | 2.1 UJ<br>2.1 UJ  | 2 UJ              |
| Heptachlor                           | UG/KG                  | 0            | 0%           | 0        | 20       | 1.08E+02             |             | 100          |             | 2 UJ              | 2.1 U             | 1.9 UJ            | 1.1 U              | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Heptachlor epoxide                   | UG/KG                  | 1.1          | 5%           | 1        | 19       | 5.34E+01             |             | 20           |             | 2 UJ              | 2.1 U             | 24 R              | 0.34 U             | 1.8 UJ            | 2.1 UJ            | 2 UJ              |
| Methoxychlor                         | UG/KG                  | 0            | 0%           | 0        | 20       | 3.06E+05             |             |              |             | 2 U               | 2.1 UJ            | 1.9 U             | 0.11 U             | 1.8 U             | 2.1 U             | 2 U               |
| Toxaphene                            | UG/KG                  | 0            | 0%           | 0        | 20       | 4.42E+02             |             |              |             | 20 U              | 21 U              | 19 U              | 3.6 U              | 18 U              | 21 U              | 20 U              |
| Aroclor-1016                         | UG/KG                  | 0            | 0%           | 0        | 20       | 3.93E+03             |             |              |             | 20 UJ             | 21 UJ             | 19 UJ             | 5.8 UJ             | 18 UJ             | 21 U              | 20 UJ             |
| Aroclor-1221<br>Aroclor-1232         | UG/KG<br>UG/KG         | 0            | 0%<br>0%     | 0        | 20<br>20 |                      |             |              |             | 20 U<br>20 UJ     | 21 U<br>21 UJ     | 19 U<br>19 UJ     | 1.5 U<br>9 UJ      | 18 U<br>18 UJ     | 21 U<br>21 U      | 20 U<br>20 UJ     |
| Aroclor-1242                         | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             |              |             | 20 U              | 21 UJ             | 19 UJ             | 2.5 U              | 18 UJ             | 21 U              | 20 UJ             |
| Aroclor-1248                         | UG/KG                  | 0            | 0%           | 0        | 20       |                      |             |              |             | 20 U              | 21 U              | 19 U              | 6.2 U              | 18 U              | 21 U              | 20 U              |
| Aroclor-1254                         | UG/KG                  | 0            | 0%           | 0        | 20       | 2.22E+02             |             | 10000        |             | 20 U              | 21 U              | 19 UJ             | 12 UJ              | 18 UJ             | 21 U              | 20 U              |
| Aroclor-1260                         | UG/KG                  | 200          | 15%          | 3        | 20       |                      |             | 10000        |             | 20 U              | 21 UJ             | 22 J              | 2.2 UJ             | 18 UJ             | 21 U              | 20 UJ             |
| Metals and Cyanide                   |                        |              |              |          |          |                      |             |              |             |                   |                   |                   |                    |                   |                   |                   |
| Aluminum                             | MG/KG                  | 17600        | 100%<br>20%  | 20       | 20<br>20 | 7.61E+04             |             | 19300        |             | 17600             | 12500             | 10300             | 15200 J<br>0.78 J  | 13800             | 15500<br>1.1 U    | 12500             |
| Antimony<br>Arsenic                  | MG/KG<br>MG/KG         | 11.5<br>8.1  | 100%         | 4<br>20  | 20       | 3.13E+01<br>3.90E-01 | 20          | 5.9<br>8.2   | 1           | 1.1 U<br>6        | 1.1 U<br>4.6      | 0.99 U<br>4.7     | 0.78 J<br>4.4 J    | 0.96 U<br>5.2     | 4.2               | 1.1 U<br>5.9      |
| Barium                               | MG/KG                  | 1050         | 100%         | 20       | 20       | 5.37E+03             | 20          | 300          | 1           | 78                | 103 J             | 57.5              | 81 J               | 64.4              | 95.7 J            | 115 J             |
| Beryllium                            | MG/KG                  | 1            | 100%         | 20       | 20       | 1.54E+02             |             | 1.1          | •           | 1                 | 0.76              | 0.55              | 0.85 J             | 0.68              | 0.96              | 0.8               |
| Cadmium                              | MG/KG                  | 8.1          | 10%          | 2        | 20       | 3.70E+01             |             | 2.3          | 1           | 0.14 U            | 0.15 U            | 0.14 J            | 0.06 U             | 0.13 U            | 0.14 U            | 0.14 U            |
| Calcium                              | MG/KG                  | 97200        | 100%         | 20       | 20       |                      |             | 121000       |             | 18400             | 2890 J            | 66000             | 18300 J            | 26200             | 9560 J            | 22100 J           |
| Chromium                             | MG/KG                  | 37           | 100%         | 20       | 20       |                      |             | 29.6         | 3           | 28.1              | 22.7              | 20                | 28.9 J             | 25.8              | 24.8              | 19.2              |
| Cobalt                               | MG/KG                  | 19.7<br>2440 | 100%<br>100% | 20<br>20 | 20<br>20 | 9.03E+02<br>3.13E+03 |             | 30<br>33     | 6           | 18.2<br>25.7      | 11.3<br>16.7 J    | 11.5<br>24.9      | 14.5 J<br>27 J     | 14.7<br>38.7      | 14.1<br>20.8 J    | 14.3<br>20.9 J    |
| Copper<br>Cyanide                    | MG/KG<br>MG/KG         | 0            | 0%           | 0        | 4        | 1.22E+06             |             | 0.35         | б           | 25.1              | 10./ J            | 24.9              | 27 3               | 38.7              | 20.8 J            | 20.9 J            |
| Cyanide, Amenable                    | MG/KG                  | 0            | 0%           | 0        | 16       | 1.225100             |             | 0.55         |             | 0.6 U             | 0.63 U            | 0.55 U            | 0.57 U             | 0.54 U            | 0.6 U             | 0.59 U            |
| Cyanide, Total                       | MG/KG                  | 0            | 0%           | 0        | 16       |                      |             |              |             | 0.6 U             | 0.631 U           | 0.549 U           | 0.568 U            | 0.539 U           | 0.613 U           | 0.588 U           |
| Iron                                 | MG/KG                  | 54100        | 100%         | 20       | 20       | 2.35E+04             | 15          | 36500        | 1           | 33700             | 24000             | 21000             | 27100 J            | 30000             | 27900             | 26200             |
| Lead                                 | MG/KG                  | 1780         | 100%         | 20       | 20       | 4.00E+02             | 1           | 24.8         | 7           | 11.3              | 16.6              | 45.5              | 11.3 J             | 31                | 18                | 16.1              |
| Magnesium                            | MG/KG                  | 24900        | 100%         | 20       | 20       | 1.765 : 02           |             | 21500        | 1           | 6490              | 4110              | 8760              | 6590 J             | 7720              | 5230              | 6630              |
| Manganese                            | MG/KG<br>MG/KG         | 790<br>0.07  | 100%<br>95%  | 20<br>18 | 20<br>19 | 1.76E+03<br>2.35E+01 |             | 1060<br>0.1  |             | 754               | 402<br>0.01       | 475<br>0.03       | 643 J<br>0.03      | 470<br>0.04       | 658<br>0.04 J     | 724<br>0.03       |
| Mercury<br>Nickel                    | MG/KG<br>MG/KG         | 69.7         | 100%         | 20       | 20       | 2.35E+01<br>1.56E+03 |             | 49           | 3           | 44.3 J            | 0.01<br>29.1 J    | 31.5              | 0.03<br>42.6 J     | 0.04<br>44.7 J    | 0.04 J<br>34.1 J  | 32.5 J            |
| Potassium                            | MG/KG                  | 1870         | 100%         | 20       | 20       | 1.501.705            |             | 2380         | ,           | 1570 J            | 1160 J            | 1330 J            | 1560 J             | 1220 J            | 1640 E            | 1210 J            |
| Selenium                             | MG/KG                  | 0            | 0%           | 0        | 20       | 3.91E+02             |             | 2            |             | 0.5 U             | 0.52 U            | 0.46 U            | 0.38 U             | 0.45 U            | 0.5 U             | 0.49 U            |
|                                      |                        |              |              |          |          |                      |             |              |             |                   |                   |                   |                    |                   |                   |                   |

| Sample Depth to T<br>Sample Depth to Botto |       |                  | Frequency       | Number               | Number         | Region IX<br>PRG               |             | NYSDEC                         |             | SEAD-121C<br>SBDRMO-13<br>SOIL<br>DRMO-1066<br>2<br>6<br>10/26/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-14<br>SOIL<br>DRMO-1069<br>2<br>6<br>10/25/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-16<br>SOIL<br>DRMO-1075<br>2<br>6<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-17<br>SOIL<br>DRMO-1078<br>2<br>6<br>10/28/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-18<br>SOIL<br>DRMO-1082<br>2<br>6<br>10/27/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-20<br>SOIL<br>DRMO-1088<br>2<br>6<br>10/26/2002<br>SA<br>PID-RI | SEAD-121C<br>SBDRMO-21<br>SOIL<br>DRMO-1102<br>2<br>6<br>10/27/2002<br>SA<br>PID-RI |
|--|-------|------------------|-----------------|----------------------|----------------|--------------------------------|-------------|--------------------------------|-------------|---|---|---|---|---|---|---|
| Parameter                                  | Units | Maximum<br>Value | of<br>Detection | of Times<br>Detected | of<br>Analyses | Criteria<br>Value <sup>1</sup> | Exceedances | Criteria<br>Value <sup>2</sup> | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| Silver                                     | MG/KG | 0.72             | 10%             | 2                    | 20             | 3.91E+02                       | Dicecumices | 0.75                           | Dicecumices | 0.32 U  | 0.33 U  | 0.3 U   | 0.72 J  | 0.29 U  | 0.32 U  | 0.32 U  |
| Sodium                                     | MG/KG | 214              | 70%             | 14                   | 20             |                                |             | 172                            | 2           | 141   | 133   | 161   | 104   | 152   | 119 U   | 129   |
| Thallium                                   | MG/KG | 1.8              | 10%             | 2                    | 20             | 5.16E+00                       |             | 0.7                            | 2           | 0.37 U  | 0.38 U  | 0.34 U  | 1.1 J   | 0.33 U  | 0.37 U  | 0.36 U  |
| Vanadium                                   | MG/KG | 27               | 100%            | 20                   | 20             | 7.82E+01                       |             | 150                            |             | 27 J  | 20.7  | 18.1 J  | 20.6 J  | 20.3 J  | 25.3  | 23  |
| Zinc                                       | MG/KG | 691              | 100%            | 20                   | 20             | 2.35E+04                       |             | 110                            | 7           | 89.1 J  | 110   | 105 J   | 75 J  | 130 J   | 86.5  | 70.7  |
| Other                                      |       |                  |                 |                      |                |                                |             |                                |             |   |   |   |   |   |   |   |
| Total Organic Carbon                       | MG/KG | 9500             | 100%            | 16                   | 16             |                                |             |                                |             | 5100  | 5400  | 4200  | 6700  | 3500  | 5900  | 6900  |
| Total Petroleum Hydrocarbons               | MG/KG | 3700             | 25%             | 4                    | 16             |                                |             |                                |             | 48 UJ   | 51 UJ   | 3700 J  | 2200 J  | 43 J  | 49 UJ   | 47 UJ   |

- 1) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004
- 2) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 199
- U = compound was not detected
- J = the reported value is an estimated concentration
  UJ = the compound was not detected; the associated reporting limit is approximat
- G = the compound was not elected, the associated reporting mint is approximat

  R = the data was rejected in the data validating proces:

  NJ = compound was "tentatively identified" and the associated numerical value is approxima

| Sample Depth to Top of Sample 2 2 2 2 Sample Depth to Bottom of Sample $66666$   | 2<br>6        | DRMO-1047<br>2<br>6 | DRMO-1054<br>2<br>6 |
|--|---------------|---------------------|---------------------|
| Sample Date 10/28/2002 10/28/2002 10/27/2002   | 10/25/2002    | 10/27/2002          | 10/25/2002          |
| QC Code Region IX SA SA SA   | SA            | SA                  | SA                  |
| Study ID Frequency Number Number PRG NYSDEC PID-RI PID-RI PID-R  | PID-RI        | PID-RI              | PID-RI              |
| Maximum of of Times of Criteria Criteria   |               |                     |                     |
| Parameter Units Value Detection Detected Analyses Value Exceedances Value Exceedances Value (Q)  | (Q) Value (Q) | Value (Q)           | Value (Q)           |
| Volatile Organic Compounds   |               | 2611                | 20 111              |
| 1,1,1-Trichloroethane         UG/KG         0         0%         0         20         1.20E+06         800         2.8 UJ         3.2 U         2.8  |               | 2.6 U               | 2.9 UJ<br>2.9 UJ    |
|  |               | 2.6 U               |                     |
|  |               | 2.6 U               | 2.9 UJ              |
| 1,1-Dichloroethane         UG/KG         0         0%         0         20         5.06E+05         200         2.8 UJ         3.2 U         2.8 UJ  |               | 2.6 U<br>2.6 U      | 2.9 UJ<br>2.9 UJ    |
| 1.1-Dichloroethane UG/KG 0 0% 0 20 1.2-Bt-02 400 2.8 UJ 3.2 U 2.8 L2-Dichloroethane UG/KG 0 0% 0 20 2.78E+02 100 2.8 UJ 3.2 U 2.8  |               | 2.6 U               | 2.9 UJ              |
| 1,2-Dichloroethene (total) UG/KG 0 0% 0 4 20 2.76E+02 100 2.8 03 3.2 0 2.8   | 0 2.2 03      | 2.0 0               | 2.9 03              |
| 1,2-Dichlorogropane UG/KG 0 0% 0 20 3.42E+02 2.8 UJ 3.2 U 2.8  | U 2.2 U       | 2.6 U               | 2.9 UJ              |
| 12-Diction of propagate UG/KG 28 45% 9 20 3-42-F02 200 5.7 UJ 22 14  |               | 2.6 UJ              | 2.9 UJ              |
| Rection UG/KG 1800 10% 2 20 1-41707 200 3.7 G 22 147   |               | 2.6 U               | 1800 J              |
| Bromodichloromethane UG/KG 0 0% 0 20 8.24E+02 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Bromoform UG/KG 0 0% 0 20 6.16E+04 2.8 UJ 3.2 U 2.8  |               | 2.6 UJ              | 2.9 UJ              |
| Carbon disulfide UG/KG 0 0% 0 20 3.55E+05 2700 2.8 UJ 3.2 U 2.8  |               | 2.6 U               | 2.9 UJ              |
| Carbon tetrachloride UG/KG 0 0% 0 20 2.51E+02 600 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Chlorobenzene UG/KG 0 0% 0 20 1.51E+05 1700 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Chlorodibromomethans UG/KG 0 0% 0 20 1.11E+03 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Chloroethane UG/KG 0 0% 0 20 3.03E+03 1900 2.8 UJ 3.2 U 2.8  |               | 2.6 U               | 2.9 UJ              |
| Chloroform UG/KG 4 10% 2 20 2.21E+02 300 2.8 UJ 3.2 U 2.8  |               | 2.6 U               | 2.9 UJ              |
| Cis-1,2-Dichloroethene UG/KG 0 0% 0 16 4.29E+04 2.8 UJ 3.2 U 2.8   | U 2.2 U       | 2.6 U               | 2.9 UJ              |
| Cis-1,3-Dichloropropene UG/KG 0 0% 0 20 2.8 UJ 3.2 U 2.8   | U 2.2 U       | 2.6 U               | 2.9 UJ              |
| Ethyl benzene UG/KG 24000 5% 1 20 3.95E+05 5500 1 2.8 UJ 3.2 U 2.8   | U 2.2 U       | 2.6 U               | 24000 J             |
| Meia/Para Xylene UG/KG 130000 6% 1 16 2.8 UJ 3.2 U 2.8   | U 2.2 U       | 2.6 U               | 130000 J            |
| Methyl bromide UG/KG 0 0% 0 20 3.90E+03 2.8 UJ 3.2 U 2.8   | U 2.2 UJ      | 2.6 U               | 2.9 UJ              |
| Methyl butyl ketonc UG/KG 0 0% 0 20 2.8 UJ 3.2 U 2.8   | U 2.2 UJ      | 2.6 U               | 2.9 UJ              |
| Methyl chloride UG/KG 0 0% 0 20 4.69E+04 2.8 UJ 3.2 U 2.8  | UJ 2.2 UJ     | 2.6 UJ              | 2.9 UJ              |
| Methyl ethyl ketonc UG/KG 7.6 10% 2 20 2.23E+07 300 2.8 UJ 3.2 2.8   |               | 2.6 U               | 2.9 UJ              |
| Methyl isobutyl ketone UG/KG 0 0% 0 20 5.28E+06 1000 2.8 UJ 3.2 U 2.8  |               | 2.6 U               | 2.9 UJ              |
| Methylene chloridε UG/KG 3.5 10% 2 20 9.11E+03 100 3.9 UJ 3.5 2.8  |               | 2.6 U               | 2.9 UJ              |
| Ortho Xylene UG/KG 75 6% 1 16 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 75                  |
| Styrene UG/KG 2.7 5% 1 20 1.70E+06 2.8 UJ 3.2 U 2.8  |               | 2.6 UJ              | 2.7 J               |
| Tetrachloroethene UG/KG 0 0% 0 20 4.84E+02 1400 2.8 UJ 3.2 U 2.8   |               | 2.6 UJ              | 2.9 UJ              |
| Toluene UG/KG 84 20% 4 20 5.20E+05 1500 2.8 UJ 3.2 U 2.8   | U 2.2 U       | 2.6 U               | 84                  |
| Total Xylenes UG/KG 0 0% 0 4 2.71E+05 1200   |               |                     |                     |
| Trans-1,2-Dichloroethene UG/KG 0 0% 0 16 6,95E+04 300 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Trans-1,3-Dichloropropene UG/KG 0 0% 0 20 2.8 UJ 3.2 U 2.8   |               | 2.6 U               | 2.9 UJ              |
| Trichloroethene         UG/KG         0         0%         0         2.0         5.30E+01         700         2.8 UJ         3.2 U         2.8 UJ           Visual chloride         11G/KG         0         0%         0         20         7.91E+01         200         2.8 UJ         3.2 U         2.8 UJ  |               | 2.6 U               | 2.9 UJ              |
| 7 my chief C   | U 2.2 U       | 2.6 U               | 2.9 UJ              |
| Semivolatile Organic Compounds         1.2.4-Trichlorobenzene         UG/KG         0         0         20         6.22E+04         3400         370 U         400 U         370 U   | 250 11        | 250 111             | 200 111             |
| 1,2,4-Trichlorobenzene UG/KG 0 0% 0 20 6.22E+04 3400 370 U 400 U 370 U 4,2-Dichlorobenzene UG/KG 0 0% 0 20 6.00E+05 7900 370 U 400 U 400 U |               | 350 UJ<br>350 U     | 390 UJ<br>390 U     |
|  |               | 350 U               | 390 U               |
| 1,3-Dichlorobenzene  |               | 350 U<br>350 U      | 390 U<br>390 U      |
| 1.4-Dictiniologicie  |               | 890 U               | 970 UJ              |
| 2.4.6-Trichlorophenol UG/KG 0 0% 0 20 0.11E403 100 940 0 1000 92.<br>2.4.6-Trichlorophenol UG/KG 0 0% 0 20 6.11E403 370 U 400 U 370  |               | 350 U               | 390 UJ              |
| 2.4-Dichrophenol UG/KG 0 0% 0 20 0.11EPUS 370 U 400 U  |               | 350 U               | 390 UJ              |
| 2.4-Dimitoliphenol UG/KG 0 0% 0 20 1.32E+06 400 370 U 400 U 370  |               | 350 U               | 390 UJ              |
| 24-Dimitryphenol UG/KG 0 0% 0 19 1.22E405 200 940 UJ 1000 UJ 920   |               | 890 UJ              | 970 UJ              |
| 2.4-Dinitrotoluene UG/KG 0 0% 0 20 1.22E+05 270 370 U 400 U 370  |               | 350 U               | 390 UJ              |
| 2.6-Dinitrotoluene UG/KG 0 0% 0 20 1.22EV3 370 400 U 370 U 400 U 370   |               | 350 U               | 390 UJ              |
| 2-Chloronaphthalene UG/KG 0 0% 0 20 4.94E+06 100 370 U 400 U 370   |               | 350 U               | 390 UJ              |
| 2-Chlorophenol UG/KG 0 0% 0 20 6.34E+04 800 370 U 400 U 370  |               | 350 UJ              | 390 U               |

Facility SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SBDRMO-23 SBDRMO-24 SBDRMO-5 SBDRMO-6 SBDRMO-7 SBDRMO-9 Location ID Matrix SOIL SOIL SOIL SOIL SOIL SOIL Sample ID DRMO-1096 DRMO-1099 DRMO-1041 DRMO-1044 DRMO-1047 DRMO-1054 Sample Depth to Top of Sample 2 Sample Depth to Bottom of Sample Sample Date 10/28/2002 10/28/2002 10/27/2002 10/25/2002 10/27/2002 10/25/2002 QC Code Region IX NYSDEC PID-RI PID-RI PID-RI PID-RI Study ID Number Number PRG PID-RI PID-RI Frequency of Times Criteria Maximum of of Criteria Value 1 Value 2 Exceedances Units Detection Detected Exceedances Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Parameter Value Analyses -Methylnaphthalene LIG/KG 2500 20% 20 36400 370 H 400 H 370 H 350 H 350 II 1600 I -Methylphenol UG/KG 0% 20 3.06E+06 100 370 U 400 U 370 U 350 U 350 U 390 U -Nitroaniline UG/KG 0 0% 0 20 1.83E+05 430 940 U 1000 U 920 U 890 U 890 U 970 UJ UG/KG 370 U 400 U 370 U 350 U 350 U 390 UJ 2-Nitrophenol 0% 330 0 0 20 400 U 370 II 3 or 4-Methylpheno UG/KG 0 0% 0 16 370 U 350 II 350 II 390 UJ 3,3'-Dichlorobenzidine UG/KG 0 0% 0 20 1.08E+03 370 U 400 H 370 H 350 UJ 350 II 390 UJ -Nitroaniline 1.83E+04 500 940 UJ 1000 U 920 U 890 U 970 UJ UG/KG 0% 20 890 U 4,6-Dinitro-2-methylphenol UG/KG 0 0% 0 20 6.11E+03 940 UJ 1000 U 920 U 890 UJ 890 UJ 970 UJ UG/KG 0% 370 U 400 U 370 U 350 U 350 U 390 UJ 4-Bromophenyl phenyl ether 0 20 4-Chloro-3-methylphenol UG/KG 0% 0 20 370 U 400 U 370 U 350 U 350 U 390 UJ UG/KG 0% 0 20 2.44E+05 220 370 U 400 U 370 U 350 U 350 II 390 UJ 4-Chloroaniline 4-Chlorophenyl phenyl ether UG/KG 0% 370 U 400 U 370 U 350 U 350 U 390 UJ 0 20 4-Methylphenol UG/KG 3.06E+05 0% 900 0 0 4 4-Nitroaniline UG/KG 0 0% 0 20 2.32E+04 940 U 1000 U 920 U 890 U 890 U 970 UJ 4-Nitrophenol UG/KG 0% 20 100 940 U 1000 U 920 U 890 U 890 U 970 UJ Acenaphthene UG/KG 50 15% 20 3.68E+06 50000 370 U 50 J 370 U 350 U 350 U 390 UJ Acenaphthylene UG/KG 220 10% 41000 370 II 73 I 370 U 350 U 350 II 390 III 20 UG/KG 2.19E+07 50000 400 U 370 U 350 U 350 U Anthracene 240 15% 20 370 U 390 UJ Benzo(a)anthracene UG/KG 5200 35% 20 6.21E+02 224 5200 130 J 370 U 350 UJ 350 U 390 UJ 370 U UG/KG 920 32% 19 6.21E+01 370 U 200 J 350 UJ 350 U 390 UJ Benzo(a)pyrene 61 Benzo(b)fluoranthene UG/KG 1300 42% 19 6.21E+02 1100 370 U 170 J 43 J 350 UJ 350 U 390 UJ 8 100 I 370 III Benzo(ghi)pervlene UG/KG 210 37% 19 50000 370 III 350 III 350 III 390 III Benzo(k)fluoranthene UG/KG 490 32% 19 6.21E+03 1100 370 U 120 J 370 U 350 UJ 350 U 390 UJ Bis(2-Chloroethoxy)methane UG/KG 0 0% 0 20 370 U 400 U 370 U 350 U 350 UJ 390 UJ UG/KG 2.18E+02 370 UJ 400 UJ 370 UJ 350 U 350 U 390 U Bis(2-Chloroethyl)ether 0% 0 0 20 Bis(2-Chloroisopropyl)ether UG/KG 2 88F+03 400 H 370 II 350 II 350 II 390 III 0% 20 370 II 0 0 Bis(2-Ethylhexyl)phthalate UG/KG 87 40% 20 3.47E+04 50000 370 U 400 H 87 I 350 III 350 II 390 UJ Butylbenzylphthalate UG/KG 39 10% 1.22E+07 50000 370 U 400 U 370 U 350 UJ 350 U 390 UJ 20 56 Carbazole UG/KG 15% 20 2.43E+04 370 U 400 U 370 U 350 U 350 U 390 UJ UG/KG 4900 35% 6.21E+04 400 2 4900 140 J 370 U 350 UJ 350 U 390 UJ Chrysene 20 Di-n-butylphthalate UG/KG 19 10% 2 20 6.11E+06 8100 370 U 400 H 370 II 350 II 350 II 390 UJ Di-n-octylphthalate UG/KG 17 15% 20 2.44E+06 50000 370 U 400 U 370 U 350 UJ 350 UJ 390 UJ 2 Dibenz(a,h)anthracene UG/KG 33 16% 19 6.21E+01 14 370 UJ 400 U 370 U. 350 UJ 350 UJ 390 UJ UG/KG 45 6200 400 U 370 U 350 U Dibenzofuran 15% 1.45E+05 370 U 350 U 390 UJ 20 Diethyl phthalate UG/KG 250 25% 20 4.89E+07 7100 370 U 250 J 370 U 350 U 350 U 390 UJ Dimethylphthalate UG/KG 0 0% 20 1.00E+08 2000 370 U 400 U 370 U 350 U 350 II 390 UJ Fluoranthene UG/KG 1600 40% 8 20 2.29E+06 50000 370 U 210 J 62 J 350 U 350 U 390 UJ UG/KG 160 20% 20 2.75E+06 50000 370 U 54 J 370 U 350 U 350 U 390 UJ Fluorene UG/KG 3.04E+02 400 U 370 U 350 U 350 U 390 UI Hexachlorobenzene 0 0% 0 20 410 370 U Hexachlorobutadiene UG/KG 0 0% 0 20 6.24E+03 370 UJ 400 U 370 U 350 U 350 UJ 390 UJ UG/KG 0% 3.65E+05 370 U 400 U 370 U 350 UJ 350 U 390 UJ Hexachlorocyclopentadiene UG/KG 0% 20 3.47E+04 370 U 400 U 370 U 350 U 350 U 390 U Hexachloroethane 0 0 Indeno(1,2,3-cd)pyrene UG/KG 150 30% 6.21E+02 3200 370 U 99 J 370 U. 350 UJ 350 UJ 390 UJ 20 Isophorone UG/KG 0 0% 0 20 5.12E+05 4400 370 UJ 400 U 370 U 350 U 350 UJ 390 UJ UG/KG 0% 9.93E+04 370 U 400 U 370 U 350 U 350 U 390 U N-Nitrosodiphenylamine 0 0 20 UG/KG 0% 20 6.95E+01 370 U 400 U 370 U 350 U 350 II 390 U N-Nitrosodipropylamine 0 Naphthalene UG/KG 20% 5.59E+04 13000 400 H 370 II 350 II 350 III 1200 I 1900 20 370 II Nitrobenzene UG/KG 0 0% Λ 20 1.96E+04 200 370 UJ 400 UJ 370 U 350 U 350 UJ 390 UJ Pentachlorophenol UG/KG 0% 20 2.98E+03 1000 940 U 1000 U 920 U 890 U 890 U 970 UJ Phenanthrene UG/KG 1000 40% 20 50000 370 U 170 J 370 U 350 U 350 U 62 J 1.83E+07 370 U 400 U 370 U 350 U Phenol UG/KG 0% 20 30 350 U 390 U 0

50000

370 II

260 I

50 I

350 III

350 U

390 III

20

2 32F+06

40%

UG/KG

1700

Pyrene

|                              | Facility<br>Location ID |              |              |          |          |                      | ~           |               |             | SEAD-121C<br>SBDRMO-23 | SEAD-121C<br>SBDRMO-24 | SEAD-121C<br>SBDRMO-5 | SEAD-121C<br>SBDRMO-6 | SEAD-121C<br>SBDRMO-7 | SEAD-121C<br>SBDRMO-9 |
|------------------------------|-------------------------|--------------|--------------|----------|----------|----------------------|-------------|---------------|-------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                              | Matrix<br>Sample ID     |              |              |          |          |                      |             |               |             | SOIL<br>DRMO-1096      | SOIL<br>DRMO-1099      | SOIL<br>DRMO-1041     | SOIL<br>DRMO-1044     | SOIL<br>DRMO-1047     | SOIL<br>DRMO-1054     |
| Sample Depth to              |                         |              |              |          |          |                      |             |               |             | 2                      | 2                      | 2                     | 2                     | 2                     | 2                     |
| Sample Depth to Bo           |                         |              |              |          |          |                      |             |               |             | 6                      | 6                      | 6                     | 6                     | 6                     | 6                     |
|                              | Sample Date             |              |              |          |          | D IV                 |             |               |             | 10/28/2002             | 10/28/2002             | 10/27/2002            | 10/25/2002            | 10/27/2002            | 10/25/2002            |
|                              | QC Code<br>Study ID     |              | Frequency    | Number   | Number   | Region IX<br>PRG     |             | NYSDEC        |             | SA<br>PID-RI           | SA<br>PID-RI           | SA<br>PID-RI          | SA<br>PID-RI          | SA<br>PID-RI          | SA<br>PID-RI          |
|                              |                         | Maximum      | of           | of Times | of       | Criteria             |             | Criteria      |             |                        |                        |                       |                       |                       |                       |
| Parameter                    | Units                   | Value        | Detection    | Detected | Analyses | Value 1              | Exceedances | Value 2       | Exceedances | Value (Q)              | Value (Q)              | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| Pesticides/PCBs              |                         |              |              |          |          |                      |             |               |             |                        |                        |                       |                       |                       |                       |
| 4,4'-DDD                     | UG/KG                   | 0            | 0%           | 0        | 16       | 2.44E+03             |             | 2900          |             | 0.23 U                 | 0.24 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 R                   |
| 4,4'-DDE<br>4,4'-DDT         | UG/KG<br>UG/KG          | 17<br>16     | 15%<br>15%   | 3        | 20<br>20 | 1.72E+03<br>1.72E+03 |             | 2100<br>2100  |             | 0.23 UJ<br>0.23 UJ     | 0.24 UJ<br>0.24 UJ     | 1.9 UJ<br>1.9 UJ      | 1.8 UJ<br>1.8 UJ      | 1.8 UJ<br>1.8 UJ      | 2 UJ<br>2 UJ          |
| Aldrin                       | UG/KG                   | 11           | 5%           | 1        | 20       | 2.86E+01             |             | 41            |             | 0.23 UJ<br>0.11 U      | 0.12 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Alpha-BHC                    | UG/KG                   | 0            | 0%           | 0        | 20       | 9.02E+01             |             | 110           |             | 1.4 U                  | 1.5 U                  | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Alpha-Chlordane              | UG/KG                   | 0            | 0%           | 0        | 20       | J.022.101            |             | 110           |             | 0.34 U                 | 0.37 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Beta-BHC                     | UG/KG                   | 0            | 0%           | 0        | 20       | 3.16E+02             |             | 200           |             | 0.11 U                 | 0.12 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 U                   |
| Chlordane                    | UG/KG                   | 0            | 0%           | 0        | 16       |                      |             |               |             | 2.1 U                  | 2.3 U                  | 19 U                  | 18 U                  | 18 U                  | 20 U                  |
| Delta-BHC                    | UG/KG                   | 1.3          | 5%           | 1        | 20       |                      |             | 300           |             | 0.23 UJ                | 0.24 UJ                | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Dieldrin                     | UG/KG                   | 0            | 0%           | 0        | 19       | 3.04E+01             |             | 44            |             | 0.11 UJ                | 0.12 UJ                | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Endosulfan I                 | UG/KG                   | 78           | 5%           | 1        | 20       |                      |             | 900           |             | 0.56 U                 | 0.61 U                 | 1.9 U                 | 1.8 U                 | 1.8 U                 | 2 U                   |
| Endosulfan II                | UG/KG                   | 0            | 0%           | 0        | 20       |                      |             | 900           |             | 0.34 U                 | 0.37 U                 | 1.9 U                 | 1.8 U                 | 1.8 U                 | 2 U                   |
| Endosulfan sulfate<br>Endrin | UG/KG<br>UG/KG          | 23           | 0%<br>5%     | 0        | 20<br>20 | 1.83E+04             |             | 1000<br>100   |             | 0.68 U<br>0.9 UJ       | 0.73 U<br>0.97 UJ      | 1.9 U<br>1.9 UJ       | 1.8 U<br>1.8 U        | 1.8 U<br>1.8 UJ       | 2 U<br>2 UJ           |
| Endrin aldehyde              | UG/KG<br>UG/KG          | 0            | 5%<br>0%     | 0        | 20       | 1.83E+04             |             | 100           |             | 0.9 UJ                 | 0.97 UJ<br>0.97 UJ     | 1.9 U                 | 1.8 U                 | 1.8 U                 | 2 U                   |
| Endrin ketone                | UG/KG                   | 9.7          | 5%           | 1        | 20       |                      |             |               |             | 0.11 U                 | 0.12 U                 | 1.9 U                 | 1.8 U                 | 1.8 U                 | 2 U                   |
| Gamma-BHC/Lindane            | UG/KG                   | 0            | 0%           | 0        | 20       | 4.37E+02             |             | 60            |             | 0.11 U                 | 0.12 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 UJ                  |
| Gamma-Chlordane              | UG/KG                   | 0            | 0%           | 0        | 20       |                      |             | 540           |             | 0.34 U                 | 0.37 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 U                   |
| Heptachlor                   | UG/KG                   | 0            | 0%           | 0        | 20       | 1.08E+02             |             | 100           |             | 1.1 U                  | 1.2 U                  | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 U                   |
| Heptachlor epoxide           | UG/KG                   | 1.1          | 5%           | 1        | 19       | 5.34E+01             |             | 20            |             | 0.34 U                 | 0.37 U                 | 1.9 UJ                | 1.8 UJ                | 1.8 UJ                | 2 U                   |
| Methoxychlor                 | UG/KG                   | 0            | 0%           | 0        | 20       | 3.06E+05             |             |               |             | 0.11 U                 | 0.12 U                 | 1.9 U                 | 1.8 U                 | 1.8 U                 | 2 UJ                  |
| Toxaphene                    | UG/KG                   | 0            | 0%           | 0        | 20       | 4.42E+02             |             |               |             | 3.6 U                  | 3.9 U                  | 19 U                  | 18 U                  | 18 U                  | 20 U                  |
| Aroclor-1016                 | UG/KG                   | 0            | 0%           | 0        | 20       | 3.93E+03             |             |               |             | 5.9 UJ                 | 6.3 UJ                 | 19 UJ                 | 18 U                  | 18 UJ                 | 20 U                  |
| Aroclor-1221<br>Aroclor-1232 | UG/KG<br>UG/KG          | 0            | 0%<br>0%     | 0        | 20<br>20 |                      |             |               |             | 1.5 U<br>9.1 UJ        | 1.6 U<br>9.7 UJ        | 19 U<br>19 UJ         | 18 U<br>18 U          | 18 U<br>18 UJ         | 20 U<br>20 U          |
| Aroclor-1242                 | UG/KG                   | 0            | 0%           | 0        | 20       |                      |             |               |             | 2.5 U                  | 2.7 U                  | 19 UJ                 | 18 U                  | 18 U                  | 20 U                  |
| Aroclor-1248                 | UG/KG                   | 0            | 0%           | 0        | 20       |                      |             |               |             | 6.2 U                  | 6.7 U                  | 19 U                  | 18 U                  | 18 U                  | 20 U                  |
| Aroclor-1254                 | UG/KG                   | 0            | 0%           | 0        | 20       | 2.22E+02             |             | 10000         |             | 12 UJ                  | 13 UJ                  | 19 U                  | 18 U                  | 18 U                  | 20 U                  |
| Aroclor-1260                 | UG/KG                   | 200          | 15%          | 3        | 20       | 2.222.102            |             | 10000         |             | 2.3 UJ                 | 2.4 UJ                 | 19 U                  | 18 U                  | 18 U                  | 20 U                  |
| Metals and Cyanide           |                         |              |              |          |          |                      |             |               |             |                        |                        |                       |                       |                       |                       |
| Aluminum                     | MG/KG                   | 17600        | 100%         | 20       | 20       | 7.61E+04             |             | 19300         |             | 7070 J                 | 14900 J                | 14100                 | 11600                 | 16100                 | 12300                 |
| Antimony                     | MG/KG                   | 11.5         | 20%          | 4        | 20       | 3.13E+01             |             | 5.9           | 1           | 0.26 U                 | 0.28 U                 | 1 U                   | 0.96 U                | 0.97 U                | 1.1 U                 |
| Arsenic                      | MG/KG                   | 8.1          | 100%         | 20       | 20       | 3.90E-01             | 20          | 8.2           |             | 2.4 J                  | 6.1 J                  | 7                     | 5                     | 7.5                   | 4.5                   |
| Barium                       | MG/KG                   | 1050         | 100%         | 20       | 20       | 5.37E+03             |             | 300           | 1           | 67.5 J                 | 107 J                  | 95.7                  | 61 J                  | 54.4                  | 82.3 J                |
| Beryllium                    | MG/KG                   | 1            | 100%         | 20       | 20       | 1.54E+02             |             | 1.1           |             | 0.4 J                  | 0.86 J                 | 0.76                  | 0.65                  | 0.81                  | 0.72                  |
| Cadmium<br>Calcium           | MG/KG<br>MG/KG          | 8.1<br>97200 | 10%<br>100%  | 2<br>20  | 20<br>20 | 3.70E+01             |             | 2.3<br>121000 | 1           | 0.06 U<br>56200 J      | 0.06 U<br>12600 J      | 0.13 U<br>18800       | 0.13 U<br>22100 J     | 0.13 U<br>7870        | 0.14 U<br>19000 J     |
| Chromium                     | MG/KG                   | 37           | 100%         | 20       | 20       |                      |             | 29.6          | 3           | 11.1 J                 | 25.4 J                 | 26.1                  | 30.2                  | 29.6                  | 22.3                  |
| Cobalt                       | MG/KG                   | 19.7         | 100%         | 20       | 20       | 9.03E+02             |             | 30            | 3           | 6.8 J                  | 25.4 J                 | 17.9                  | 13.6                  | 17.9                  | 12                    |
| Copper                       | MG/KG                   | 2440         | 100%         | 20       | 20       | 3.13E+03             |             | 33            | 6           | 16.4 J                 | 19.2 J                 | 37.6                  | 96.7 J                | 32.3                  | 22.3 J                |
| Cyanide                      | MG/KG                   | 0            | 0%           | 0        | 4        | 1.22E+06             |             | 0.35          |             |                        |                        |                       |                       |                       |                       |
| Cyanide, Amenable            | MG/KG                   | 0            | 0%           | 0        | 16       |                      |             |               |             | 0.57 U                 | 0.62 U                 | 0.56 U                | 0.54 U                | 0.54 U                | 0.59 U                |
| Cyanide, Total               | MG/KG                   | 0            | 0%           | 0        | 16       |                      |             |               |             | 0.569 U                | 0.618 U                | 0.564 U               | 0.539 U               | 0.54 U                | 0.59 U                |
| Iron                         | MG/KG                   | 54100        | 100%         | 20       | 20       | 2.35E+04             | 15          | 36500         | 1           | 10700 J                | 28100 J                | 32800                 | 25300                 | 34600                 | 23400                 |
| Lead                         | MG/KG                   | 1780         | 100%         | 20       | 20       | 4.00E+02             | 1           | 24.8          | 7           | 6.2 J                  | 13.6 J                 | 33.8                  | 19.3                  | 19                    | 26.2                  |
| Magnesium                    | MG/KG                   | 24900        | 100%         | 20       | 20       | 4.500.00             |             | 21500         | 1           | 24900 J                | 6220 J                 | 6880                  | 5960                  | 8740                  | 5040                  |
| Manganese                    | MG/KG                   | 790          | 100%         | 20       | 20       | 1.76E+03             |             | 1060          |             | 324 J                  | 646 J                  | 790                   | 526                   | 323                   | 438                   |
| Mercury                      | MG/KG                   | 0.07         | 95%          | 18       | 19       | 2.35E+01             |             | 0.1           | 2           | 0.02                   | 0.04                   | 0.04                  | 0.02                  | 0.03                  | 0.03                  |
| Nickel<br>Potassium          | MG/KG<br>MG/KG          | 69.7<br>1870 | 100%<br>100% | 20<br>20 | 20<br>20 | 1.56E+03             |             | 49<br>2380    | 3           | 18 J<br>1010 J         | 38.7 J<br>1370 J       | 46.4 J<br>1260 J      | 40.2 J<br>1490 J      | 53.7 J<br>1380 J      | 31.5 J<br>1360 J      |
| Selenium                     | MG/KG<br>MG/KG          | 0            | 0%           | 0        | 20       | 3.91E+02             |             | 2380          |             | 0.37 U                 | 0.4 U                  | 0.47 U                | 0.45 U                | 0.45 U                | 0.49 U                |
| Scientilli                   | MQ/KG                   | U            | U70          | U        | 20       | J.91E+02             |             |               |             | 0.57 U                 | 0.4 U                  | 0.47 U                | 0.45 U                | 0.45 U                | 0.49 U                |

| Sample Depth to T<br>Sample Depth to Bott |          |         |           |          |          |           |             |          |             | SEAD-121C<br>SBDRMO-23<br>SOIL<br>DRMO-1096<br>2<br>6<br>10/28/2002 | SEAD-121C<br>SBDRMO-24<br>SOIL<br>DRMO-1099<br>2<br>6<br>10/28/2002 | SEAD-121C<br>SBDRMO-5<br>SOIL<br>DRMO-1041<br>2<br>6<br>10/27/2002 | SEAD-121C<br>SBDRMO-6<br>SOIL<br>DRMO-1044<br>2<br>6<br>10/25/2002 | SEAD-121C<br>SBDRMO-7<br>SOIL<br>DRMO-1047<br>2<br>6<br>10/27/2002 | SEAD-121C<br>SBDRMO-9<br>SOIL<br>DRMO-1054<br>2<br>6<br>10/25/2002 |
|---|----------|---------|-----------|----------|----------|-----------|-------------|----------|-------------|---|---|--|--|--|--|
|   | QC Code  |         | _         |          |          | Region IX |             |          |             | SA  | SA  | SA   | SA   | SA   | SA   |
|   | Study ID |         | Frequency | Number   | Number   | PRG       |             | NYSDEC   |             | PID-RI  | PID-RI  | PID-RI   | PID-RI   | PID-RI   | PID-RI   |
|   |          | Maximum | of        | of Times | of       | Criteria  |             | Criteria |             |   |   |  |  |  |  |
| Parameter                                 | Units    | Value   | Detection | Detected | Analyses | Value 1   | Exceedances | Value 2  | Exceedances | Value (Q)   | Value (Q)   | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Silver                                    | MG/KG    | 0.72    | 10%       | 2        | 20       | 3.91E+02  |             | 0.75     |             | 0.42 U  | 0.72 J  | 0.3 U  | 0.29 U   | 0.29 U   | 0.32 U   |
| Sodium                                    | MG/KG    | 214     | 70%       | 14       | 20       |           |             | 172      | 2           | 163   | 124   | 122  | 162  | 107 U  | 167  |
| Thallium                                  | MG/KG    | 1.8     | 10%       | 2        | 20       | 5.16E+00  |             | 0.7      | 2           | 0.65 U  | 1.8 J   | 0.34 U   | 0.33 U   | 0.33 U   | 0.36 U   |
| Vanadium                                  | MG/KG    | 27      | 100%      | 20       | 20       | 7.82E+01  |             | 150      |             | 11 J  | 23.2 J  | 24.7 J   | 17.4   | 24.5 J   | 21   |
| Zinc                                      | MG/KG    | 691     | 100%      | 20       | 20       | 2.35E+04  |             | 110      | 7           | 52.8 J  | 126 J   | 117 J  | 68.3   | 167 J  | 73.9   |
| Other                                     |          |         |           |          |          |           |             |          |             |   |   |  |  |  |  |
| Total Organic Carbon                      | MG/KG    | 9500    | 100%      | 16       | 16       |           |             | 1        |             | 2900  | 6400  | 4000   | 3600   | 9500   | 3600   |
| Total Petroleum Hydrocarbons              | MG/KG    | 3700    | 25%       | 4        | 16       |           |             |          |             | 46 UJ   | 49 UJ   | 45 UJ  | 43 UJ  | 43 UJ  | 1900 J   |

- 1) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 200-2) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 199-
- U = compound was not detected
- J = the reported value is an estimated concentration
  UJ = the compound was not detected; the associated reporting limit is approximat
- O3 the Compound was not detected, the associated reporting mint is approximat
  R = the data was rejected in the data validating proces
  NJ = compound was "tentatively identified" and the associated numerical value is approximately

|                             | Facility<br>Location ID |                 |           |          |            |           |             |                    |             | SEAD-121C<br>MW121C-1 | SEAD-121C<br>MW121C-1 | SEAD-121C<br>MW121C-2 |
|-----------------------------|-------------------------|-----------------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------------------|-----------------------|-----------------------|
|                             | Matrix                  |                 |           |          |            |           |             |                    |             | GW                    | GW                    | GW                    |
|                             | Sample ID               |                 |           |          |            |           |             |                    |             | EB023                 | EB153                 | EB154                 |
| Sample Depth to To          | op of Sample            |                 |           |          |            |           |             |                    |             | 2.1                   | 2.1                   | 1.6                   |
| Sample Depth to Botto       | om of Sample            |                 |           |          |            |           |             |                    |             | 9.7                   | 9.7                   | 5.1                   |
|                             | Sample Date             |                 |           |          |            |           |             |                    |             | 3/17/1998             | 3/17/1998             | 3/17/1998             |
|                             | QC Code                 |                 |           |          |            | Region IX |             |                    |             | SA                    | SA                    | SA                    |
|                             | Study ID                |                 | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | EBS                   | EBS                   | EBS                   |
|                             |                         | Maximum         | of        | of Times | of         | Criteria  |             | Criteria           |             |                       |                       |                       |
| Parameter                   | Units                   | Value           | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)             | Value (Q)             | Value (Q)             |
| Volatile Organic Compounds  | TIC/I                   | 0               | 00/       | 0        | 2          | 2.175.02  |             | _                  |             | 1.77                  | 1.77                  | 1.77                  |
| 1,1,1-Trichloroethane       | UG/L                    | 0               | 0%        |          | 2          | 3.17E+03  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,1,2,2-Tetrachloroethane   | UG/L                    | 0               | 0%        | 0        | 2          | 5.53E-02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,1,2-Trichloroethane       | UG/L                    | 0               | 0%        | -        | 2          | 2.00E-01  |             | 1                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,1-Dichloroethane          | UG/L                    | 0               | 0%        | 0        | 2          | 8.11E+02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,1-Dichloroethene          | UG/L                    | 0               | 0%        | -        | 2          | 3.39E+02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,2-Dibromo-3-chloropropane | UG/L                    | 0               | 0%        | 0        | 2          | 4.76E-02  |             | 0.04               |             | 1 U                   | 1 U                   | 1 U                   |
| 1,2-Dibromoethane           | UG/L                    | 0               | 0%        | 0        | 2          | 5.60E-03  |             | 0.0006             |             | 1 U                   | 1 U                   | 1 U                   |
| 1,2-Dichlorobenzene         | UG/L                    | 0               | 0%        | 0        | 2          | 3.70E+02  |             | 3                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,2-Dichloroethane          | UG/L                    | 0               | 0%        | 0        | 2          | 1.23E-01  |             | 0.6                |             | 1 U                   | 1 U                   | 1 U                   |
| 1,2-Dichloropropane         | UG/L                    | 0               | 0%        | 0        | 2          | 1.65E-01  |             | 1                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,3-Dichlorobenzene         | UG/L                    | 0               | 0%        | 0        | 2          | 1.83E+02  |             | 3                  |             | 1 U                   | 1 U                   | 1 U                   |
| 1,4-Dichlorobenzene         | UG/L                    | 36              | 50%       | 1        | 2          | 5.02E-01  | 1           | 3                  | 1           | 1 U                   | 1 U                   | 36                    |
| Acetone                     | UG/L                    | 57 <sup>4</sup> | 50%       | 1        | 2          | 5.48E+03  |             |                    |             | 52                    | 61                    | 1 U                   |
| Benzene                     | UG/L                    | 0               | 0%        | 0        | 2          | 3.54E-01  |             | 1                  |             | 1 U                   | 1 U                   | 1 U                   |
| Bromochloromethane          | UG/L                    | 1               | 50%       | 1        | 2          |           |             | 5                  |             | 1 U                   | 1 U                   | 1                     |
| Bromodichloromethane        | UG/L                    | 0               | 0%        | 0        | 2          | 1.81E-01  |             | 80                 |             | 1 U                   | 1 U                   | 1 U                   |
| Bromoform                   | UG/L                    | 4               | 50%       | 1        | 2          | 8.51E+00  |             | 80                 |             | 1 U                   | 1 U                   | 4                     |
| Carbon disulfide            | UG/L                    | 2 4             | 50%       | 1        | 2          | 1.04E+03  |             |                    |             | 2                     | 2                     | 1 U                   |
| Carbon tetrachloride        | UG/L                    | 0               | 0%        | 0        | 2          | 1.71E-01  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Chlorobenzene               | UG/L                    | 2               | 50%       | 1        | 2          | 1.06E+02  |             | 5                  |             | 1 U                   | 1 U                   | 2                     |
| Chlorodibromomethane        | UG/L                    | 0               | 0%        | 0        | 2          | 1.33E-01  |             | 80                 |             | 1 U                   | 1 U                   | 1 U                   |
| Chloroethane                | UG/L                    | 0               | 0%        | 0        | 2          | 4.64E+00  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Chloroform                  | UG/L                    | 0               | 0%        | 0        | 2          | 1.66E-01  |             | 7                  |             | 1 U                   | 1 U                   | 1 U                   |
| Cis-1,2-Dichloroethene      | UG/L                    | 0               | 0%        | 0        | 2          | 6.08E+01  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Cis-1,3-Dichloropropene     | UG/L                    | 0               | 0%        | 0        | 2          |           |             | 0.4                |             | 1 U                   | 1 U                   | 1 U                   |
| Ethyl benzene               | UG/L                    | 0               | 0%        | 0        | 2          | 1.34E+03  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Meta/Para Xylene            | UG/L                    | 0               | 0%        | 0        | 0          |           |             |                    |             |                       |                       |                       |
| Methyl bromide              | UG/L                    | 0               | 0%        | 0        | 2          | 8.66E+00  |             | 5                  |             | 1 U                   | 1 U                   | 5 U                   |
| Methyl butyl ketone         | UG/L                    | 0               | 0%        | 0        | 2          |           |             |                    |             | 5 U                   | 5 U                   | 1 U                   |
| Methyl chloride             | UG/L                    | 0               | 0%        | 0        | 2          | 1.58E+02  |             | 5                  |             | 1 U                   | 1 U                   | 5 U                   |
| Methyl ethyl ketone         | UG/L                    | 0               | 0%        | 0        | 2          | 6.97E+03  |             |                    |             | 5 U                   | 5 U                   | 5 U                   |
| Methyl isobutyl ketone      | UG/L                    | 0               | 0%        | 0        | 2          | 1.99E+03  |             |                    |             | 5 U                   | 5 U                   | 2 U                   |
| Methylene chloride          | UG/L                    | 0               | 0%        | 0        | 2          | 4.28E+00  |             | 5                  |             | 2 U                   | 2 U                   | 1 U                   |
| Ortho Xylene                | UG/L                    | 0               | 0%        | 0        | 0          |           |             | 5                  |             |                       |                       |                       |
| Styrene                     | UG/L                    | 0               | 0%        | 0        | 2          | 1.64E+03  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Tetrachloroethene           | UG/L                    | 0               | 0%        | 0        | 2          | 1.04E-01  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Toluene                     | UG/L                    | 0               | 0%        | 0        | 2          | 7.23E+02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Total Xylenes               | UG/L                    | 0               | 0%        | 0        | 2          | 2.06E+02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Trans-1,2-Dichloroethene    | UG/L                    | 0               | 0%        | 0        | 2          | 1.22E+02  |             | 5                  |             | 1 U                   | 1 U                   | 1 U                   |
| Trans-1,3-Dichloropropene   | UG/L                    | 0               | 0%        | 0        | 2          |           |             | 0.4                |             | 1 U                   | 1 U                   | 1 U                   |

|                             |              |         |           |          | Sch        | cu min D             | epot metrity |                    |             |           |                |           |
|-----------------------------|--------------|---------|-----------|----------|------------|----------------------|--------------|--------------------|-------------|-----------|----------------|-----------|
|                             | Facility     |         |           |          |            |                      |              |                    |             | SEAD-121C | SEAD-121C      | SEAD-121C |
|                             | Location ID  |         |           |          |            |                      |              |                    |             | MW121C-1  | MW121C-1       | MW121C-2  |
|                             | Matrix       |         |           |          |            |                      |              |                    |             | GW        | GW             | GW        |
|                             | Sample ID    |         |           |          |            |                      |              |                    |             | EB023     | EB153          | EB154     |
| Sample Depth to T           |              |         |           |          |            |                      |              |                    |             | 2.1       | 2.1            | 1.6       |
| Sample Depth to Bott        |              |         |           |          |            |                      |              |                    |             | 9.7       | 9.7            | 5.1       |
|                             | Sample Date  |         |           |          |            |                      |              |                    |             | 3/17/1998 | 3/17/1998      | 3/17/1998 |
|                             | QC Code      |         |           |          |            | Region IX            |              |                    |             | SA        | SA             | SA        |
|                             | Study ID     |         | Frequency | Number   | Number     | PRG                  |              | Lowest GW          |             | EBS       | EBS            | EBS       |
|                             |              | Maximum | of        | of Times | of         | Criteria             |              | Criteria           |             |           |                |           |
| Parameter                   | Units        | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances  | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q)      | Value (Q) |
| Trichloroethene             | UG/L         | 0       | 0%        | 0        | 2          | 2.80E-02             |              | 5                  |             | 1 U       | 1 U            | 1 U       |
| Vinyl chloride              | UG/L         | 1       | 50%       | 1        | 2          | 1.98E-02             | 1            | 2                  |             | 1 U       | 1 U            | 1         |
| Semivolatile Organic Compo  | ınds         |         |           |          |            |                      |              |                    |             |           |                |           |
| 1,2,4-Trichlorobenzene      | UG/L         | 0       | 0%        | 0        | 2          | 7.16E+00             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 1,2-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 2          | 3.70E+02             |              | 3                  |             |           | 1.1 U          | 1.1 U     |
| 1,3-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 2          | 1.83E+02             |              | 3                  |             |           | 1.1 U          | 1.1 U     |
| 1,4-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 2          | 5.02E-01             |              | 3                  |             |           | 1.1 U          | 1.1 U     |
| 2,4,5-Trichlorophenol       | UG/L         | 0       | 0%        | 0        | 2          | 3.65E+03             |              | 1                  |             |           | 2.7 U          | 2.8 U     |
| 2,4,6-Trichlorophenol       | UG/L         | 0       | 0%        | 0        | 2          | 3.65E+00             |              | 1                  |             |           | 1.1 U          | 1.1 U     |
| 2,4-Dichlorophenol          | UG/L         | 0       | 0%        | 0        | 2          | 1.09E+02             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 2,4-Dimethylphenol          | UG/L         | 0       | 0%        | 0        | 2          | 7.30E+02             |              |                    |             |           | 1.1 U          | 1.1 U     |
| 2,4-Dinitrophenol           | UG/L         | 0       | 0%        | 0        | 2          | 7.30E+01             |              |                    |             |           | 2.7 U          | 2.8 U     |
| 2,4-Dinitrotoluene          | UG/L         | 0       | 0%        | 0        | 2          | 7.30E+01             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 2,6-Dinitrotoluene          | UG/L         | 0       | 0%        | 0        | 2          | 3.65E+01             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 2-Chloronaphthalene         | UG/L         | 0       | 0%        | 0        | 2          | 4.87E+02             |              |                    |             |           | 1.1 U          | 1.1 U     |
| 2-Chlorophenol              | UG/L         | 0       | 0%        | 0        | 2          | 3.04E+01             |              |                    |             |           | 1.1 U          | 1.1 U     |
| 2-Methylnaphthalene         | UG/L         | 0       | 0%        | 0        | 2          |                      |              |                    |             |           | 1.1 U          | 1.1 U     |
| 2-Methylphenol              | UG/L         | 0       | 0%        | 0        | 2          | 1.82E+03             |              |                    |             |           | 1.1 U          | 1.1 U     |
| 2-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 2          | 1.09E+02             |              | 5                  |             |           | 2.7 U          | 2.8 U     |
| 2-Nitrophenol               | UG/L         | 0       | 0%        | 0        | 2          |                      |              | 1                  |             |           | 1.1 U          | 1.1 U     |
| 3 or 4-Methylphenol         | UG/L         | 0       | 0%        | 0        | 0          |                      |              | 1                  |             |           |                |           |
| 3,3'-Dichlorobenzidine      | UG/L         | 0       | 0%        | 0        | 2          | 1.49E-01             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 3-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 2          | 3.20E+00             |              | 5                  |             |           | 2.7 U          | 2.8 U     |
| 4,6-Dinitro-2-methylphenol  | UG/L         | 0       | 0%        | 0        | 2          | 3.65E+00             |              | 1                  |             |           | 2.7 U          | 2.8 U     |
| 4-Bromophenyl phenyl ether  | UG/L         | 0       | 0%        | 0        | 2          |                      |              | _                  |             |           | 1.1 U          | 1.1 U     |
| 4-Chloro-3-methylphenol     | UG/L         | 0       | 0%        | 0        | 2          |                      |              | 1                  |             |           | 1.1 U          | 1.1 U     |
| 4-Chloroaniline             | UG/L         | 0       | 0%        | 0        | 2          | 1.46E+02             |              | 5                  |             |           | 1.1 U          | 1.1 U     |
| 4-Chlorophenyl phenyl ether | UG/L         | 0       | 0%        | 0        | 2          |                      |              |                    |             |           | 1.1 U          | 1.1 U     |
| 4-Methylphenol              | UG/L         | 0       | 0%        | 0        | 2          | 1.82E+02             |              |                    |             |           | 1.1 U          | 1.1 U     |
| 4-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 2          | 3.20E+00             |              | 5                  |             |           | 2.7 U          | 2.8 U     |
| 4-Nitrophenol               | UG/L         | 0       | 0%        | 0        | 2          | 3.202.00             |              | 1                  |             |           | 2.7 U          | 2.8 U     |
| Acenaphthene                | UG/L         | 0       | 0%        | 0        | 2          | 3.65E+02             |              | •                  |             |           | 1.1 U          | 1.1 U     |
| Acenaphthylene              | UG/L         | 0       | 0%        | 0        | 2          | 3.032102             |              |                    |             |           | 1.1 U          | 1.1 U     |
| Anthracene                  | UG/L         | 0       | 0%        | 0        | 2          | 1.83E+03             |              |                    |             |           | 1.1 U          | 1.1 U     |
| Benzo(a)anthracene          | UG/L         | 0       | 0%        | 0        | 2          | 9.21E-02             |              |                    |             |           | 1.1 U          | 1.1 U     |
| Benzo(a)pyrene              | UG/L         | 0       | 0%        | 0        | 2          | 9.21E-02<br>9.21E-03 |              | 0                  |             |           | 1.1 U          | 1.1 U     |
| Benzo(b)fluoranthene        | UG/L         | 0       | 0%        | 0        | 2          | 9.21E-03<br>9.21E-02 |              | "                  |             |           | 1.1 U          | 1.1 U     |
| Benzo(ghi)perylene          | UG/L<br>UG/L | 0       | 0%        | 0        | 2          | 7.216-02             |              |                    |             |           | 1.1 U          | 1.1 U     |
| Benzo(k)fluoranthene        | UG/L         | 0       | 0%        | 0        | 2          | 9.21E-01             |              |                    |             |           | 1.1 U          | 1.1 U     |
| Bis(2-Chloroethoxy)methane  | UG/L<br>UG/L | 0       | 0%        | 0        | 2          | 9.21E-01             |              | 5                  |             |           | 1.1 U<br>1.1 U | 1.1 U     |
| Bis(2-Chloroethyl)ether     | UG/L<br>UG/L | 0       | 0%        | 0        | 2          | 1.02E-02             |              | 5<br>1             |             |           | 1.1 U<br>1.1 U | 1.1 U     |
| Dis(2-Cinoroethyr)ether     | UG/L         | U       | U%        | U        |            | 1.02E-02             |              | 1                  |             |           | 1.1 U          | 1.1 U     |

SEAD-121C

SEAD-121C

SEAD-121C

#### SEAD-121C and SEAD-1211 RI REPC Seneca Army Depot Activity

|                             | Location ID |              |           |          |            |                    |             |                    |             | MW121C-1  | MW121C-1  | MW121C-2  |
|-----------------------------|-------------|--------------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------|-----------|-----------|
|                             | Matrix      |              |           |          |            |                    |             |                    |             | GW        | GW        | GW        |
|                             | Sample ID   |              |           |          |            |                    |             |                    |             | EB023     | EB153     | EB154     |
| Sample Depth to T           |             |              |           |          |            |                    |             |                    |             | 2.1       | 2.1       | 1.6       |
| Sample Depth to Bott        |             |              |           |          |            |                    |             |                    |             | 9.7       | 9.7       | 5.1       |
|                             | Sample Date |              |           |          |            |                    |             |                    |             | 3/17/1998 | 3/17/1998 | 3/17/1998 |
|                             | QC Code     |              |           |          |            | Region IX          |             |                    |             | SA        | SA        | SA        |
|                             | Study ID    |              | Frequency | Number   | Number     | PRG                |             | Lowest GW          |             | EBS       | EBS       | EBS       |
|                             | •           | Maximum      | of        | of Times | of         | Criteria           |             | Criteria           |             |           |           |           |
| Parameter                   | Units       | Value        | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Bis(2-Chloroisopropyl)ether | UG/L        | 0            | 0%        | 0        | 2          | 2.74E-01           |             | 5                  |             |           | 1.1 U     | 1.1 U     |
| Bis(2-Ethylhexyl)phthalate  | UG/L        | 0.4          | 100%      | 2        | 2          | 4.80E+00           |             | 5                  |             |           | 0.23 J    | 0.4 J     |
| Butylbenzylphthalate        | UG/L        | 0.12 4       | 50%       | 1        | 2          | 7.30E+03           |             |                    |             |           | 0.12 Ј    | 1.1 U     |
| Carbazole                   | UG/L        | 0            | 0%        | 0        | 2          | 3.36E+00           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Chrysene                    | UG/L        | 0            | 0%        | 0        | 2          | 9.21E+00           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Di-n-butylphthalate         | UG/L        | 1.7 4        | 100%      | 2        | 2          | 3.65E+03           |             | 50                 |             |           | 1.7       | 0.79 J    |
| Di-n-octylphthalate         | UG/L        | 0            | 0%        | 0        | 2          | 1.46E+03           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Dibenz(a,h)anthracene       | UG/L        | 0            | 0%        | 0        | 2          | 9.21E-03           |             |                    |             |           | 1.1 UJ    | 1.1 U     |
| Dibenzofuran                | UG/L        | 0            | 0%        | 0        | 2          | 1.22E+01           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Diethyl phthalate           | UG/L        | 0.057 4      | 50%       | 1        | 2          | 2.92E+04           |             |                    |             |           | 0.057 J   | 1.1 U     |
| Dimethylphthalate           | UG/L        | 0.037        | 0%        | 0        | 2          | 3.65E+05           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Fluoranthene                | UG/L        | 0            | 0%        | 0        | 2          | 1.46E+03           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Fluorene                    | UG/L        | 0.48         | 50%       | 1        | 2          | 2.43E+02           |             |                    |             |           | 1.1 U     | 0.48 J    |
| Hexachlorobenzene           | UG/L        | 0            | 0%        | 0        | 2          | 4.20E-02           |             | 0.04               |             |           | 1.1 U     | 1.1 U     |
| Hexachlorobutadiene         | UG/L        | 0.4          | 100%      | 2        | 2          | 8.62E-01           |             | 0.5                |             |           | 0.061 J   | 0.4 J     |
| Hexachlorocyclopentadiene   | UG/L        | 0            | 0%        | 0        | 2          | 2.19E+02           |             | 5                  |             |           | 1.1 UJ    | 1.1 U     |
| Hexachloroethane            | UG/L        | 0            | 0%        | 0        | 2          | 4.80E+00           |             | 5                  |             |           | 1.1 U     | 1.1 U     |
| Indeno(1,2,3-cd)pyrene      | UG/L        | 0            | 0%        | 0        | 2          | 9.21E-02           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Isophorone                  | UG/L        | 0            | 0%        | 0        | 2          | 7.08E+01           |             |                    |             |           | 1.1 U     | 1.1 U     |
| N-Nitrosodiphenylamine      | UG/L        | 0            | 0%        | 0        | 2          | 1.37E+01           |             |                    |             |           | 1.1 U     | 1.1 U     |
| N-Nitrosodipropylamine      | UG/L        | 0            | 0%        | 0        | 2          | 9.60E-03           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Naphthalene                 | UG/L        | 0            | 0%        | 0        | 2          | 6.20E+00           |             |                    |             |           | 1.1 U     | 1.1 U     |
| Nitrobenzene                | UG/L        | 0            | 0%        | 0        | 2          | 3.40E+00           |             | 0.4                |             |           | 1.1 U     | 1.1 U     |
| Pentachlorophenol           | UG/L        | 0            | 0%        | 0        | 2          | 5.60E-01           |             | 1                  |             |           | 2.7 U     | 2.8 U     |
| Phenanthrene                | UG/L        | 0.24         | 50%       | 1        | 2          |                    |             |                    |             |           | 1.1 U     | 0.24 J    |
| Phenol                      | UG/L        | 0            | 0%        | 0        | 2          | 1.09E+04           |             | 1                  |             |           | 1.1 U     | 1.1 U     |
| Pyrene                      | UG/L        | 0.13         | 50%       | 1        | 2          | 1.83E+02           |             |                    |             |           | 1.1 U     | 0.13 J    |
| Pesticides/PCBs             |             |              |           |          |            |                    |             |                    |             |           |           |           |
| 4,4'-DDD                    | UG/L        | 0.81         | 100%      | 2        | 2          | 2.80E-01           | 2           | 0.3                | 2           | 0.9       | 0.11 U    | 0.81 J    |
| 4,4'-DDE                    | UG/L        | 0.3          | 100%      | 2        | 2          | 1.98E-01           | 2           | 0.2                | 1           | 0.27 J    | 0.093 J   | 0.3 J     |
| 4,4'-DDT                    | UG/L        | 0.56         | 100%      | 2        | 2          | 1.98E-01           | 3           | 0.2                | 2           | 0.29 J    | 0.28      | 0.56 J    |
| Aldrin                      | UG/L        | 0            | 0%        | 0        | 2          | 3.95E-03           |             | 0                  |             | 0.057 U   | 0.057 U   | 0.054 U   |
| Alpha-BHC                   | UG/L        | 0.059        | 100%      | 2        | 2          | 1.07E-02           | 2           | 0.01               | 2           | 0.057 U   | 0.036 J   | 0.059 J   |
| Alpha-Chlordane             | UG/L        | $0.082^{-4}$ | 50%       | 1        | 2          |                    |             |                    |             | 0.096     | 0.068     | 0.054 U   |
| Beta-BHC                    | UG/L        | 0.33 4       | 100%      | 2        | 2          | 3.74E-02           | 3           | 0.04               | 2           | 0.56 J    | 0.096 J   | 0.061 J   |
| Chlordane                   | UG/L        | 0            | 100%      | 0        | 0          |                    |             |                    |             |           |           | l         |
| Delta-BHC                   | UG/L        | 0.16 4       | 100%      | 2        | 2          |                    |             | 0.04               | 2           | 0.23 J    | 0.094     | 0.16 J    |
| Dieldrin                    | UG/L        | 0.2          | 100%      | 2        | 2          | 4.20E-03           | 2           | 0.004              | 2           | 0.11 U    | 0.052 J   | 0.2 J     |
| Endosulfan I                | UG/L        | $0.10^{-4}$  | 50%       | 1        | 2          |                    |             |                    |             | 0.11 J    | 0.08 J    | 0.054 U   |
| Endosulfan II               | UG/L        | 0.28         | 100%      | 2        | 2          |                    |             |                    |             | 0.28 J    | 0.11 U    | 0.28      |
|                             | 00,2        | 0.20         | 10070     |          |            |                    |             | L                  |             | 0.20 3    |           | 0.20      |

Facility

|                    |                     |                     |           |          | Sch        | cu minj D            | epot menvity |                    |             |             |                |             |
|--------------------|---------------------|---------------------|-----------|----------|------------|----------------------|--------------|--------------------|-------------|-------------|----------------|-------------|
|                    | Facility            |                     |           |          |            |                      |              |                    |             | SEAD-121C   | SEAD-121C      | SEAD-121C   |
|                    | Location ID         |                     |           |          |            |                      |              |                    |             | MW121C-1    | MW121C-1       | MW121C-2    |
|                    | Matrix<br>Sample ID |                     |           |          |            |                      |              |                    |             | GW<br>EB023 | GW<br>EB153    | GW<br>EB154 |
| Sample Depth to    |                     |                     |           |          |            |                      |              |                    |             | 2.1         | 2.1            | 1.6         |
| Sample Depth to Bo |                     |                     |           |          |            |                      |              |                    |             | 9.7         | 9.7            | 5.1         |
| Sample Depth to Bo | Sample Date         |                     |           |          |            |                      |              |                    |             | 3/17/1998   | 3/17/1998      | 3/17/1998   |
|                    | QC Code             |                     |           |          |            | Region IX            |              |                    |             | SA          | SA             | SA          |
|                    | Study ID            |                     | Frequency | Number   | Number     | PRG                  |              | Lowest GW          |             | EBS         | EBS            | EBS         |
|                    | Study ID            | Maximum             | of        | of Times | of         | Criteria             |              | Criteria           |             | LDS         | LDS            | LBS         |
| Parameter          | Units               | Value               | Detection | Detected | Analyses 1 | Value <sup>2</sup>   | Exceedances  | Value <sup>3</sup> | Exceedances | Value (Q)   | Value (Q)      | Value (Q)   |
| Endosulfan sulfate | UG/L                | 0.69                | 100%      | 2        | 2          | T and C              | Excecuances  | Value              | Excediments | 0.28 J      | 0.14 J         | 0.69 J      |
| Endrin             | UG/L                | 0.71                | 50%       | 1        | 2          | 1.09E+01             |              |                    |             | 0.11 U      | 0.14 J         | 0.71 J      |
| Endrin aldehyde    | UG/L                | 0.97                | 100%      | 2        | 2          | 11072101             |              | 5                  |             | 0.22 J      | 0.073 J        | 0.97 J      |
| Endrin ketone      | UG/L                | 0.2                 | 50%       | 1        | 2          |                      |              | 5                  |             | 0.11 U      | 0.11 U         | 0.2         |
| Gamma-BHC/Lindane  | UG/L                | 0.038               | 50%       | 1        | 2          | 5.17E-02             |              | 0.05               |             | 0.057 U     | 0.057 U        | 0.038 J     |
| Gamma-Chlordane    | UG/L                | 0.28 4              | 100%      | 2        | 2          |                      |              |                    |             | 0.47        | 0.086 J        | 0.17 J      |
| Heptachlor         | UG/L                | 0.14 4              | 50%       | 1        | 2          | 1.49E-02             | 2            | 0.04               | 1           | 0.23 J      | 0.058 J        | 0.054 U     |
| Heptachlor epoxide | UG/L                | 0.11                | 100%      | 2        | 2          | 7.39E-03             | 2            | 0.03               | 2           | 0.057 U     | 0.072 J        | 0.11 J      |
| Methoxychlor       | UG/L                | 0.62                | 100%      | 2        | 2          | 1.82E+02             | -            | 35                 | -           | 0.57        | 0.57 U         | 0.62 J      |
| Toxaphene          | UG/L                | 0                   | 0%        | 0        | 2          | 6.11E-02             |              | 0.06               |             | 5.7 U       | 5.7 U          | 5.4 U       |
| Aroclor-1016       | UG/L                | 0                   | 0%        | 0        | 2          | 9.60E-01             |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Aroclor-1221       | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 0.09               |             | 2.3 U       | 2.3 U          | 2.2 U       |
| Aroclor-1232       | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Aroclor-1242       | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Aroclor-1248       | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Aroclor-1254       | UG/L                | 0                   | 0%        | 0        | 2          | 3.36E-02             |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Aroclor-1260       | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 0.09               |             | 1.1 U       | 1.1 U          | 1.1 U       |
| Metals and Cyanide | UG/L                | 5350                | 100%      | 2        | 2          | 3.65E+04             |              | 50                 | 2           | 133         | 738 J          | 5350 J      |
| Aluminum           | UG/L<br>UG/L        | 0                   | 0%        | 0        | 2          | 3.65E+04<br>1.46E+01 |              | 30                 | 2           | 5.1 U       | 738 J<br>5.1 U | 5.1 U       |
| Antimony           |                     |                     |           |          |            | II .                 |              |                    |             |             |                |             |
| Arsenic            | UG/L                | 2.8 4               | 50%       | 1        | 2          | 4.48E-02             | 1            | 10                 |             | 3.7 U       | 3.8            | 3.7 U       |
| Barium             | UG/L                | 106                 | 100%      | 2        | 2          | 2.55E+03             |              | 1000               |             | 39.5        | 38             | 106         |
| Beryllium          | UG/L                | 0.1                 | 50%       | 1        | 2          | 7.30E+01             |              | 4                  |             | 0.1 U       | 0.1 U          | 0.1         |
| Cadmium            | UG/L                | 0.27 4              | 50%       | 1        | 2          | 1.82E+01             |              | 5                  |             | 0.39        | 0.3 U          | 0.3 U       |
| Calcium            | UG/L                | 167500 <sup>4</sup> | 100%      | 2        | 2          |                      |              |                    |             | 172000 J    | 163000         | 162000 J    |
| Chromium           | UG/L                | 6.5                 | 100%      | 2        | 2          |                      |              | 50                 |             | 1.2         | 2.4            | 6.5         |
| Cobalt             | UG/L                | 3.6                 | 100%      | 2        | 2          | 7.30E+02             |              |                    |             | 1.4 U       | 1.6            | 3.6         |
| Copper             | UG/L                | 5.2                 | 100%      | 2        | 2          | 1.46E+03             |              | 200                |             | 1.2 U       | 2              | 5.2         |
| Cyanide            | UG/L                | 0                   | 0%        | 0        | 2          | 7.30E+02             |              |                    |             | 5 U         | 5 U            | 5 U         |
| Cyanide, Amenable  | MG/L                | 0                   | 0%        | 0        | 0          |                      |              |                    |             |             |                |             |
| Cyanide, Total     | MG/L                | 0                   | 0%        | 0        | 0          |                      |              | ***                | _           |             |                |             |
| Iron               | UG/L                | 5620                | 100%      | 2        | 2          | 1.09E+04             |              | 300                | 2           | 346         | 1430           | 5620        |
| Lead               | UG/L                | 0                   | 0%        | 0        | 2          |                      |              | 15                 |             | 1.8 U       | 1.8 U          | 1.8 U       |
| Magnesium          | UG/L                | 23950 4             | 100%      | 2        | 2          |                      |              |                    |             | 23800       | 24100          | 23200       |
| Manganese          | UG/L                | 1365 4              | 100%      | 2        | 2          | 8.76E+02             | 3            | 50                 | 2           | 1590        | 1140           | 1100        |
| Mercury            | UG/L                | 0                   | 0%        | 0        | 2          | 1.09E+01             |              | 0.7                |             | 0.1 U       | 0.1 U          | 0.1 U       |
| Nickel             | UG/L                | 10.6                | 100%      | 2        | 2          | 7.30E+02             |              | 100                |             | 2.8         | 4.2            | 10.6        |
| Potassium          | UG/L                | 21400               | 100%      | 2        | 2          |                      |              |                    |             | 7610        | 10900          | 21400       |
| Selenium           | UG/L                | 4.7 4               | 100%      | 2        | 2          | 1.82E+02             |              | 10                 |             | 3.7 J       | 5.6 J          | 4.3         |

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                      | Facility      |         |           |          |            |           |             |           |             | SEAD-121C | SEAD-121C | SEAD-121C |
|----------------------|---------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|
|                      | Location ID   |         |           |          |            |           |             |           |             | MW121C-1  | MW121C-1  | MW121C-2  |
|                      | Matrix        |         |           |          |            |           |             |           |             | GW        | GW        | GW        |
|                      | Sample ID     |         |           |          |            |           |             |           |             | EB023     | EB153     | EB154     |
| Sample Depth to 7    | Γop of Sample |         |           |          |            |           |             |           |             | 2.1       | 2.1       | 1.6       |
| Sample Depth to Bott | om of Sample  |         |           |          |            |           |             |           |             | 9.7       | 9.7       | 5.1       |
|                      | Sample Date   |         |           |          |            |           |             |           |             | 3/17/1998 | 3/17/1998 | 3/17/1998 |
|                      | QC Code       |         |           |          |            | Region IX |             |           |             | SA        | SA        | SA        |
|                      | Study ID      |         | Frequency | Number   | Number     | PRG       |             | Lowest GW |             | EBS       | EBS       | EBS       |
|                      |               | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             |           |           |           |
| Parameter            | Units         | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3   | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Silver               | UG/L          | 0       | 0%        | 0        | 2          | 1.82E+02  |             | 50        |             | 1.3 U     | 1.3 U     | 1.3 U     |
| Sodium               | UG/L          | 95200   | 100%      | 2        | 2          |           |             | 20000     | 1           | 8920      | 11200     | 95200     |
| Thallium             | UG/L          | 0       | 0%        | 0        | 2          | 2.41E+00  |             | 2         |             | 6.7 U     | 6.7 U     | 6.7 U     |
| Vanadium             | UG/L          | 6.5     | 100%      | 2        | 2          | 3.65E+01  |             |           |             | 1.5 U     | 2.4       | 6.5 J     |
| Zinc                 | UG/L          | 16.4    | 100%      | 2        | 2          | 1.09E+04  |             | 5000      |             | 2.4       | 9.3       | 16.4      |

#### NOTES:

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Lowest Groundwater Criteria Values came from the following:
- A) NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
- B) Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
- C) Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 4) The maximum detected concentration was obtained from the average of the sample-duplicate pair: EB153/EB023 at MW121C-1.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                             | Facility               |         |           |          |            |                    |             |           |             | SEAD-121C    | SEAD-121C      | SEAD-121C      | SEAD-121C      |
|-----------------------------|------------------------|---------|-----------|----------|------------|--------------------|-------------|-----------|-------------|--------------|----------------|----------------|----------------|
|                             | Location ID            |         |           |          |            |                    |             |           |             | MW121C-3     | MW121C-3       | MW121C-4       | MW121C-4       |
|                             | Matrix                 |         |           |          |            |                    |             |           |             | GW           | GW             | GW             | GW             |
| 0 15 1 5                    | Sample ID              |         |           |          |            |                    |             |           |             | 121C-2000    | 121C-2009      | 121C-2002      | 121C-2004      |
| Sample Depth to To          |                        |         |           |          |            |                    |             |           |             | 7.75         | 7.75           | 4.5            | 4.5            |
| Sample Depth to Botto       |                        |         |           |          |            |                    |             |           |             | 9.5          | 9.5            | 10             | 10             |
| i                           | Sample Date<br>QC Code |         |           |          |            | Region IX          |             |           |             | 2/3/2003     | 5/7/2003<br>SA | 2/3/2003<br>SA | 2/4/2003<br>SA |
|                             | Study ID               |         | Frequency | Number   | Number     | PRG                |             | Lowest GW |             | SA<br>PID-RI | SA<br>PID-RI   | SA<br>PID-RI   | SA<br>PID-RI   |
|                             | Study 1D               | Maximum | of        | of Times | of         | Criteria           |             | Criteria  |             | 2 PID-RI     | 3 3            | 2 PID-RI       | 2 PID-RI       |
| Parameter                   | Units                  | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value 3   | Exceedances | Value (O)    | Value (Q)      | Value (Q)      | Value (Q)      |
| Volatile Organic Compounds  |                        | , 4144  | Doctor    | Dettett. | 111111     |                    | Daceedines  |           | Incomme.    |              | ,              | , (2)          |                |
| 1,1,1-Trichloroethane       | UG/L                   | 0       | 0%        | 0        | 6          | 3.17E+03           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| 1,1,2,2-Tetrachloroethane   | UG/L                   | 0       | 0%        | 0        | 6          | 5.53E-02           |             | 5         |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| 1,1,2-Trichloroethane       | UG/L                   | 0       | 0%        | 0        | 6          | 2.00E-01           |             | 1         |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| 1,1-Dichloroethane          | UG/L                   | 0       | 0%        | 0        | 6          | 8.11E+02           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| 1,1-Dichloroethene          | UG/L                   | 0       | 0%        | 0        | 6          | 3.39E+02           |             | 5         |             | 5 U          | 0.3 UJ         | 5 U            | 5 U            |
| 1,2-Dibromo-3-chloropropane | UG/L                   | 0       | 0%        | 0        | 0          | 4.76E-02           |             | 0.04      |             |              |                |                |                |
| 1,2-Dibromoethane           | UG/L                   | 0       | 0%        | 0        | 0          | 5.60E-03           |             | 0.0006    |             |              |                |                |                |
| 1,2-Dichlorobenzene         | UG/L                   | 0       | 0%        | 0        | 0          | 3.70E+02           |             | 3         |             |              |                |                |                |
| 1,2-Dichloroethane          | UG/L                   | 0       | 0%        | 0        | 6          | 1.23E-01           |             | 0.6       |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| 1,2-Dichloropropane         | UG/L                   | 0       | 0%        | 0        | 6          | 1.65E-01           |             | 1         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| 1,3-Dichlorobenzene         | UG/L                   | 0       | 0%        | 0        | 0          | 1.83E+02           |             | 3         |             |              |                |                |                |
| 1,4-Dichlorobenzene         | UG/L                   | 0       | 0%        | 0        | 0          | 5.02E-01           |             | 3         |             |              |                |                |                |
| Acetone                     | UG/L                   | 0       | 0%        | 0        | 4          | 5.48E+03           |             |           |             | 5 UJ         | 5.8 R          | 5 UJ           | 5 UJ           |
| Benzene                     | UG/L                   | 0       | 0%        | 0        | 6          | 3.54E-01           |             | 1         |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| Bromochloromethane          | UG/L                   | 0       | 0%        | 0        | 0          |                    |             | 5         |             |              |                |                |                |
| Bromodichloromethane        | UG/L                   | 0       | 0%        | 0        | 6          | 1.81E-01           |             | 80        |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Bromoform                   | UG/L                   | 0       | 0%        | 0        | 6          | 8.51E+00           |             | 80        |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| Carbon disulfide            | UG/L                   | 0       | 0%        | 0        | 6          | 1.04E+03           |             |           |             | 5 UJ         | 0.3 UJ         | 5 UJ           | 5 UJ           |
| Carbon tetrachloride        | UG/L                   | 0       | 0%        | 0        | 6          | 1.71E-01           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Chlorobenzene               | UG/L                   | 0       | 0%        | 0        | 6          | 1.06E+02           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Chlorodibromomethane        | UG/L                   | 0       | 0%        | 0        | 6          | 1.33E-01           |             | 80        |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Chloroethane                | UG/L                   | 0       | 0%        | 0        | 6          | 4.64E+00           |             | 5         |             | 5 U          | 0.4 UJ         | 5 U            | 5 U            |
| Chloroform                  | UG/L                   | 0       | 0%        | 0        | 6          | 1.66E-01           |             | 7         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Cis-1,2-Dichloroethene      | UG/L                   | 0       | 0%        | 0        | 6          | 6.08E+01           |             | 5         |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| Cis-1,3-Dichloropropene     | UG/L                   | 0       | 0%        | 0        | 6          |                    |             | 0.4       |             | 5 U          | 0.3 UJ         | 5 U            | 5 U            |
| Ethyl benzene               | UG/L                   | 0       | 0%        | 0        | 6          | 1.34E+03           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Meta/Para Xylene            | UG/L                   | 0       | 0%        | 0        | 6          |                    |             |           |             | 5 U          | 0.8 U          | 5 U            | 5 U            |
| Methyl bromide              | UG/L                   | 0       | 0%        | 0        | 6          | 8.66E+00           |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Methyl butyl ketone         | UG/L                   | 0       | 0%        | 0        | 6          |                    |             |           |             | 5 U          | 2.8 U          | 5 U            | 5 U            |
| Methyl chloride             | UG/L                   | 0       | 0%        | 0        | 6          | 1.58E+02           |             | 5         |             | 5 UJ         | 0.4 U          | 5 UJ           | 5 UJ           |
| Methyl ethyl ketone         | UG/L                   | 0       | 0%        | 0        | 3          | 6.97E+03           |             |           |             | 5 UJ         | 3.6 R          | 5 UJ           | 5 UJ           |
| Methyl isobutyl ketone      | UG/L                   | 0       | 0%        | 0        | 6          | 1.99E+03           |             |           |             | 5 U          | 2.5 U          | 5 U            | 5 U            |
| Methylene chloride          | UG/L                   | 0       | 0%        | 0        | 6          | 4.28E+00           |             | 5         |             | 5 U          | 0.7 UJ         | 5 U            | 5 U            |
| Ortho Xylene                | UG/L                   | 0       | 0%        | 0        | 6          |                    |             | 5         |             | 5 U          | 0.4 U          | 5 U            | 5 U            |
| Styrene                     | UG/L                   | 0       | 0%        | 0        | 6          | 1.64E+03           |             | 5         |             | 5 U          | 0.3 U          | 5 U            | 5 U            |
| Tetrachloroethene           | UG/L                   | 0       | 0%        | 0        | 6          | 1.04E-01           |             | 5         |             | 5 U          | 0.5 U          | 5 U            | 5 U            |

Page 1 of 10 4/27/2006

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                             | Facility<br>Location ID<br>Matrix |         |           |          |            |           |             |                    |             | SEAD-121C<br>MW121C-3<br>GW | SEAD-121C<br>MW121C-3<br>GW | SEAD-121C<br>MW121C-4<br>GW | SEAD-121C<br>MW121C-4<br>GW |
|-----------------------------|-----------------------------------|---------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                             | Sample ID                         |         |           |          |            |           |             |                    |             | 121C-2000                   | 121C-2009                   | 121C-2002                   | 121C-2004                   |
| Sample Depth to T           |                                   |         |           |          |            |           |             |                    |             | 7.75                        | 7.75                        | 4.5                         | 4.5                         |
| Sample Depth to Botto       |                                   |         |           |          |            |           |             |                    |             | 9.5                         | 9.5                         | 10                          | 10                          |
|                             | Sample Date                       |         |           |          |            |           |             |                    |             | 2/3/2003                    | 5/7/2003                    | 2/3/2003                    | 2/4/2003                    |
|                             | QC Code                           |         |           |          |            | Region IX |             |                    |             | SA                          | SA                          | SA                          | SA                          |
|                             | Study ID                          |         | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | PID-RI                      | PID-RI                      | PID-RI                      | PID-RI                      |
|                             | ,                                 | Maximum | of        | of Times | of         | Criteria  |             | Criteria           |             | 2                           | 3                           | 2                           | 2                           |
| Parameter                   | Units                             | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)                   | Value (Q)                   | Value (Q)                   | Value (Q)                   |
| Toluene                     | UG/L                              | 0       | 0%        | 0        | 6          | 7.23E+02  |             | 5                  |             | 5 U                         | 0.4 U                       | 5 U                         | 5 U                         |
| Total Xylenes               | UG/L                              | 0       | 0%        | 0        | 0          | 2.06E+02  |             | 5                  |             |                             |                             |                             |                             |
| Trans-1,2-Dichloroethene    | UG/L                              | 0       | 0%        | 0        | 6          | 1.22E+02  |             | 5                  |             | 5 U                         | 0.4 U                       | 5 U                         | 5 U                         |
| Trans-1,3-Dichloropropene   | UG/L                              | 0       | 0%        | 0        | 6          |           |             | 0.4                |             | 5 U                         | 0.3 U                       | 5 U                         | 5 U                         |
| Trichloroethene             | UG/L                              | 0       | 0%        | 0        | 6          | 2.80E-02  |             | 5                  |             | 5 U                         | 0.4 U                       | 5 U                         | 5 U                         |
| Vinyl chloride              | UG/L                              | 0       | 0%        | 0        | 6          | 1.98E-02  |             | 2                  |             | 5 U                         | 0.3 U                       | 5 U                         | 5 U                         |
| Semivolatile Organic Compou | nds                               |         |           |          |            |           |             |                    |             |                             |                             |                             |                             |
| 1,2,4-Trichlorobenzene      | UG/L                              | 0       | 0%        | 0        | 6          | 7.16E+00  |             | 5                  |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |
| 1,2-Dichlorobenzene         | UG/L                              | 0       | 0%        | 0        | 6          | 3.70E+02  |             | 3                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 UJ                      |
| 1,3-Dichlorobenzene         | UG/L                              | 0       | 0%        | 0        | 6          | 1.83E+02  |             | 3                  |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |
| 1,4-Dichlorobenzene         | UG/L                              | 0       | 0%        | 0        | 6          | 5.02E-01  |             | 3                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 UJ                      |
| 2,4,5-Trichlorophenol       | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+03  |             | 1                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 U                       |
| 2,4,6-Trichlorophenol       | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+00  |             | 1                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 U                       |
| 2,4-Dichlorophenol          | UG/L                              | 0       | 0%        | 0        | 6          | 1.09E+02  |             | 5                  |             | 1.3 U                       | 1.3 U                       | 1.4 U                       | 1.4 U                       |
| 2,4-Dimethylphenol          | UG/L                              | 0       | 0%        | 0        | 6          | 7.30E+02  |             |                    |             | 2.3 U                       | 2.3 U                       | 2.4 U                       | 2.4 U                       |
| 2,4-Dinitrophenol           | UG/L                              | 0       | 0%        | 0        | 3          | 7.30E+01  |             |                    |             |                             | 2 UJ                        |                             |                             |
| 2,4-Dinitrotoluene          | UG/L                              | 0       | 0%        | 0        | 6          | 7.30E+01  |             | 5                  |             | 1.1 U                       | 1.1 U                       | 1.1 U                       | 1.2 UJ                      |
| 2,6-Dinitrotoluene          | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+01  |             | 5                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 UJ                      |
| 2-Chloronaphthalene         | UG/L                              | 0       | 0%        | 0        | 6          | 4.87E+02  |             |                    |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |
| 2-Chlorophenol              | UG/L                              | 0       | 0%        | 0        | 6          | 3.04E+01  |             |                    |             | 1.1 U                       | 1.1 U                       | 1.1 U                       | 1.2 U                       |
| 2-Methylnaphthalene         | UG/L                              | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |
| 2-Methylphenol              | UG/L                              | 0       | 0%        | 0        | 6          | 1.82E+03  |             |                    |             | 1 U                         | 1 U                         | 1 U                         | 1.1 U                       |
| 2-Nitroaniline              | UG/L                              | 0       | 0%        | 0        | 6          | 1.09E+02  |             | 5                  |             | 1 U                         | 1 U                         | 1 U                         | 1.1 UJ                      |
| 2-Nitrophenol               | UG/L                              | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U                       | 1.1 U                       | 1.1 U                       | 1.2 U                       |
| 3 or 4-Methylphenol         | UG/L                              | 0       | 0%        | 0        | 3          |           |             | 1                  |             | 1.8 U                       |                             | 1.9 U                       | 1.9 U                       |
| 3,3'-Dichlorobenzidine      | UG/L                              | 0       | 0%        | 0        | 6          | 1.49E-01  |             | 5                  |             | 1 UJ                        | 1 U                         | 1 UJ                        | 1.1 UJ                      |
| 3-Nitroaniline              | UG/L                              | 0       | 0%        | 0        | 6          | 3.20E+00  |             | 5                  |             | 1.2 U                       | 1.2 UJ                      | 1.2 U                       | 1.3 UJ                      |
| 4,6-Dinitro-2-methylphenol  | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+00  |             | 1                  |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 U                       |
| 4-Bromophenyl phenyl ether  | UG/L                              | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.3 U                       | 1.3 U                       | 1.4 U                       | 1.4 UJ                      |
| 4-Chloro-3-methylphenol     | UG/L                              | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U                       | 1.1 U                       | 1.1 U                       | 1.2 U                       |
| 4-Chloroaniline             | UG/L                              | 0       | 0%        | 0        | 6          | 1.46E+02  |             | 5                  |             | 1.2 UJ                      | 1.2 U                       | 1.2 UJ                      | 1.3 UJ                      |
| 4-Chlorophenyl phenyl ether | UG/L                              | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |
| 4-Methylphenol              | UG/L                              | 0       | 0%        | 0        | 3          | 1.82E+02  |             |                    |             |                             | 1.8 U                       |                             |                             |
| 4-Nitroaniline              | UG/L                              | 0       | 0%        | 0        | 6          | 3.20E+00  |             | 5                  |             | 2.4 U                       | 2.4 U                       | 2.5 U                       | 2.5 UJ                      |
| 4-Nitrophenol               | UG/L                              | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U                       | 1.1 U                       | 1.1 U                       | 1.2 U                       |
| Acenaphthene                | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+02  |             |                    |             | 1 U                         | 1 U                         | 1 U                         | 1.1 UJ                      |
| Acenaphthylene              | UG/L                              | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U                       | 1.2 U                       | 1.2 U                       | 1.3 UJ                      |

Page 2 of 10 4/27/2006

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|   | Facility    |         |           |          |            |                    |             |                    |             | SEAD-121C       | SEAD-121C       | SEAD-121C       | SEAD-121C       |
|---|-------------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------------|-----------------|-----------------|-----------------|
|   | Location ID |         |           |          |            |                    |             |                    |             | MW121C-3        | MW121C-3        | MW121C-4        | MW121C-4        |
|   | Matrix      |         |           |          |            |                    |             |                    |             | GW<br>121C-2000 | GW<br>121C-2009 | GW<br>121C-2002 | GW<br>121C-2004 |
| Samula Danth to T                         | Sample ID   |         |           |          |            |                    |             |                    |             | 7.75            | 7.75            | 4.5             | 4.5             |
| Sample Depth to T<br>Sample Depth to Bott |             |         |           |          |            |                    |             |                    |             | 9.5             | 9.5             | 4.3             | 4.3             |
| Sample Deput to Bott                      | Sample Date |         |           |          |            |                    |             |                    |             | 2/3/2003        | 5/7/2003        | 2/3/2003        | 2/4/2003        |
|   | QC Code     |         |           |          |            | Region IX          |             |                    |             | 2/3/2003<br>SA  | SA              | SA              | SA              |
|   | Study ID    |         | Frequency | Number   | Number     | PRG                |             | Lowest GW          |             | PID-RI          | PID-RI          | PID-RI          | PID-RI          |
|   | Study ID    | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | 2               | 3               | 2               | 2               |
| Parameter                                 | Units       | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)       | Value (Q)       | Value (Q)       | Value (Q)       |
| Anthracene                                | UG/L        | 0       | 0%        | 0        | 6          | 1.83E+03           |             |                    |             | 1.3 U           | 1.3 U           | 1.4 U           | 1.4 UJ          |
| Benzo(a)anthracene                        | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-02           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Benzo(a)pyrene                            | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-03           |             |                    |             | 1.5 U           | 1.5 U           | 1.6 U           | 1.6 UJ          |
| Benzo(b)fluoranthene                      | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-02           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Benzo(ghi)perylene                        | UG/L        | 0       | 0%        | 0        | 6          |                    |             |                    |             | 1.3 UJ          | 1.3 UJ          | 1.4 UJ          | 1.4 UJ          |
| Benzo(k)fluoranthene                      | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-01           |             |                    |             | 2.6 U           | 2.6 U           | 2.7 U           | 2.7 UJ          |
| Bis(2-Chloroethoxy)methane                | UG/L        | 0       | 0%        | 0        | 6          |                    |             | 5                  |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Bis(2-Chloroethyl)ether                   | UG/L        | 0       | 0%        | 0        | 6          | 1.02E-02           |             | 1                  |             | 1.2 U           | 1.2 U           | 1.2 U           | 1.3 UJ          |
| Bis(2-Chloroisopropyl)ether               | UG/L        | 0       | 0%        | 0        | 6          | 2.74E-01           |             | 5                  |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Bis(2-Ethylhexyl)phthalate                | UG/L        | 1.4     | 17%       | 1        | 6          | 4.80E+00           |             | 5                  |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Butylbenzylphthalate                      | UG/L        | 0       | 0%        | 0        | 6          | 7.30E+03           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Carbazole                                 | UG/L        | 0       | 0%        | 0        | 6          | 3.36E+00           |             |                    |             | 0.42 U          | 0.42 U          | 0.43 U          | 0.44 UJ         |
| Chrysene                                  | UG/L        | 0       | 0%        | 0        | 6          | 9.21E+00           |             |                    |             | 1.6 U           | 1.6 U           | 1.7 U           | 1.7 UJ          |
| Di-n-butylphthalate                       | UG/L        | 1.6     | 17%       | 1        | 6          | 3.65E+03           |             | 50                 |             | 1.2 U           | 1.2 U           | 1.2 U           | 1.3 UJ          |
| Di-n-octylphthalate                       | UG/L        | 0       | 0%        | 0        | 6          | 1.46E+03           |             |                    |             | 1.5 U           | 1.5 U           | 1.6 U           | 1.6 UJ          |
| Dibenz(a,h)anthracene                     | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-03           |             |                    |             | 1.5 UJ          | 1.5 UJ          | 1.6 UJ          | 1.6 UJ          |
| Dibenzofuran                              | UG/L        | 0       | 0%        | 0        | 6          | 1.22E+01           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Diethyl phthalate                         | UG/L        | 0       | 0%        | 0        | 6          | 2.92E+04           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Dimethylphthalate                         | UG/L        | 0       | 0%        | 0        | 6          | 3.65E+05           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Fluoranthene                              | UG/L        | 0       | 0%        | 0        | 6          | 1.46E+03           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Fluorene                                  | UG/L        | 0       | 0%        | 0        | 6          | 2.43E+02           |             |                    |             | 1.1 U           | 1.1 U           | 1.1 U           | 1.2 UJ          |
| Hexachlorobenzene                         | UG/L        | 0       | 0%        | 0        | 6          | 4.20E-02           |             | 0.04               |             | 1.1 U           | 1.1 U           | 1.1 U           | 1.2 UJ          |
| Hexachlorobutadiene                       | UG/L        | 0       | 0%        | 0        | 6          | 8.62E-01           |             | 0.5                |             | 1.5 U           | 1.5 U           | 1.6 U           | 1.6 UJ          |
| Hexachlorocyclopentadiene                 | UG/L        | 0       | 0%        | 0        | 4          | 2.19E+02           |             | 5                  |             | 3.8 U           | 3.8 R           | 4 U             | 4 UJ            |
| Hexachloroethane                          | UG/L        | 0       | 0%        | 0        | 6          | 4.80E+00           |             | 5                  |             | 1.1 U           | 1.1 U           | 1.1 U           | 1.2 UJ          |
| Indeno(1,2,3-cd)pyrene                    | UG/L        | 0       | 0%        | 0        | 6          | 9.21E-02           |             |                    |             | 1.6 U           | 1.6 UJ          | 1.7 U           | 1.7 UJ          |
| Isophorone                                | UG/L        | 0       | 0%        | 0        | 6          | 7.08E+01           |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| N-Nitrosodiphenylamine                    | UG/L        | 0       | 0%        | 0        | 6          | 1.37E+01           |             |                    |             | 2 U             | 2 U             | 2.1 U           | 2.1 UJ          |
| N-Nitrosodipropylamine                    | UG/L        | 0       | 0%        | 0        | 6          | 9.60E-03           |             |                    |             | 1 U             | 1 UJ            | 1 U             | 1.1 UJ          |
| Naphthalene                               | UG/L        | 0       | 0%        | 0        | 6          | 6.20E+00           |             |                    |             | 1.2 U           | 1.2 U           | 1.2 U           | 1.3 UJ          |
| Nitrobenzene                              | UG/L        | 0       | 0%        | 0        | 6          | 3.40E+00           |             | 0.4                |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Pentachlorophenol                         | UG/L        | 0       | 0%        | 0        | 6          | 5.60E-01           |             | 1                  |             | 1.9 U           | 1.9 U           | 2 U             | 2 U             |
| Phenanthrene                              | UG/L        | 0       | 0%        | 0        | 6          |                    |             |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Phenol                                    | UG/L        | 0       | 0%        | 0        | 6          | 1.09E+04           |             | 1                  |             | 1 U             | 1 U             | 1 U             | 1.1 U           |
| Pyrene                                    | UG/L        | 0       | 0%        | 0        | 6          | 1.83E+02           | l           |                    |             | 1 U             | 1 U             | 1 U             | 1.1 UJ          |
| Pesticides/PCBs                           |             |         |           |          |            |                    |             |                    |             |                 |                 |                 |                 |
| 4,4'-DDD                                  | UG/L        | 0       | 0%        | 0        | 2          | 2.80E-01           |             | 0.3                |             | 0.01 R          | 0.01 UJ         | 0.01 R          | 0.01 R          |

Page 3 of 10 4/27/2006

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility<br>Location ID |                  |           |          |            |                      |             |                    |             | SEAD-121C<br>MW121C-3 | SEAD-121C<br>MW121C-3 | SEAD-121C<br>MW121C-4 | SEAD-121C<br>MW121C-4 |
|------------------------------|-------------------------|------------------|-----------|----------|------------|----------------------|-------------|--------------------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                              | Matrix                  |                  |           |          |            |                      |             |                    |             | MW121C-3<br>GW        | MW 121C-3<br>GW       | MW 121C-4<br>GW       | GW                    |
|                              | Sample ID               |                  |           |          |            |                      |             |                    |             | 121C-2000             | 121C-2009             | 121C-2002             | 121C-2004             |
| Sample Depth to              | •                       |                  |           |          |            |                      |             |                    |             | 7.75                  | 7.75                  | 4.5                   | 4.5                   |
| Sample Depth to Bo           |                         |                  |           |          |            |                      |             |                    |             | 9.5                   | 9.5                   | 10                    | 10                    |
| Dampie Depair to De          | Sample Date             |                  |           |          |            |                      |             |                    |             | 2/3/2003              | 5/7/2003              | 2/3/2003              | 2/4/2003              |
|                              | QC Code                 |                  |           |          |            | Region IX            |             |                    |             | SA                    | SA                    | SA                    | SA                    |
|                              | Study ID                |                  | Frequency | Number   | Number     | PRG                  |             | Lowest GW          |             | PID-RI                | PID-RI                | PID-RI                | PID-RI                |
|                              | -                       | Maximum          | of        | of Times | of         | Criteria             |             | Criteria           |             | 2                     | 3                     | 2                     | 2                     |
| Parameter                    | Units                   | Value            | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| 4,4'-DDE                     | UG/L                    | 0                | 0%        | 0        | 5          | 1.98E-01             |             | 0.2                |             | 0.005 UJ              | 0.005 U               | 0.005 UJ              | 0.005 UJ              |
| 4,4'-DDT                     | UG/L                    | 0                | 0%        | 0        | 2          | 1.98E-01             |             | 0.2                |             | 0.01 R                | 0.01 U                | 0.01 R                | 0.01 R                |
| Aldrin                       | UG/L                    | 0                | 0%        | 0        | 5          | 3.95E-03             |             | 0                  |             | 0.02 U                | 0.02 UJ               | 0.02 U                | 0.02 U                |
| Alpha-BHC                    | UG/L                    | 0                | 0%        | 0        | 5          | 1.07E-02             |             | 0.01               |             | 0.01 U                | 0.01 UJ               | 0.01 U                | 0.01 U                |
| Alpha-Chlordane              | UG/L                    | 0                | 0%        | 0        | 5          |                      |             |                    |             | 0.02 U                | 0.02 UJ               | 0.02 U                | 0.02 U                |
| Beta-BHC                     | UG/L                    | 0                | 0%        | 0        | 5          | 3.74E-02             |             | 0.04               |             | 0.01 U                | 0.01 U                | 0.01 U                | 0.01 U                |
| Chlordane                    | UG/L                    | 0                | 0%        | 0        | 3          |                      |             |                    |             | 0.14 U                |                       | 0.14 U                | 0.14 U                |
| Delta-BHC                    | UG/L                    | 0                | 0%        | 0        | 5          |                      |             | 0.04               |             | 0.004 UJ              | 0.004 UJ              | 0.004 UJ              | 0.004 UJ              |
| Dieldrin                     | UG/L                    | 0                | 0%        | 0        | 5          | 4.20E-03             |             | 0.004              |             | 0.009 U               | 0.009 U               | 0.009 U               | 0.009 U               |
| Endosulfan I                 | UG/L                    | 0                | 0%        | 0        | 5          |                      |             |                    |             | 0.02 UJ               | 0.02 UJ               | 0.02 UJ               | 0.02 UJ               |
| Endosulfan II                | UG/L                    | 0                | 0%        | 0        | 5          |                      |             |                    |             | 0.01 UJ               | 0.01 UJ               | 0.01 UJ               | 0.01 UJ               |
| Endosulfan sulfate           | UG/L                    | 0                | 0%        | 0        | 5          |                      |             |                    |             | 0.02 U                | 0.02 U                | 0.02 U                | 0.02 U                |
| Endrin                       | UG/L                    | 0                | 0%        | 0        | 5          | 1.09E+01             |             | 0                  |             | 0.02 UJ               | 0.02 U                | 0.02 UJ               | 0.02 UJ               |
| Endrin aldehyde              | UG/L                    | 0                | 0%        | 0        | 5          |                      |             | 5                  |             | 0.02 UJ               | 0.02 U                | 0.02 UJ               | 0.02 UJ               |
| Endrin ketone                | UG/L                    | 0                | 0%        | 0        | 5          | 5 15F 02             |             | 5                  |             | 0.009 U               | 0.009 UJ              | 0.009 U               | 0.009 U               |
| Gamma-BHC/Lindane            | UG/L                    | 0                | 0%        | 0        | 5          | 5.17E-02             |             | 0.05               |             | 0.009 U               | 0.009 UJ              | 0.009 U               | 0.009 U               |
| Gamma-Chlordane              | UG/L                    | 0                | 0%        | 0        | 5          | 1 405 02             |             | 0.04               |             | 0.01 U                | 0.01 U                | 0.01 U                | 0.01 U                |
| Heptachlor                   | UG/L                    | 0                | 0%        | 0        | 5          | 1.49E-02             |             | 0.04               |             | 0.007 U               | 0.007 U               | 0.007 U               | 0.007 U               |
| Heptachlor epoxide           | UG/L                    | 0                | 0%<br>0%  | 0        | 5          | 7.39E-03<br>1.82E+02 |             | 0.03               |             | 0.009 UJ              | 0.009 U               | 0.009 UJ              | 0.009 UJ              |
| Methoxychlor                 | UG/L<br>UG/L            | 0                | 0%        | 0        | 5<br>5     | 6.11E-02             |             | 35<br>0.06         |             | 0.008 UJ<br>0.12 U    | 0.008 U<br>0.12 U     | 0.008 UJ<br>0.12 U    | 0.008 UJ<br>0.12 U    |
| Toxaphene<br>Aroclor-1016    | UG/L<br>UG/L            | 0                | 0%        | 0        | 5          | 9.60E-01             |             | 0.06               |             | 0.12 U<br>0.24 U      | 0.12 U<br>0.24 UJ     | 0.12 U<br>0.24 U      | 0.12 U<br>0.24 U      |
| Aroclor-1016<br>Aroclor-1221 | UG/L<br>UG/L            | 0                | 0%        | 0        | 5          | 9.00E-01             |             | 0.09               |             | 0.24 U<br>0.08 U      | 0.24 UJ<br>0.081 U    | 0.24 U<br>0.08 U      | 0.24 U<br>0.08 U      |
| Aroclor-1232                 | UG/L<br>UG/L            | 0                | 0%        | 0        | 5          |                      |             | 0.09               |             | 0.08 U<br>0.09 U      | 0.081 U<br>0.091 UJ   | 0.09 U                | 0.08 U                |
| Aroclor-1242                 | UG/L<br>UG/L            | 0                | 0%        | 0        | 5          |                      |             | 0.09               |             | 0.09 U                | 0.091 UJ              | 0.09 U                | 0.09 U                |
| Aroclor-1248                 | UG/L                    | 0                | 0%        | 0        | 5          |                      |             | 0.09               |             | 0.08 U<br>0.12 U      | 0.031 UJ<br>0.12 U    | 0.08 U<br>0.12 U      | 0.08 U<br>0.12 U      |
| Aroclor-1254                 | UG/L                    | 0                | 0%        | 0        | 5          | 3.36E-02             |             | 0.09               |             | 0.05 U                | 0.051 U               | 0.05 U                | 0.05 U                |
| Aroclor-1260                 | UG/L                    | 0                | 0%        | 0        | 5          | 3.30L-02             |             | 0.09               |             | 0.01 U                | 0.01 UJ               | 0.03 U                | 0.01 U                |
| Metals and Cyanide           | CG/E                    | Ü                | 070       | Ü        | 5          |                      |             | 0.09               |             | 0.01 0                | 0.01 03               | 0.01 C                | 0.01 6                |
| Aluminum                     | UG/L                    | 588 <sup>4</sup> | 100%      | 6        | 6          | 3.65E+04             |             | 50                 | 4           | 401                   | 239                   | 146 J                 | 1030                  |
| Antimony                     | UG/L<br>UG/L            | 8.4              | 33%       | 2        | 6          | 1.46E+01             |             | 3                  | 2           | 7.5 U                 | 3.8 U                 | 7.5 U                 | 10.9 J                |
| Arsenic                      | UG/L                    | 0.4              | 0%        | 0        | 6          | 4.48E-02             |             | 10                 | 2           | 4.5 U                 | 4.5 U                 | 4.5 U                 | 4.5 U                 |
| Barium                       | UG/L                    | 73.7             | 100%      | 6        | 6          | 2.55E+03             |             | 1000               |             | 73.7                  | 69.3 J                | 29.6                  | 32.4                  |
| Beryllium                    | UG/L                    | 0.24             | 17%       | 1        | 6          | 7.30E+01             |             | 4                  |             | 0.9 U                 | 0.1 U                 | 0.9 U                 | 0.9 U                 |
| Cadmium                      | UG/L                    | 1.1              | 17%       | 1        | 6          | 1.82E+01             |             | 5                  |             | 0.9 U                 | 0.1 U<br>0.8 U        | 0.9 U                 | 0.9 U                 |
| Calcium                      | UG/L                    | 558000           | 100%      | 6        | 6          | 1.021.01             |             | ]                  |             | 115000                | 114000                | 420000                | 513000                |
| Chromium                     | UG/L                    | 21.4             | 83%       | 5        | 6          |                      |             | 50                 |             | 1.4 U                 | 3.1 J                 | 1.4 U                 | 5.8                   |
| Cinomium                     | UU/L                    | 41.4             | 03/0      | 3        | U          |                      |             | 50                 |             | 1.4 0                 | J.1 J                 | 1.4 U                 | Dogg 4 of 10          |

Page 4 of 10

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility       |                    |           |          |            |           |             |                    |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|----------------|--------------------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------|-----------|-----------|-----------|
|                              | Location ID    |                    |           |          |            |           |             |                    |             | MW121C-3  | MW121C-3  | MW121C-4  | MW121C-4  |
|                              | Matrix         |                    |           |          |            |           |             |                    |             | GW        | GW        | GW        | GW        |
|                              | Sample ID      |                    |           |          |            |           |             |                    |             | 121C-2000 | 121C-2009 | 121C-2002 | 121C-2004 |
| Sample Depth to              | Top of Sample  |                    |           |          |            |           |             |                    |             | 7.75      | 7.75      | 4.5       | 4.5       |
| Sample Depth to Bo           | ttom of Sample |                    |           |          |            |           |             |                    |             | 9.5       | 9.5       | 10        | 10        |
|                              | Sample Date    |                    |           |          |            |           |             |                    |             | 2/3/2003  | 5/7/2003  | 2/3/2003  | 2/4/2003  |
|                              | QC Code        |                    |           |          |            | Region IX |             |                    |             | SA        | SA        | SA        | SA        |
|                              | Study ID       |                    | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | PID-RI    | PID-RI    | PID-RI    | PID-RI    |
|                              |                | Maximum            | of        | of Times | of         | Criteria  |             | Criteria           |             | 2         | 3         | 2         | 2         |
| Parameter                    | Units          | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Cobalt                       | UG/L           | 3                  | 50%       | 3        | 6          | 7.30E+02  |             |                    |             | 2.3 U     | 0.7 U     | 2.3 U     | 4.8 J     |
| Copper                       | UG/L           | 17.7               | 50%       | 3        | 6          | 1.46E+03  |             | 200                |             | 2 U       | 6.2 J     | 2 U       | 2 U       |
| Cyanide                      | UG/L           | 0                  | 50%       | 0        | 0          | 7.30E+02  |             |                    |             |           |           |           |           |
| Cyanide, Amenable            | MG/L           | 0                  | 0%        | 0        | 6          |           |             |                    |             | 0.01 U    | 0.01 U    | 0.01 U    | 0.01 U    |
| Cyanide, Total               | MG/L           | 0                  | 0%        | 0        | 3          |           |             |                    |             | 0.01 U    |           | 0.01 U    | 0.01 U    |
| Iron                         | UG/L           | 868.725 4          | 50%       | 3        | 6          | 1.09E+04  |             | 300                | 3           | 540       | 516       | 34.9 U    | 1720      |
| Lead                         | UG/L           | 10.5               | 83%       | 5        | 6          |           |             | 15                 |             | 4.1       | 3 U       | 5.6       | 4.8       |
| Magnesium                    | UG/L           | 109000             | 100%      | 6        | 6          |           |             |                    |             | 27700     | 27800     | 73600     | 88000     |
| Manganese                    | UG/L           | 297                | 100%      | 6        | 6          | 8.76E+02  |             | 50                 | 6           | 139       | 135       | 328       | 244       |
| Mercury                      | UG/L           | 0.2                | 33%       | 2        | 6          | 1.09E+01  |             | 0.7                |             | 0.2 U     | 0.2       | 0.2 U     | 0.2 U     |
| Nickel                       | UG/L           | 2 4                | 17%       | 1        | 6          | 7.30E+02  |             | 100                |             | 2 U       | 2 U       | 2 U       | 3.2 J     |
| Potassium                    | UG/L           | 9400               | 100%      | 6        | 6          |           |             |                    |             | 2070      | 1790 J    | 9430      | 6320      |
| Selenium                     | UG/L           | 6.8                | 33%       | 2        | 6          | 1.82E+02  |             | 10                 |             | 4.2 U     | 1.3 U     | 3 U       | 5 U       |
| Silver                       | UG/L           | 0                  | 0%        | 0        | 6          | 1.82E+02  |             | 50                 |             | 3.7 U     | 3.7 U     | 3.7 U     | 3.7 U     |
| Sodium                       | UG/L           | 58400 <sup>4</sup> | 100%      | 6        | 6          |           |             | 20000              | 3           | 18300     | 17900     | 60100     | 56700     |
| Thallium                     | UG/L           | 0                  | 0%        | 0        | 6          | 2.41E+00  |             | 2                  |             | 4.2 U     | 5.3 U     | 4.2 U     | 4.2 U     |
| Vanadium                     | UG/L           | 0                  | 0%        | 0        | 6          | 3.65E+01  |             |                    |             | 2.5 U     | 1.4 U     | 2.5 U     | 2.5 U     |
| Zinc                         | UG/L           | 96.2               | 100%      | 6        | 6          | 1.09E+04  |             | 5000               |             | 12.8 J    | 38.2      | 9.2 J     | 24        |
| Other                        |                |                    |           |          |            |           |             |                    |             |           |           |           |           |
| Total Petroleum Hydrocarbons | MG/L           | 0                  | 0%        | 0        | 6          |           |             |                    |             | 0.04 U    | 1 U       | 0.041 U   | 0.04 U    |

#### NOTES

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Lowest Groundwater Criteria Values came from the following:
- A) NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
- B) Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
- C) Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 4) The maximum detected concentration was obtained from the average of the sample-duplicate pair: 121C-2004/121C-2002 at MW121C-4.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                             | Facility     |         |           |          |            |                    |             |                    |             | SEAD-121C | SEAD-121C | SEAD-121C |
|-----------------------------|--------------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------|-----------|-----------|
|                             | Location ID  |         |           |          |            |                    |             |                    |             | MW121C-4  | MW121C-6  | MW121C-6  |
|                             | Matrix       |         |           |          |            |                    |             |                    |             | GW        | GW        | GW        |
|                             | Sample ID    |         |           |          |            |                    |             |                    |             | 121C-2010 | 121C-2003 | 121C-2012 |
| Sample Depth to To          | op of Sample |         |           |          |            |                    |             |                    |             | 4.5       | 6.9       | 6.9       |
| Sample Depth to Botto       | m of Sample  |         |           |          |            |                    |             |                    |             | 10        | 10        | 10        |
|                             | Sample Date  |         |           |          |            |                    |             |                    |             | 5/7/2003  | 2/3/2003  | 5/7/2003  |
|                             | QC Code      |         |           |          |            | Region IX          |             |                    |             | SA        | SA        | SA        |
|                             | Study ID     |         | Frequency | Number   | Number     | PRG                |             | Lowest GW          |             | PID-RI    | PID-RI    | PID-RI    |
|                             |              | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | 3         | 2         | 3         |
| Parameter                   | Units        | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Volatile Organic Compounds  |              |         |           |          |            |                    |             |                    |             |           |           |           |
| 1,1,1-Trichloroethane       | UG/L         | 0       | 0%        | 0        | 6          | 3.17E+03           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| 1,1,2,2-Tetrachloroethane   | UG/L         | 0       | 0%        | 0        | 6          | 5.53E-02           |             | 5                  |             | 0.3 U     | 5 U       | 0.3 U     |
| 1,1,2-Trichloroethane       | UG/L         | 0       | 0%        | 0        | 6          | 2.00E-01           |             | 1                  |             | 0.3 U     | 5 U       | 0.3 U     |
| 1,1-Dichloroethane          | UG/L         | 0       | 0%        | 0        | 6          | 8.11E+02           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| 1,1-Dichloroethene          | UG/L         | 0       | 0%        | 0        | 6          | 3.39E+02           |             | 5                  |             | 0.3 U     | 5 U       | 0.3 UJ    |
| 1,2-Dibromo-3-chloropropane | UG/L         | 0       | 0%        | 0        | 0          | 4.76E-02           |             | 0.04               |             |           |           |           |
| 1,2-Dibromoethane           | UG/L         | 0       | 0%        | 0        | 0          | 5.60E-03           |             | 0.0006             |             |           |           |           |
| 1,2-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 0          | 3.70E+02           |             | 3                  |             |           |           |           |
| 1,2-Dichloroethane          | UG/L         | 0       | 0%        | 0        | 6          | 1.23E-01           |             | 0.6                |             | 0.3 U     | 5 U       | 0.3 U     |
| 1,2-Dichloropropane         | UG/L         | 0       | 0%        | 0        | 6          | 1.65E-01           |             | 1                  |             | 0.4 U     | 5 U       | 0.4 U     |
| 1,3-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 0          | 1.83E+02           |             | 3                  |             |           |           |           |
| 1,4-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 0          | 5.02E-01           |             | 3                  |             |           |           |           |
| Acetone                     | UG/L         | 0       | 0%        | 0        | 4          | 5.48E+03           |             |                    |             | 5.8 R     | 5 UJ      | 8.5 UJ    |
| Benzene                     | UG/L         | 0       | 0%        | 0        | 6          | 3.54E-01           |             | 1                  |             | 0.3 U     | 5 U       | 0.3 U     |
| Bromochloromethane          | UG/L         | 0       | 0%        | 0        | 0          |                    |             | 5                  |             |           |           |           |
| Bromodichloromethane        | UG/L         | 0       | 0%        | 0        | 6          | 1.81E-01           |             | 80                 |             | 0.4 U     | 5 U       | 0.4 U     |
| Bromoform                   | UG/L         | 0       | 0%        | 0        | 6          | 8.51E+00           |             | 80                 |             | 0.3 U     | 5 U       | 0.3 U     |
| Carbon disulfide            | UG/L         | 0       | 0%        | 0        | 6          | 1.04E+03           |             |                    |             | 0.3 U     | 5 UJ      | 0.3 UJ    |
| Carbon tetrachloride        | UG/L         | 0       | 0%        | 0        | 6          | 1.71E-01           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Chlorobenzene               | UG/L         | 0       | 0%        | 0        | 6          | 1.06E+02           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Chlorodibromomethane        | UG/L         | 0       | 0%        | 0        | 6          | 1.33E-01           |             | 80                 |             | 0.4 U     | 5 U       | 0.4 U     |
| Chloroethane                | UG/L         | 0       | 0%        | 0        | 6          | 4.64E+00           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 UJ    |
| Chloroform                  | UG/L         | 0       | 0%        | 0        | 6          | 1.66E-01           |             | 7                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Cis-1,2-Dichloroethene      | UG/L         | 0       | 0%        | 0        | 6          | 6.08E+01           |             | 5                  |             | 0.3 U     | 5 U       | 0.3 U     |
| Cis-1,3-Dichloropropene     | UG/L         | 0       | 0%        | 0        | 6          |                    |             | 0.4                |             | 0.3 U     | 5 U       | 0.3 UJ    |
| Ethyl benzene               | UG/L         | 0       | 0%        | 0        | 6          | 1.34E+03           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Meta/Para Xylene            | UG/L         | 0       | 0%        | 0        | 6          |                    |             |                    |             | 0.8 U     | 5 U       | 0.8 U     |
| Methyl bromide              | UG/L         | 0       | 0%        | 0        | 6          | 8.66E+00           |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Methyl butyl ketone         | UG/L         | 0       | 0%        | 0        | 6          |                    |             |                    |             | 2.8 U     | 5 U       | 2.8 U     |
| Methyl chloride             | UG/L         | 0       | 0%        | 0        | 6          | 1.58E+02           |             | 5                  |             | 0.4 UJ    | 5 UJ      | 0.4 U     |
| Methyl ethyl ketone         | UG/L         | 0       | 0%        | 0        | 3          | 6.97E+03           |             |                    |             | 3.6 R     | 5 UJ      | 3.6 R     |
| Methyl isobutyl ketone      | UG/L         | 0       | 0%        | 0        | 6          | 1.99E+03           |             |                    |             | 2.5 U     | 5 U       | 2.5 U     |
| Methylene chloride          | UG/L         | 0       | 0%        | 0        | 6          | 4.28E+00           |             | 5                  |             | 1.3 UJ    | 5 U       | 0.6 UJ    |
| Ortho Xylene                | UG/L         | 0       | 0%        | 0        | 6          |                    |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Styrene                     | UG/L         | 0       | 0%        | 0        | 6          | 1.64E+03           |             | 5                  |             | 0.3 U     | 5 U       | 0.3 U     |
| Tetrachloroethene           | UG/L         | 0       | 0%        | 0        | 6          | 1.04E-01           |             | 5                  |             | 0.5 U     | 5 U       | 0.5 U     |

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility     |         |           |          |            |           |             |                    |             | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|--------------|---------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------|-----------|-----------|
|                              | Location ID  |         |           |          |            |           |             |                    |             | MW121C-4  | MW121C-6  | MW121C-6  |
|                              | Matrix       |         |           |          |            |           |             |                    |             | GW        | GW        | GW        |
|                              | Sample ID    |         |           |          |            |           |             |                    |             | 121C-2010 | 121C-2003 | 121C-2012 |
| Sample Depth to To           | op of Sample |         |           |          |            |           |             |                    |             | 4.5       | 6.9       | 6.9       |
| Sample Depth to Botto        | om of Sample |         |           |          |            |           |             |                    |             | 10        | 10        | 10        |
|                              | Sample Date  |         |           |          |            |           |             |                    |             | 5/7/2003  | 2/3/2003  | 5/7/2003  |
|                              | QC Code      |         |           |          |            | Region IX |             |                    |             | SA        | SA        | SA        |
|                              | Study ID     |         | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | PID-RI    | PID-RI    | PID-RI    |
|                              | , ,          | Maximum | of        | of Times | of         | Criteria  |             | Criteria           |             | 3         | 2         | 3         |
| Parameter                    | Units        | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Toluene                      | UG/L         | 0       | 0%        | 0        | 6          | 7.23E+02  |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Total Xylenes                | UG/L         | 0       | 0%        | 0        | 0          | 2.06E+02  |             | 5                  |             |           |           |           |
| Trans-1,2-Dichloroethene     | UG/L         | 0       | 0%        | 0        | 6          | 1.22E+02  |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Trans-1,3-Dichloropropene    | UG/L         | 0       | 0%        | 0        | 6          |           |             | 0.4                |             | 0.3 U     | 5 U       | 0.3 U     |
| Trichloroethene              | UG/L         | 0       | 0%        | 0        | 6          | 2.80E-02  |             | 5                  |             | 0.4 U     | 5 U       | 0.4 U     |
| Vinyl chloride               | UG/L         | 0       | 0%        | 0        | 6          | 1.98E-02  |             | 2                  |             | 0.3 U     | 5 U       | 0.3 U     |
| Semivolatile Organic Compour | nds          |         |           |          |            |           |             |                    |             |           |           |           |
| 1,2,4-Trichlorobenzene       | UG/L         | 0       | 0%        | 0        | 6          | 7.16E+00  |             | 5                  |             | 1.2 U     | 1.2 U     | 1.2 U     |
| 1,2-Dichlorobenzene          | UG/L         | 0       | 0%        | 0        | 6          | 3.70E+02  |             | 3                  |             | 1 U       | 1 U       | 1 U       |
| 1,3-Dichlorobenzene          | UG/L         | 0       | 0%        | 0        | 6          | 1.83E+02  |             | 3                  |             | 1.2 U     | 1.2 U     | 1.2 U     |
| 1,4-Dichlorobenzene          | UG/L         | 0       | 0%        | 0        | 6          | 5.02E-01  |             | 3                  |             | 1 U       | 1 U       | 1 U       |
| 2,4,5-Trichlorophenol        | UG/L         | 0       | 0%        | 0        | 6          | 3.65E+03  |             | 1                  |             | 1 U       | 1 U       | 1 U       |
| 2,4,6-Trichlorophenol        | UG/L         | 0       | 0%        | 0        | 6          | 3.65E+00  |             | 1                  |             | 1 U       | 1 U       | 1 U       |
| 2,4-Dichlorophenol           | UG/L         | 0       | 0%        | 0        | 6          | 1.09E+02  |             | 5                  |             | 1.3 U     | 1.3 U     | 1.3 U     |
| 2,4-Dimethylphenol           | UG/L         | 0       | 0%        | 0        | 6          | 7.30E+02  |             |                    |             | 2.3 U     | 2.4 U     | 2.3 U     |
| 2,4-Dinitrophenol            | UG/L         | 0       | 0%        | 0        | 3          | 7.30E+01  |             |                    |             | 2 U       |           | 2 UJ      |
| 2,4-Dinitrotoluene           | UG/L         | 0       | 0%        | 0        | 6          | 7.30E+01  |             | 5                  |             | 1.1 U     | 1.1 U     | 1.1 U     |
| 2,6-Dinitrotoluene           | UG/L         | 0       | 0%        | 0        | 6          | 3.65E+01  |             | 5                  |             | 1 U       | 1 U       | 1 U       |
| 2-Chloronaphthalene          | UG/L         | 0       | 0%        | 0        | 6          | 4.87E+02  |             |                    |             | 1.2 U     | 1.2 U     | 1.2 U     |
| 2-Chlorophenol               | UG/L         | 0       | 0%        | 0        | 6          | 3.04E+01  |             |                    |             | 1.1 U     | 1.1 U     | 1.1 U     |
| 2-Methylnaphthalene          | UG/L         | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U     | 1.2 U     | 1.2 U     |
| 2-Methylphenol               | UG/L         | 0       | 0%        | 0        | 6          | 1.82E+03  |             |                    |             | 1 U       | 1 U       | 1 U       |
| 2-Nitroaniline               | UG/L         | 0       | 0%        | 0        | 6          | 1.09E+02  |             | 5                  |             | 1 U       | 1 U       | 1 U       |
| 2-Nitrophenol                | UG/L         | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U     | 1.1 U     | 1.1 U     |
| 3 or 4-Methylphenol          | UG/L         | 0       | 0%        | 0        | 3          |           |             | 1                  |             |           | 1.9 U     |           |
| 3,3'-Dichlorobenzidine       | UG/L         | 0       | 0%        | 0        | 6          | 1.49E-01  |             | 5                  |             | 1 U       | 1 UJ      | 1 U       |
| 3-Nitroaniline               | UG/L         | 0       | 0%        | 0        | 6          | 3.20E+00  |             | 5                  |             | 1.2 U     | 1.2 U     | 1.2 UJ    |
| 4,6-Dinitro-2-methylphenol   | UG/L         | 0       | 0%        | 0        | 6          | 3.65E+00  |             | 1                  |             | 1.2 U     | 1.2 U     | 1.2 UJ    |
| 4-Bromophenyl phenyl ether   | UG/L         | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.3 U     | 1.3 U     | 1.3 U     |
| 4-Chloro-3-methylphenol      | UG/L         | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U     | 1.1 U     | 1.1 U     |
| 4-Chloroaniline              | UG/L         | 0       | 0%        | 0        | 6          | 1.46E+02  |             | 5                  |             | 1.2 U     | 1.2 UJ    | 1.2 UJ    |
| 4-Chlorophenyl phenyl ether  | UG/L         | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U     | 1.2 U     | 1.2 U     |
| 4-Methylphenol               | UG/L         | 0       | 0%        | 0        | 3          | 1.82E+02  |             |                    |             | 1.8 U     |           | 1.8 U     |
| 4-Nitroaniline               | UG/L         | 0       | 0%        | 0        | 6          | 3.20E+00  |             | 5                  |             | 2.4 U     | 2.5 U     | 2.4 UJ    |
| 4-Nitrophenol                | UG/L         | 0       | 0%        | 0        | 6          |           |             | 1                  |             | 1.1 U     | 1.1 U     | 1.1 U     |
| Acenaphthene                 | UG/L         | 0       | 0%        | 0        | 6          | 3.65E+02  |             | Ī -                |             | 1 U       | 1 U       | 1 U       |
| Acenaphthylene               | UG/L         | 0       | 0%        | 0        | 6          |           |             |                    |             | 1.2 U     | 1.2 U     | 1.2 U     |

## SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

|                             | Facility      |         |           |          |            |                    |             |           |             | SEAD-121C | SEAD-121C | SEAD-121C |
|-----------------------------|---------------|---------|-----------|----------|------------|--------------------|-------------|-----------|-------------|-----------|-----------|-----------|
|                             | Location ID   |         |           |          |            |                    |             |           |             | MW121C-4  | MW121C-6  | MW121C-6  |
|                             | Matrix        |         |           |          |            |                    |             |           |             | GW        | GW        | GW        |
|                             | Sample ID     |         |           |          |            |                    |             |           |             | 121C-2010 | 121C-2003 | 121C-2012 |
| Sample Depth to             | Γop of Sample |         |           |          |            |                    |             |           |             | 4.5       | 6.9       | 6.9       |
| Sample Depth to Bott        | tom of Sample |         |           |          |            |                    |             |           |             | 10        | 10        | 10        |
|                             | Sample Date   |         |           |          |            |                    |             |           |             | 5/7/2003  | 2/3/2003  | 5/7/2003  |
|                             | QC Code       |         |           |          |            | Region IX          |             |           |             | SA        | SA        | SA        |
|                             | Study ID      |         | Frequency | Number   | Number     | PRG                |             | Lowest GW |             | PID-RI    | PID-RI    | PID-RI    |
|                             |               | Maximum | of        | of Times | of         | Criteria           |             | Criteria  |             | 3         | 2         | 3         |
| Parameter                   | Units         | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value 3   | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Anthracene                  | UG/L          | 0       | 0%        | 0        | 6          | 1.83E+03           |             |           |             | 1.3 U     | 1.3 U     | 1.3 U     |
| Benzo(a)anthracene          | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-02           |             |           |             | 1 U       | 1 U       | 1 U       |
| Benzo(a)pyrene              | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-03           |             |           |             | 1.5 U     | 1.5 U     | 1.5 U     |
| Benzo(b)fluoranthene        | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-02           |             |           |             | 1 U       | 1 U       | 1 U       |
| Benzo(ghi)perylene          | UG/L          | 0       | 0%        | 0        | 6          |                    |             |           |             | 1.3 U     | 1.3 UJ    | 1.3 UJ    |
| Benzo(k)fluoranthene        | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-01           |             |           |             | 2.7 U     | 2.7 U     | 2.6 U     |
| Bis(2-Chloroethoxy)methane  | UG/L          | 0       | 0%        | 0        | 6          |                    |             | 5         |             | 1 U       | 1 U       | 1 U       |
| Bis(2-Chloroethyl)ether     | UG/L          | 0       | 0%        | 0        | 6          | 1.02E-02           |             | 1         |             | 1.2 U     | 1.2 U     | 1.2 U     |
| Bis(2-Chloroisopropyl)ether | UG/L          | 0       | 0%        | 0        | 6          | 2.74E-01           |             | 5         |             | 1 U       | 1 U       | 1 U       |
| Bis(2-Ethylhexyl)phthalate  | UG/L          | 1.4     | 17%       | 1        | 6          | 4.80E+00           |             | 5         |             | 1.4 J     | 1 U       | 1 U       |
| Butylbenzylphthalate        | UG/L          | 0       | 0%        | 0        | 6          | 7.30E+03           |             |           |             | 1 U       | 1 U       | 1 U       |
| Carbazole                   | UG/L          | 0       | 0%        | 0        | 6          | 3.36E+00           |             |           |             | 0.42 U    | 0.43 U    | 0.42 U    |
| Chrysene                    | UG/L          | 0       | 0%        | 0        | 6          | 9.21E+00           |             |           |             | 1.6 U     | 1.6 U     | 1.6 U     |
| Di-n-butylphthalate         | UG/L          | 1.6     | 17%       | 1        | 6          | 3.65E+03           |             | 50        |             | 1.2 U     | 1.2 U     | 1.6 J     |
| Di-n-octylphthalate         | UG/L          | 0       | 0%        | 0        | 6          | 1.46E+03           |             |           |             | 1.5 U     | 1.5 U     | 1.5 U     |
| Dibenz(a,h)anthracene       | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-03           |             |           |             | 1.5 U     | 1.5 UJ    | 1.5 UJ    |
| Dibenzofuran                | UG/L          | 0       | 0%        | 0        | 6          | 1.22E+01           |             |           |             | 1 U       | 1 U       | 1 U       |
| Diethyl phthalate           | UG/L          | 0       | 0%        | 0        | 6          | 2.92E+04           |             |           |             | 1 U       | 1 U       | 1 U       |
| Dimethylphthalate           | UG/L          | 0       | 0%        | 0        | 6          | 3.65E+05           |             |           |             | 1 U       | 1 U       | 1 U       |
| Fluoranthene                | UG/L          | 0       | 0%        | 0        | 6          | 1.46E+03           |             |           |             | 1 U       | 1 U       | 1 U       |
| Fluorene                    | UG/L          | 0       | 0%        | 0        | 6          | 2.43E+02           |             |           |             | 1.1 U     | 1.1 U     | 1.1 U     |
| Hexachlorobenzene           | UG/L          | 0       | 0%        | 0        | 6          | 4.20E-02           |             | 0.04      |             | 1.1 U     | 1.1 U     | 1.1 U     |
| Hexachlorobutadiene         | UG/L          | 0       | 0%        | 0        | 6          | 8.62E-01           |             | 0.5       |             | 1.5 U     | 1.5 U     | 1.5 U     |
| Hexachlorocyclopentadiene   | UG/L          | 0       | 0%        | 0        | 4          | 2.19E+02           |             | 5         |             | 3.9 U     | 3.9 U     | 3.8 R     |
| Hexachloroethane            | UG/L          | 0       | 0%        | 0        | 6          | 4.80E+00           |             | 5         |             | 1.1 U     | 1.1 U     | 1.1 U     |
| Indeno(1,2,3-cd)pyrene      | UG/L          | 0       | 0%        | 0        | 6          | 9.21E-02           |             |           |             | 1.6 U     | 1.6 U     | 1.6 UJ    |
| Isophorone                  | UG/L          | 0       | 0%        | 0        | 6          | 7.08E+01           |             |           |             | 1 U       | 1 U       | 1 U       |
| N-Nitrosodiphenylamine      | UG/L          | 0       | 0%        | 0        | 6          | 1.37E+01           |             |           |             | 2 U       | 2.1 U     | 2 U       |
| N-Nitrosodipropylamine      | UG/L          | 0       | 0%        | 0        | 6          | 9.60E-03           |             |           |             | 1 U       | 1 U       | 1 UJ      |
| Naphthalene                 | UG/L          | 0       | 0%        | 0        | 6          | 6.20E+00           |             |           |             | 1.2 U     | 1.2 U     | 1.2 U     |
| Nitrobenzene                | UG/L          | 0       | 0%        | 0        | 6          | 3.40E+00           |             | 0.4       |             | 1 U       | 1 U       | 1 U       |
| Pentachlorophenol           | UG/L          | 0       | 0%        | 0        | 6          | 5.60E-01           |             | 1         |             | 1.9 U     | 2 U       | 1.9 U     |
| Phenanthrene                | UG/L          | 0       | 0%        | 0        | 6          |                    |             |           |             | 1 U       | 1 U       | 1 U       |
| Phenol                      | UG/L          | 0       | 0%        | 0        | 6          | 1.09E+04           |             | 1         |             | 1 U       | 1 U       | 1 U       |
| Pyrene                      | UG/L          | 0       | 0%        | 0        | 6          | 1.83E+02           |             |           |             | 1 U       | 1 U       | 1 U       |
| Pesticides/PCBs             |               |         |           |          |            |                    |             |           |             |           |           |           |
| 4,4'-DDD                    | UG/L          | 0       | 0%        | 0        | 2          | 2.80E-01           |             | 0.3       |             | 0.01 UJ   | 0.01 R    |           |

## Seneca Army Depot Activity

|                    | Facility<br>Location ID<br>Matrix |                  |           |          |            |           |             |                    |             | SEAD-121C<br>MW121C-4<br>GW | SEAD-121C<br>MW121C-6<br>GW | SEAD-121C<br>MW121C-6<br>GW |
|--------------------|-----------------------------------|------------------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------------------------|-----------------------------|-----------------------------|
|                    | Sample ID                         |                  |           |          |            |           |             |                    |             | 121C-2010                   | 121C-2003                   | 121C-2012                   |
| Sample Depth to    | Top of Sample                     |                  |           |          |            |           |             |                    |             | 4.5                         | 6.9                         | 6.9                         |
| Sample Depth to Bo | ottom of Sample                   |                  |           |          |            |           |             |                    |             | 10                          | 10                          | 10                          |
|                    | Sample Date                       |                  |           |          |            |           |             |                    |             | 5/7/2003                    | 2/3/2003                    | 5/7/2003                    |
|                    | QC Code                           |                  |           |          |            | Region IX |             |                    |             | SA                          | SA                          | SA                          |
|                    | Study ID                          |                  | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | PID-RI                      | PID-RI                      | PID-RI                      |
|                    |                                   | Maximum          | of        | of Times | of         | Criteria  |             | Criteria           |             | 3                           | 2                           | 3                           |
| Parameter          | Units                             | Value            | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)                   | Value (Q)                   | Value (Q)                   |
| 4,4'-DDE           | UG/L                              | 0                | 0%        | 0        | 5          | 1.98E-01  |             | 0.2                |             | 0.005 U                     | 0.005 UJ                    |                             |
| 4,4'-DDT           | UG/L                              | 0                | 0%        | 0        | 2          | 1.98E-01  |             | 0.2                |             | 0.01 UJ                     | 0.01 R                      |                             |
| Aldrin             | UG/L                              | 0                | 0%        | 0        | 5          | 3.95E-03  |             | 0                  |             | 0.02 U                      | 0.02 U                      |                             |
| Alpha-BHC          | UG/L                              | 0                | 0%        | 0        | 5          | 1.07E-02  |             | 0.01               |             | 0.01 UJ                     | 0.01 U                      |                             |
| Alpha-Chlordane    | UG/L                              | 0                | 0%        | 0        | 5          |           |             |                    |             | 0.02 U                      | 0.02 U                      |                             |
| Beta-BHC           | UG/L                              | 0                | 0%        | 0        | 5          | 3.74E-02  |             | 0.04               |             | 0.01 U                      | 0.01 U                      |                             |
| Chlordane          | UG/L                              | 0                | 0%        | 0        | 3          |           |             |                    |             |                             | 0.14 U                      |                             |
| Delta-BHC          | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.04               |             | 0.004 UJ                    | 0.004 UJ                    |                             |
| Dieldrin           | UG/L                              | 0                | 0%        | 0        | 5          | 4.20E-03  |             | 0.004              |             | 0.009 U                     | 0.009 U                     |                             |
| Endosulfan I       | UG/L                              | 0                | 0%        | 0        | 5          |           |             |                    |             | 0.01 U                      | 0.02 UJ                     |                             |
| Endosulfan II      | UG/L                              | 0                | 0%        | 0        | 5          |           |             |                    |             | 0.01 UJ                     | 0.01 UJ                     |                             |
| Endosulfan sulfate | UG/L                              | 0                | 0%        | 0        | 5          |           |             |                    |             | 0.02 UJ                     | 0.02 U                      |                             |
| Endrin             | UG/L                              | 0                | 0%        | 0        | 5          | 1.09E+01  |             | 0                  |             | 0.02 UJ                     | 0.02 UJ                     |                             |
| Endrin aldehyde    | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 5                  |             | 0.02 U                      | 0.02 UJ                     |                             |
| Endrin ketone      | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 5                  |             | 0.009 U                     | 0.009 U                     |                             |
| Gamma-BHC/Lindane  | UG/L                              | 0                | 0%        | 0        | 5          | 5.17E-02  |             | 0.05               |             | 0.009 UJ                    | 0.009 U                     |                             |
| Gamma-Chlordane    | UG/L                              | 0                | 0%        | 0        | 5          |           |             |                    |             | 0.01 U                      | 0.01 U                      |                             |
| Heptachlor         | UG/L                              | 0                | 0%        | 0        | 5          | 1.49E-02  |             | 0.04               |             | 0.007 U                     | 0.007 U                     |                             |
| Heptachlor epoxide | UG/L                              | 0                | 0%        | 0        | 5          | 7.39E-03  |             | 0.03               |             | 0.008 U                     | 0.009 UJ                    |                             |
| Methoxychlor       | UG/L                              | 0                | 0%        | 0        | 5          | 1.82E+02  |             | 35                 |             | 0.008 UJ                    | 0.008 UJ                    |                             |
| Toxaphene          | UG/L                              | 0                | 0%        | 0        | 5          | 6.11E-02  |             | 0.06               |             | 0.12 U                      | 0.12 U                      |                             |
| Aroclor-1016       | UG/L                              | 0                | 0%        | 0        | 5          | 9.60E-01  |             | 0.09               |             | 0.24 U                      | 0.24 U                      |                             |
| Aroclor-1221       | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.09               |             | 0.081 U                     | 0.08 U                      |                             |
| Aroclor-1232       | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.09               |             | 0.091 U                     | 0.09 U                      |                             |
| Aroclor-1242       | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.09               | l           | 0.081 U                     | 0.08 U                      |                             |
| Aroclor-1248       | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.09               |             | 0.12 U                      | 0.12 U                      |                             |
| Aroclor-1254       | UG/L                              | 0                | 0%        | 0        | 5          | 3.36E-02  |             | 0.09               | l           | 0.051 U                     | 0.05 U                      |                             |
| Aroclor-1260       | UG/L                              | 0                | 0%        | 0        | 5          |           |             | 0.09               |             | 0.01 U                      | 0.01 U                      |                             |
| Metals and Cyanide |                                   |                  |           |          |            |           |             |                    |             |                             |                             |                             |
| Aluminum           | UG/L                              | 588 <sup>4</sup> | 100%      | 6        | 6          | 3.65E+04  |             | 50                 | 4           | 19.9 J                      | 88.7 J                      | 41.1 J                      |
| Antimony           | UG/L                              | 8.4              | 33%       | 2        | 6          | 1.46E+01  |             | 3                  | 2           | 3.8 U                       | 8.4 J                       | 3.8 U                       |
| Arsenic            | UG/L                              | 0                | 0%        | 0        | 6          | 4.48E-02  |             | 10                 |             | 4.5 U                       | 4.5 U                       | 4.5 U                       |
| Barium             | UG/L                              | 73.7             | 100%      | 6        | 6          | 2.55E+03  |             | 1000               | l           | 21 J                        | 19.4                        | 18.2 J                      |
| Beryllium          | UG/L                              | 0.24             | 17%       | 1        | 6          | 7.30E+01  |             | 4                  | l           | 0.24 J                      | 0.9 U                       | 0.1 U                       |
| Cadmium            | UG/L                              | 1.1              | 17%       | 1        | 6          | 1.82E+01  |             | 5                  |             | 0.8 U                       | 0.8 U                       | 1.1 J                       |
| Calcium            | UG/L                              | 558000           | 100%      | 6        | 6          |           |             |                    |             | 338000 J                    | 558000                      | 418000                      |
| Chromium           | UG/L                              | 21.4             | 83%       | 5        | 6          |           |             | 50                 |             | 1.5 J                       | 3.3                         | 21.4                        |

Page 9 of 10

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility    |                    |           |          |            |           |             |                    |             | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|-------------|--------------------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------|-----------|-----------|
|                              | Location ID |                    |           |          |            |           |             |                    |             | MW121C-4  | MW121C-6  | MW121C-6  |
|                              | Matrix      |                    |           |          |            |           |             |                    |             | GW        | GW        | GW        |
|                              | Sample ID   |                    |           |          |            |           |             |                    |             | 121C-2010 | 121C-2003 | 121C-2012 |
| Sample Depth to To           |             |                    |           |          |            |           |             |                    |             | 4.5       | 6.9       | 6.9       |
| Sample Depth to Botton       | •           |                    |           |          |            |           |             |                    |             | 10        | 10        | 10        |
| 5                            | Sample Date |                    |           |          |            |           |             |                    |             | 5/7/2003  | 2/3/2003  | 5/7/2003  |
|                              | QC Code     |                    |           |          |            | Region IX |             |                    |             | SA        | SA        | SA        |
|                              | Study ID    |                    | Frequency | Number   | Number     | PRG       |             | Lowest GW          |             | PID-RI    | PID-RI    | PID-RI    |
|                              |             | Maximum            | of        | of Times | of         | Criteria  |             | Criteria           |             | 3         | 2         | 3         |
| Parameter                    | Units       | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) |
| Cobalt                       | UG/L        | 3                  | 50%       | 3        | 6          | 7.30E+02  |             |                    |             | 1.5 J     | 3 J       | 0.7 U     |
| Copper                       | UG/L        | 17.7               | 50%       | 3        | 6          | 1.46E+03  |             | 200                |             | 11.8 J    | 2 U       | 17.7 J    |
| Cyanide                      | UG/L        | 0                  | 50%       | 0        | 0          | 7.30E+02  |             |                    |             |           |           |           |
| Cyanide, Amenable            | MG/L        | 0                  | 0%        | 0        | 6          |           |             |                    |             | 0.01 U    | 0.01 U    | 0.01 U    |
| Cyanide, Total               | MG/L        | 0                  | 0%        | 0        | 3          |           |             |                    |             |           | 0.01 U    |           |
| Iron                         | UG/L        | 868.725 4          | 50%       | 3        | 6          | 1.09E+04  |             | 300                | 3           | 22.2 U    | 34.9 U    | 22.2 U    |
| Lead                         | UG/L        | 10.5               | 83%       | 5        | 6          |           |             | 15                 |             | 9         | 3.8       | 10.5      |
| Magnesium                    | UG/L        | 109000             | 100%      | 6        | 6          |           |             |                    |             | 61800     | 109000    | 89000     |
| Manganese                    | UG/L        | 297                | 100%      | 6        | 6          | 8.76E+02  |             | 50                 | 6           | 279       | 297       | 170       |
| Mercury                      | UG/L        | 0.2                | 33%       | 2        | 6          | 1.09E+01  |             | 0.7                |             | 0.2 U     | 0.2 U     | 0.2       |
| Nickel                       | UG/L        | 2 4                | 17%       | 1        | 6          | 7.30E+02  |             | 100                |             | 2 U       | 2 U       | 2 U       |
| Potassium                    | UG/L        | 9400               | 100%      | 6        | 6          |           |             |                    |             | 9400      | 3850      | 6320 J    |
| Selenium                     | UG/L        | 6.8                | 33%       | 2        | 6          | 1.82E+02  |             | 10                 |             | 1.9 J     | 6.8       | 1.3 U     |
| Silver                       | UG/L        | 0                  | 0%        | 0        | 6          | 1.82E+02  |             | 50                 |             | 3.7 U     | 3.7 U     | 3.7 U     |
| Sodium                       | UG/L        | 58400 <sup>4</sup> | 100%      | 6        | 6          |           |             | 20000              | 3           | 54100     | 26400     | 17600     |
| Thallium                     | UG/L        | 0                  | 0%        | 0        | 6          | 2.41E+00  |             | 2                  |             | 5.3 U     | 4.2 U     | 5.3 U     |
| Vanadium                     | UG/L        | 0                  | 0%        | 0        | 6          | 3.65E+01  |             |                    |             | 1.4 U     | 2.5 U     | 1.4 U     |
| Zinc                         | UG/L        | 96.2               | 100%      | 6        | 6          | 1.09E+04  |             | 5000               |             | 24.8      | 12.6 J    | 96.2      |
| Other                        |             |                    |           |          |            |           |             |                    |             |           |           |           |
| Total Petroleum Hydrocarbons | MG/L        | 0                  | 0%        | 0        | 6          |           |             |                    |             | 1 U       | 0.04 U    | 1 U       |

#### NOTES

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Lowest Groundwater Criteria Values came from the following:
- A) NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
- B) Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
- C) Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 4) The maximum detected concentration was obtained from the average of the sample-duplicate pair: 121C-2004/121C-2002 at MW121C-4.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

|   | Facility    |         |           |          |            |           |             |           |             | Building 360   | Building 360   | Building 360 | Building 360 | Building 360   |
|---|-------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|----------------|----------------|--------------|--------------|----------------|
|   | Location ID |         |           |          |            |           |             |           |             | MW-1           | MW-1           | MW-1         | MW-1         | MW-2           |
|   | Matrix      |         |           |          |            |           |             |           |             | GW             | GW             | GW           | GW           | GW             |
| Comple Double to To                         | Sample ID   |         |           |          |            |           |             |           |             | DRMO-2005      | DRMO-2008      | DRMO-2013    | 121C-2019    | DRMO-2006      |
| Sample Depth to To<br>Sample Depth to Botto |             |         |           |          |            |           |             |           |             | 16.5<br>16.5   | 16.5<br>16.5   | 16.6<br>16.6 | 16.6<br>16.6 | 16.7<br>16.7   |
|   | Sample Date |         |           |          |            |           |             |           |             | 4/4/2003       | 4/4/2003       | 5/9/2003     | 5/9/2003     | 4/3/2003       |
| •   | QC Code     |         |           |          |            | Region IX |             |           |             | 4/4/2003<br>SA | 4/4/2003<br>SA | SA           | SA           | 4/3/2003<br>SA |
|   | Study ID    |         | Frequency | Number   | Number     | PRG       |             | Lowest GW |             | PID-RI         | PID-RI         | PID-RI       | PID-RI       | PID-RI         |
|   | Study 1D    | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             | 2              | 2              | 3            | 3            | 2              |
| Parameter                                   | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances |           | Exceedances | Value (Q)      | Value (Q)      | Value (Q)    | Value (Q)    | Value (Q)      |
| Volatile Organic Compounds                  |             |         |           |          |            |           |             |           |             |                |                | (0           |              |                |
| 1,1,1-Trichloroethane                       | UG/L        | 0       | 0%        | 0        | 6          | 3.17E+03  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| 1,1,2,2-Tetrachloroethane                   | UG/L        | 0       | 0%        | 0        | 6          | 5.53E-02  |             | 5         |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| 1,1,2-Trichloroethane                       | UG/L        | 0       | 0%        | 0        | 6          | 2.00E-01  |             | 1         |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| 1,1-Dichloroethane                          | UG/L        | 4.3 4   | 67%       | 4        | 6          | 8.11E+02  |             | 5         |             | 5 UJ           | 4.4 J          | 4.3          | 4.3          | 5 UJ           |
| 1,1-Dichloroethene                          | UG/L        | 0       | 0%        | 0        | 6          | 3.39E+02  |             | 5         |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| 1,2-Dibromo-3-chloropropane                 | UG/L        | 0       | 0%        | 0        | 0          | 4.76E-02  |             | 0.04      |             |                |                |              |              |                |
| 1,2-Dibromoethane                           | UG/L        | 0       | 0%        | 0        | 0          | 5.60E-03  |             | 0.0006    |             |                |                |              |              |                |
| 1,2-Dichlorobenzene                         | UG/L        | 0       | 0%        | 0        | 0          | 3.70E+02  |             | 3         |             |                |                |              |              |                |
| 1,2-Dichloroethane                          | UG/L        | 0       | 0%        | 0        | 6          | 1.23E-01  |             | 0.6       |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| 1,2-Dichloropropane                         | UG/L        | 0.4 4   | 17%       | 1        | 6          | 1.65E-01  | 1           | 1         |             | 5 U            | 5 U            | 0.4 U        | 0.5 J        | 5 U            |
| 1,3-Dichlorobenzene                         | UG/L        | 0       | 17%       | 0        | 0          | 1.83E+02  |             | 3         |             |                |                |              |              |                |
| 1,4-Dichlorobenzene                         | UG/L        | 0       | 17%       | 0        | 0          | 5.02E-01  |             | 3         |             |                |                |              |              |                |
| Acetone                                     | UG/L        | 8.4 4   | 25%       | 1        | 4          | 5.48E+03  |             |           |             | 5 R            | 5 R            | 5.8 R        | 8.4 J        | 5 R            |
| Benzene                                     | UG/L        | 0       | 0%        | 0        | 6          | 3.54E-01  |             | 1         |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| Bromochloromethane                          | UG/L        | 0       | 0%        | 0        | 0          |           |             | 5         |             |                |                |              |              |                |
| Bromodichloromethane                        | UG/L        | 0       | 0%        | 0        | 6          | 1.81E-01  |             | 80        |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Bromoform                                   | UG/L        | 0       | 0%        | 0        | 6          | 8.51E+00  |             | 80        |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| Carbon disulfide                            | UG/L        | 0.6     | 17%       | 1        | 6          | 1.04E+03  |             |           |             | 5 UJ           | 5 UJ           | 0.3 U        | 0.3 U        | 5 UJ           |
| Carbon tetrachloride                        | UG/L        | 0       | 0%        | 0        | 6          | 1.71E-01  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Chlorobenzene                               | UG/L        | 0       | 0%        | 0        | 6          | 1.06E+02  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Chlorodibromomethane                        | UG/L        | 0       | 0%        | 0        | 6          | 1.33E-01  |             | 80        |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Chloroethane                                | UG/L        | 0       | 0%        | 0        | 6          | 4.64E+00  |             | 5         |             | 5 UJ           | 5 UJ           | 0.4 U        | 0.4 U        | 5 UJ           |
| Chloroform                                  | UG/L        | 0       | 0%        | 0        | 6          | 1.66E-01  |             | 7         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Cis-1,2-Dichloroethene                      | UG/L        | 1       | 33%       | 2        | 6          | 6.08E+01  |             | 5         |             | 5 U            | 5 U            | 0.3 U        | 0.4 J        | 5 U            |
| Cis-1,3-Dichloropropene                     | UG/L        | 0       | 0%        | 0        | 6          |           |             | 0.4       |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| Ethyl benzene                               | UG/L        | 0       | 0%        | 0        | 6          | 1.34E+03  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Meta/Para Xylene                            | UG/L        | 0       | 0%        | 0        | 6          |           |             |           |             | 5 U            | 5 U            | 0.8 U        | 0.8 U        | 5 U            |
| Methyl bromide                              | UG/L        | 0       | 0%        | 0        | 6          | 8.66E+00  |             | 5         |             | 5 UJ           | 5 UJ           | 0.4 U        | 0.4 U        | 5 UJ           |
| Methyl butyl ketone                         | UG/L        | 0       | 0%        | 0        | 6          |           |             |           |             | 5 U            | 5 U            | 2.8 U        | 2.8 U        | 5 U            |
| Methyl chloride                             | UG/L        | 0       | 0%        | 0        | 6          | 1.58E+02  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Methyl ethyl ketone                         | UG/L        | 0       | 0%        | 0        | 3          | 6.97E+03  |             |           |             | 5 UJ           | 5 UJ           | 3.6 R        | 3.6 R        | 5 UJ           |
| Methyl isobutyl ketone                      | UG/L        | 0       | 0%        | 0        | 6          | 1.99E+03  |             |           |             | 5 U            | 5 U            | 2.5 U        | 2.5 U        | 5 U            |
| Methylene chloride                          | UG/L        | 1 4     | 17%       | 1        | 6          | 4.28E+00  |             | 5         |             | 5 UJ           | 5 UJ           | 1 J          | 1 J          | 5 UJ           |
| Ortho Xylene                                | UG/L        | 0       | 0%        | 0        | 6          |           |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Styrene                                     | UG/L        | 0       | 0%        | 0        | 6          | 1.64E+03  |             | 5         |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| Tetrachloroethene                           | UG/L        | 0       | 0%        | 0        | 6          | 1.04E-01  |             | 5         |             | 5 UJ           | 5 UJ           | 0.5 U        | 0.5 U        | 5 UJ           |
| Toluene                                     | UG/L        | 0       | 0%        | 0        | 6          | 7.23E+02  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Total Xylenes                               | UG/L        | 0       | 0%        | 0        | 0          | 2.06E+02  |             | 5         |             |                | ~ **           | 0.4.**       | 0.4.77       |                |
| Trans-1,2-Dichloroethene                    | UG/L        | 0       | 0%        | 0        | 6          | 1.22E+02  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Trans-1,3-Dichloropropene                   | UG/L        | 0       | 0%        | 0        | 6          | 2.005.02  |             | 0.4       |             | 5 U            | 5 U            | 0.3 U        | 0.3 U        | 5 U            |
| Trichloroethene                             | UG/L        | 0       | 0%        | 0        | 6          | 2.80E-02  |             | 5         |             | 5 U            | 5 U            | 0.4 U        | 0.4 U        | 5 U            |
| Vinyl chloride                              | UG/L        | 2.3 4   | 67%       | 4        | 6          | 1.98E-02  | 4           | 2         | 1           | 2.2 Ј          | 2.4 J          | 1.4          | 1.3          | 5 U            |
| Semivolatile Organic Compound               |             |         | 0.71      |          | _          |           |             | _         |             |                |                |              |              |                |
| 1,2,4-Trichlorobenzene                      | UG/L        | 0       | 0%        | 0        | 6          | 7.16E+00  |             | 5         |             | 1.2 UJ         | 1.2 UJ         | 1.2 U        | 1.2 U        | 1.2 UJ         |
| 1,2-Dichlorobenzene                         | UG/L        | 0       | 0%        | 0        | 6          | 3.70E+02  |             | 3         |             | 1 UJ           | 1 UJ           | 1 U          | 1 U          | 1 UJ           |

|   | Facility Location ID Matrix Sample ID |         |           |          |            |           |             |           |             | Building 360<br>MW-1<br>GW<br>DRMO-2005 | Building 360<br>MW-1<br>GW<br>DRMO-2008 | Building 360<br>MW-1<br>GW<br>DRMO-2013 | Building 360<br>MW-1<br>GW<br>121C-2019 | Building 360<br>MW-2<br>GW<br>DRMO-2006 |
|---|---------------------------------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|---|---|---|---|---|
| Sample Depth to                                       |                                       |         |           |          |            |           |             |           |             | 16.5                                    | 16.5                                    | 16.6                                    | 16.6                                    | 16.7                                    |
| Sample Depth to Bo                                    |                                       |         |           |          |            |           |             |           |             | 16.5                                    | 16.5                                    | 16.6                                    | 16.6                                    | 16.7                                    |
| • •   | Sample Date                           |         |           |          |            |           |             |           |             | 4/4/2003                                | 4/4/2003                                | 5/9/2003                                | 5/9/2003                                | 4/3/2003                                |
|   | QC Code                               |         |           |          |            | Region IX |             |           |             | SA                                      | SA                                      | SA                                      | SA                                      | SA                                      |
|   | Study ID                              |         | Frequency | Number   | Number     | PRG       |             | Lowest GW |             | PID-RI                                  | PID-RI                                  | PID-RI                                  | PID-RI                                  | PID-RI                                  |
|   |                                       | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             | 2                                       | 2                                       | 3                                       | 3                                       | 2                                       |
| Parameter   | Units                                 | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3   | Exceedances | Value (Q)                               | Value (Q)                               | Value (Q)                               | Value (Q)                               | Value (Q)                               |
| 1,3-Dichlorobenzene                                   | UG/L                                  | 0       | 0%        | 0        | 6          | 1.83E+02  |             | 3         |             | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| 1,4-Dichlorobenzene                                   | UG/L                                  | 0       | 0%        | 0        | 6          | 5.02E-01  |             | 3         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| 2,4,5-Trichlorophenol                                 | UG/L                                  | 0       | 0%        | 0        | 3          | 3.65E+03  |             | 1         |             | 1 R                                     | 1 R                                     | 1 U                                     | 1 U                                     | 1 R                                     |
| 2,4,6-Trichlorophenol                                 | UG/L                                  | 0       | 0%        | 0        | 6          | 3.65E+00  |             | 1         |             | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     |
| 2,4-Dichlorophenol                                    | UG/L                                  | 0       | 0%        | 0        | 3          | 1.09E+02  |             | 5         |             | 1.4 R                                   | 1.3 R                                   | 1.3 U                                   | 1.3 U                                   | 1.3 R                                   |
| 2,4-Dimethylphenol                                    | UG/L                                  | 0       | 0%        | 0        | 3          | 7.30E+02  |             |           |             | 2.4 R                                   | 2.3 R                                   | 2.3 U                                   | 2.3 U                                   | 2.3 R                                   |
| 2,4-Dinitrophenol                                     | UG/L                                  | 0       | 0%        | 0        | 3          | 7.30E+01  |             |           |             |   |   | 2 UJ                                    | 2 UJ                                    |   |
| 2,4-Dinitrotoluene                                    | UG/L                                  | 0       | 0%        | 0        | 6          | 7.30E+01  |             | 5         |             | 1.1 UJ                                  | 1.1 UJ                                  | 1.1 U                                   | 1.1 U                                   | 1.1 UJ                                  |
| 2,6-Dinitrotoluene                                    | UG/L                                  | 0       | 0%        | 0        | 6          | 3.65E+01  |             | 5         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| 2-Chloronaphthalene                                   | UG/L                                  | 0       | 0%        | 0        | 6          | 4.87E+02  |             |           |             | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| 2-Chlorophenol  | UG/L                                  | 0       | 0%        | 0        | 3          | 3.04E+01  |             |           |             | 1.1 R                                   | 1.1 R                                   | 1.1 U                                   | 1.1 U                                   | 1.1 R                                   |
| 2-Methylnaphthalene                                   | UG/L                                  | 0       | 0%        | 0        | 6          |           |             |           |             | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| 2-Methylphenol  | UG/L                                  | 0       | 0%        | 0        | 3          | 1.82E+03  |             |           |             | 1 R                                     | 1 R                                     | 1 U                                     | 1 U                                     | 1 R                                     |
| 2-Nitroaniline  | UG/L                                  | 0       | 0%        | 0        | 6          | 1.09E+02  |             | 5         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| 2-Nitrophenol   | UG/L                                  | 0       | 0%        | 0        | 3          |           |             | 1         |             | 1.1 R                                   | 1.1 R                                   | 1.1 U                                   | 1.1 U                                   | 1.1 R                                   |
| 3 or 4-Methylphenol                                   | UG/L                                  | 0       | 0%        | 0        | 0          | 1 405 01  |             | 1         |             |   |   |   |   |   |
| 3,3'-Dichlorobenzidine                                | UG/L                                  | 0       | 0%        | 0        | 6          | 1.49E-01  |             | 5         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| 3-Nitroaniline  | UG/L                                  | 0       | 0%<br>0%  | 0        | 6          | 3.20E+00  |             | 1         |             | 1.2 UJ<br>1.2 R                         | 1.2 UJ                                  | 1.2 UJ<br>1.2 UJ                        | 1.2 UJ<br>1.2 UJ                        | 1.2 UJ                                  |
| 4,6-Dinitro-2-methylphenol                            | UG/L                                  | 0       | 0%        | 0        | 3          | 3.65E+00  |             | 1         |             | 1.2 K<br>1.4 UJ                         | 1.2 R<br>1.3 UJ                         | 1.2 UJ<br>1.3 U                         | 1.2 UJ<br>1.3 U                         | 1.2 R                                   |
| 4-Bromophenyl phenyl ether<br>4-Chloro-3-methylphenol | UG/L<br>UG/L                          | 0       | 0%        | 0        | 6          |           |             | 1         |             | 1.4 UJ<br>1.1 R                         | 1.5 UJ<br>1.1 R                         | 1.1 U                                   | 1.3 U<br>1.1 U                          | 1.3 UJ<br>1.1 R                         |
| 4-Chloroaniline                                       | UG/L                                  | 0       | 0%        | 0        | 3          | 1.46E+02  |             | 5         |             | 1.1 K<br>1.2 R                          | 1.1 R<br>1.2 R                          | 1.1 U<br>1.2 UJ                         | 1.1 U<br>1.2 UJ                         | 1.1 R<br>1.2 R                          |
| 4-Chlorophenyl phenyl ether                           | UG/L                                  | 0       | 0%        | 0        | 6          | 1.401.+02 |             | ,         |             | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| 4-Methylphenol  | UG/L                                  | 0       | 0%        | 0        | 3          | 1.82E+02  |             |           |             | 1.2 GJ<br>1.9 R                         | 1.2 GJ<br>1.8 R                         | 1.8 U                                   | 1.8 U                                   | 1.2 CJ<br>1.8 R                         |
| 4-Nitroaniline  | UG/L                                  | 0       | 0%        | 0        | 6          | 3.20E+00  |             | 5         |             | 2.5 UJ                                  | 2.4 UJ                                  | 2.4 UJ                                  | 2.4 UJ                                  | 2.4 UJ                                  |
| 4-Nitrophenol   | UG/L                                  | 0       | 0%        | 0        | 3          | 3.20E100  |             | 1         |             | 1.1 R                                   | 1.1 R                                   | 1.1 U                                   | 1.1 U                                   | 1.1 R                                   |
| Acenaphthene  | UG/L                                  | 0       | 0%        | 0        | 6          | 3.65E+02  |             | 1         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Acenaphthylene  | UG/L                                  | 0       | 0%        | 0        | 6          | 3.03E102  |             |           |             | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| Anthracene  | UG/L                                  | 0       | 0%        | 0        | 6          | 1.83E+03  |             |           |             | 1.4 UJ                                  | 1.3 UJ                                  | 1.3 U                                   | 1.3 U                                   | 1.3 UJ                                  |
| Benzo(a)anthracene                                    | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E-02  |             |           |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Benzo(a)pyrene  | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E-03  |             |           |             | 1.6 UJ                                  | 1.5 UJ                                  | 1.5 U                                   | 1.5 U                                   | 1.5 UJ                                  |
| Benzo(b)fluoranthene                                  | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E-02  |             |           |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Benzo(ghi)perylene                                    | UG/L                                  | 0       | 0%        | 0        | 6          |           |             |           |             | 1.4 UJ                                  | 1.3 UJ                                  | 1.3 UJ                                  | 1.3 UJ                                  | 1.3 UJ                                  |
| Benzo(k)fluoranthene                                  | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E-01  |             |           |             | 2.7 UJ                                  | 2.7 UJ                                  | 2.6 U                                   | 2.7 U                                   | 2.7 UJ                                  |
| Bis(2-Chloroethoxy)methane                            | UG/L                                  | 0       | 0%        | 0        | 6          |           |             | 5         |             | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     |
| Bis(2-Chloroethyl)ether                               | UG/L                                  | 0       | 0%        | 0        | 6          | 1.02E-02  |             | 1         |             | 1.2 U                                   |
| Bis(2-Chloroisopropyl)ether                           | UG/L                                  | 0       | 0%        | 0        | 6          | 2.74E-01  |             | 5         |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Bis(2-Ethylhexyl)phthalate                            | UG/L                                  | 2.5     | 17%       | 1        | 6          | 4.80E+00  |             | 5         |             | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     | 1 U                                     |
| Butylbenzylphthalate                                  | UG/L                                  | 0       | 0%        | 0        | 6          | 7.30E+03  |             |           | l           | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Carbazole   | UG/L                                  | 0       | 0%        | 0        | 6          | 3.36E+00  |             |           | l           | 0.43 UJ                                 | 0.42 UJ                                 | 0.42 U                                  | 0.42 U                                  | 0.42 UJ                                 |
| Chrysene  | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E+00  |             |           | l           | 1.7 UJ                                  | 1.6 UJ                                  | 1.6 U                                   | 1.6 U                                   | 1.6 UJ                                  |
| Di-n-butylphthalate                                   | UG/L                                  | 0       | 0%        | 0        | 6          | 3.65E+03  |             | 50        | l           | 1.2 UJ                                  | 1.2 UJ                                  | 1.2 U                                   | 1.2 U                                   | 1.2 UJ                                  |
| Di-n-octylphthalate                                   | UG/L                                  | 0       | 0%        | 0        | 6          | 1.46E+03  |             |           | l           | 1.6 UJ                                  | 1.5 UJ                                  | 1.5 U                                   | 1.5 U                                   | 1.5 UJ                                  |
| Dibenz(a,h)anthracene                                 | UG/L                                  | 0       | 0%        | 0        | 6          | 9.21E-03  |             |           | l           | 1.6 UJ                                  | 1.5 UJ                                  | 1.5 UJ                                  | 1.5 UJ                                  | 1.5 UJ                                  |
| Dibenzofuran  | UG/L                                  | 0       | 0%        | 0        | 6          | 1.22E+01  |             |           | l           | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |
| Diethyl phthalate                                     | UG/L                                  | 0       | 0%        | 0        | 6          | 2.92E+04  |             |           |             | 1 UJ                                    | 1 UJ                                    | 1 U                                     | 1 U                                     | 1 UJ                                    |

|                                       | Facility<br>Location ID<br>Matrix |         |           |          |            |                      |             |                    |             | Building 360<br>MW-1<br>GW | Building 360<br>MW-1<br>GW | Building 360<br>MW-1<br>GW | Building 360<br>MW-1<br>GW | Building 360<br>MW-2<br>GW |
|---------------------------------------|-----------------------------------|---------|-----------|----------|------------|----------------------|-------------|--------------------|-------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                       | Sample ID                         |         |           |          |            |                      |             |                    |             | DRMO-2005                  | DRMO-2008                  | DRMO-2013                  | 121C-2019                  | DRMO-2006                  |
| Sample Depth to                       |                                   |         |           |          |            |                      |             |                    |             | 16.5                       | 16.5                       | 16.6                       | 16.6                       | 16.7                       |
| Sample Depth to Bo                    | ottom of Sample                   |         |           |          |            |                      |             |                    |             | 16.5                       | 16.5                       | 16.6                       | 16.6                       | 16.7                       |
|                                       | Sample Date                       |         |           |          |            |                      |             |                    |             | 4/4/2003                   | 4/4/2003                   | 5/9/2003                   | 5/9/2003                   | 4/3/2003                   |
|                                       | QC Code                           |         |           |          |            | Region IX            |             |                    |             | SA                         | SA                         | SA                         | SA                         | SA                         |
|                                       | Study ID                          |         | Frequency |          | Number     | PRG                  |             | Lowest GW          | ,           | PID-RI                     | PID-RI                     | PID-RI                     | PID-RI                     | PID-RI                     |
|                                       |                                   | Maximum | of        | of Times | of .       | Criteria             |             | Criteria           |             | 2                          | 2                          | 3                          | 3                          | 2                          |
| Parameter                             | Units                             | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)                  | Value (Q)                  | Value (Q)                  | Value (Q)                  | Value (Q)                  |
| Dimethylphthalate                     | UG/L                              | 0       | 0%        | 0        | 6          | 3.65E+05             |             |                    |             | 1 UJ                       | 1 UJ                       | 1 U                        | 1 U                        | 1 UJ                       |
| Fluoranthene                          | UG/L                              | 0       | 0%        | 0        | 6          | 1.46E+03             |             |                    |             | 1 UJ                       | 1 UJ                       | 1 U                        | 1 U                        | 1 UJ                       |
| Fluorene                              | UG/L                              | 0       | 0%        | 0        | 6          | 2.43E+02             |             |                    |             | 1.1 UJ                     | 1.1 UJ                     | 1.1 U                      | 1.1 U                      | 1.1 UJ                     |
| Hexachlorobenzene                     | UG/L                              | 0       | 0%        | 0        | 6          | 4.20E-02             |             | 0.04               |             | 1.1 UJ                     | 1.1 UJ                     | 1.1 U                      | 1.1 U                      | 1.1 UJ                     |
| Hexachlorobutadiene                   | UG/L                              | 0       | 0%        | 0        | 6          | 8.62E-01             |             | 0.5                |             | 1.6 UJ                     | 1.5 UJ                     | 1.5 U                      | 1.5 U                      | 1.5 UJ                     |
| Hexachlorocyclopentadiene             | UG/L                              | 0       | 0%        | 0        | 3          | 2.19E+02             |             | 5                  |             | 4 UJ                       | 3.9 UJ                     | 3.8 R                      | 3.9 R                      | 3.9 UJ                     |
| Hexachloroethane                      | UG/L                              | 0       | 0%        | 0        | 6          | 4.80E+00             |             | 5                  |             | 1.1 UJ                     | 1.1 UJ                     | 1.1 U                      | 1.1 U                      | 1.1 UJ                     |
| Indeno(1,2,3-cd)pyrene                | UG/L<br>UG/L                      | 0       | 0%<br>0%  | 0        | 6<br>6     | 9.21E-02<br>7.08E+01 |             |                    |             | 1.7 UJ<br>1 UJ             | 1.6 UJ<br>1 UJ             | 1.6 UJ<br>1 U              | 1.6 UJ<br>1 U              | 1.6 UJ<br>1 UJ             |
| Isophorone                            | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6          | 1.37E+01             |             |                    |             | 2.1 UJ                     | 1 UJ<br>2 UJ               | 2 U                        | 2 U                        | 2 UJ                       |
| N-Nitrosodiphenylamine                | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6          | 9.60E-03             |             |                    |             | 2.1 UJ<br>1 UJ             | 2 UJ<br>1 UJ               | 1 UJ                       | 1 UJ                       | 1 UJ                       |
| N-Nitrosodipropylamine<br>Naphthalene | UG/L                              | 0       | 0%        | 0        | 6          | 6.20E+00             |             |                    |             | 1.2 UJ                     | 1.2 UJ                     | 1.2 U                      | 1.2 U                      | 1.2 UJ                     |
| Nitrobenzene                          | UG/L                              | 0       | 0%        | 0        | 6          | 3.40E+00             |             | 0.4                |             | 1.2 UJ                     | 1.2 UJ                     | 1.2 U                      | 1.2 U                      | 1.2 UJ                     |
| Pentachlorophenol                     | UG/L                              | 0       | 0%        | 0        | 3          | 5.60E-01             |             | 1                  |             | 2 R                        | 1.9 R                      | 1.9 U                      | 1.9 U                      | 1.9 R                      |
| Phenanthrene                          | UG/L                              | 0       | 0%        | 0        | 6          | 3.002 01             |             | 1                  |             | 1 UJ                       | 1 UJ                       | 1 U                        | 1 U                        | 1 UJ                       |
| Phenol                                | UG/L                              | 0       | 0%        | 0        | 3          | 1.09E+04             |             | 1                  |             | 1 R                        | 1 R                        | 1 U                        | 1 U                        | 1 R                        |
| Pyrene                                | UG/L                              | 0       | 0%        | 0        | 6          | 1.83E+02             |             | •                  |             | 1 UJ                       | 1 UJ                       | 1 U                        | 1 U                        | 1 UJ                       |
| Pesticides/PCBs                       |                                   | -       |           | -        | -          |                      |             |                    |             |                            |                            |                            |                            |                            |
| 4,4'-DDD                              | UG/L                              | 0       | 0%        | 0        | 6          | 2.80E-01             |             | 0.3                |             | 0.01 U                     | 0.01 U                     | 0.01 UJ                    | 0.01 UJ                    | 0.01 U                     |
| 4,4'-DDE                              | UG/L                              | 0       | 0%        | 0        | 6          | 1.98E-01             |             | 0.2                |             | 0.005 U                    |
| 4,4'-DDT                              | UG/L                              | 0       | 0%        | 0        | 6          | 1.98E-01             |             | 0.2                |             | 0.01 UJ                    |
| Aldrin                                | UG/L                              | 0       | 0%        | 0        | 6          | 3.95E-03             |             | 0                  |             | 0.02 U                     | 0.02 U                     | 0.02 UJ                    | 0.02 UJ                    | 0.02 U                     |
| Alpha-BHC                             | UG/L                              | 0       | 0%        | 0        | 6          | 1.07E-02             |             | 0.01               |             | 0.01 UJ                    |
| Alpha-Chlordane                       | UG/L                              | 0       | 0%        | 0        | 6          |                      |             |                    |             | 0.02 U                     | 0.02 U                     | 0.02 UJ                    | 0.02 UJ                    | 0.02 U                     |
| Beta-BHC                              | UG/L                              | 0       | 0%        | 0        | 6          | 3.74E-02             |             | 0.04               |             | 0.01 U                     |
| Chlordane                             | UG/L                              | 0       | 0%        | 0        | 3          |                      |             |                    |             | 0.14 U                     | 0.14 U                     |                            |                            | 0.14 U                     |
| Delta-BHC                             | UG/L                              | 0       | 0%        | 0        | 6          |                      |             | 0.04               |             | 0.004 UJ                   |
| Dieldrin                              | UG/L                              | 0       | 0%        | 0        | 6          | 4.20E-03             |             | 0.004              |             | 0.009 U                    |
| Endosulfan I                          | UG/L                              | 0       | 0%        | 0        | 6          |                      |             |                    |             | 0.02 U                     | 0.02 U                     | 0.02 UJ                    | 0.01 UJ                    | 0.02 U                     |
| Endosulfan II                         | UG/L                              | 0       | 0%        | 0        | 6          |                      |             |                    |             | 0.01 U                     | 0.01 U                     | 0.01 UJ                    | 0.01 UJ                    | 0.01 U                     |
| Endosulfan sulfate                    | UG/L                              | 0       | 0%        | 0        | 6          |                      |             |                    |             | 0.02 U                     |
| Endrin                                | UG/L                              | 0       | 0%        | 0        | 6          | 1.09E+01             |             | 0                  |             | 0.02 U                     |
| Endrin aldehyde                       | UG/L                              | 0       | 0%        | 0        | 6          |                      |             | 5                  |             | 0.02 U                     |
| Endrin ketone                         | UG/L                              | 0       | 0%        | 0        | 6          | 5 17E 00             |             | 5                  |             | 0.009 U                    | 0.009 U                    | 0.009 UJ                   | 0.009 UJ                   | 0.009 U                    |
| Gamma-BHC/Lindane                     | UG/L                              | 0       | 0%        | 0        | 6          | 5.17E-02             |             | 0.05               |             | 0.009 U                    | 0.009 U                    | 0.009 UJ                   | 0.009 UJ                   | 0.009 U                    |
| Gamma-Chlordane                       | UG/L                              | 0       | 0%        | 0        | 6          | 1 405 03             |             | 0.04               |             | 0.01 UJ                    | 0.01 UJ                    | 0.01 U                     | 0.01 U                     | 0.01 UJ                    |
| Heptachlor                            | UG/L                              | 0       | 0%        | -        | 6          | 1.49E-02             |             | 0.04               |             | 0.007 U                    |
| Heptachlor epoxide<br>Methoxychlor    | UG/L<br>UG/L                      | 0       | 0%<br>0%  | 0        | 6<br>6     | 7.39E-03<br>1.82E+02 |             | 0.03<br>35         |             | 0.009 U<br>0.008 UJ        | 0.009 U<br>0.008 UJ        | 0.009 U<br>0.008 U         | 0.008 U<br>0.008 U         | 0.009 U<br>0.008 UJ        |
|                                       | UG/L<br>UG/L                      | 0       | 0%        | 0        |            | 6.11E-02             |             | 0.06               |             | 0.008 UJ<br>0.12 U         |                            | 0.12 U                     | 0.12 U                     | 0.008 UJ<br>0.12 U         |
| Toxaphene                             | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6<br>6     | 9.60E-01             |             | 0.06               | l           | 0.12 U<br>0.24 UJ          | 0.12 U<br>0.25 UJ          | 0.12 U<br>0.25 UJ          | 0.12 U<br>0.24 UJ          | 0.12 U<br>0.25 UJ          |
| Aroclor-1016<br>Aroclor-1221          | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6          | 9.00E-01             |             | 0.09               | l           | 0.24 UJ<br>0.082 U         | 0.25 UJ<br>0.082 U         | 0.25 UJ<br>0.083 U         | 0.24 UJ<br>0.081 U         | 0.25 UJ<br>0.082 U         |
| Aroclor-1232                          | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6          |                      |             | 0.09               | l           | 0.082 U<br>0.092 UJ        | 0.082 U<br>0.093 UJ        | 0.094 UJ                   | 0.091 UJ                   | 0.082 U<br>0.093 UJ        |
| Aroclor-1242                          | UG/L<br>UG/L                      | 0       | 0%        | 0        | 6          |                      |             | 0.09               | l           | 0.092 UJ<br>0.082 UJ       | 0.093 UJ<br>0.082 UJ       | 0.094 UJ<br>0.083 UJ       | 0.091 UJ                   | 0.093 UJ<br>0.082 UJ       |
| Aroclor-1248                          | UG/L                              | 0       | 0%        | 0        | 6          |                      |             | 0.09               | l           | 0.082 UJ<br>0.12 U         | 0.082 UJ<br>0.12 U         | 0.083 UJ<br>0.12 U         | 0.081 UJ<br>0.12 U         | 0.082 UJ<br>0.12 U         |
| 7 HOCIOI-1240                         | UU/L                              | U       | 0 /0      | U        | U          | I                    |             | 0.07               |             | 0.12 U                     | 0.12 U                     | 0.12 0                     | 0.12 0                     | 0.12 0                     |

| Sample Depth to T<br>Sample Depth to Bott |              |          | Frequency | Number   | Number     | Region IX<br>PRG     |             | Lowest GW | ,           | Building 360<br>MW-1<br>GW<br>DRMO-2005<br>16.5<br>16.5<br>4/4/2003<br>SA<br>PID-RI | Building 360<br>MW-1<br>GW<br>DRMO-2008<br>16.5<br>16.5<br>4/4/2003<br>SA<br>PID-RI | Building 360<br>MW-1<br>GW<br>DRMO-2013<br>16.6<br>16.6<br>5/9/2003<br>SA<br>PID-RI | Building 360<br>MW-1<br>GW<br>121C-2019<br>16.6<br>16.6<br>5/9/2003<br>SA<br>PID-RI | Building 360<br>MW-2<br>GW<br>DRMO-2006<br>16.7<br>16.7<br>4/3/2003<br>SA<br>PID-RI |
|---|--------------|----------|-----------|----------|------------|----------------------|-------------|-----------|-------------|---|---|---|---|---|
|   | •            | Maximum  | of        | of Times | of         | Criteria             |             | Criteria  |             | 2   | 2   | 3   | 3   | 2   |
| Parameter                                 | Units        | Value    | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3   | Exceedances | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| Aroclor-1254                              | UG/L         | 0        | 0%        | 0        | 6          | 3.36E-02             |             | 0.09      |             | 0.051 U   | 0.052 U   | 0.052 U   | 0.051 U   | 0.052 U   |
| Aroclor-1260                              | UG/L         | 0        | 0%        | 0        | 6          |                      |             | 0.09      |             | 0.01 U  | 0.01 U  | 0.01 UJ   | 0.01 UJ   | 0.01 U  |
| Metals and Cyanide                        | UG/L         | 105      | 570/      |          | 7          | 2.655.04             |             | 50        | 4           | 150 U   | 20.2.1  | 32 U  | 22.11   | 65.4.7  |
| Aluminum                                  | UG/L<br>UG/L | 105<br>0 | 57%<br>0% | 4        | 7          | 3.65E+04<br>1.46E+01 |             | 50<br>3   | 4           | 3.8 U   | 28.3 J<br>3.8 U   | 7.5 U   | 32 U<br>7.5 U   | 65.4 J<br>3.8 U   |
| Antimony                                  |              |          |           |          |            |                      |             |           |             |   |   |   |   | I   |
| Arsenic                                   | UG/L         | 4.7 4    | 14%       | 1        | 7          | 4.48E-02             | 1           | 10        |             | 4.5 U   | 4.5 U   | 7.1   | 4.5 U   | 4.5 U   |
| Barium                                    | UG/L         | 141 4    | 100%      | 7        | 7          | 2.55E+03             |             | 1000      |             | 135   | 147   | 113   | 113   | 120   |
| Beryllium                                 | UG/L         | 0        | 0%        | 0        | 7          | 7.30E+01             |             | 4         |             | 0.1 U   | 0.1 U   | 0.9 U   | 0.9 U   | 0.1 U   |
| Cadmium                                   | UG/L         | 3.9      | 14%       | 1        | 7          | 1.82E+01             |             | 5         |             | 0.8 U   |
| Calcium                                   | UG/L         | 119149.8 | 100%      | 7        | 7          |                      |             |           |             | 88700   | 96900   | 84200   | 87100   | 109000  |
| Chromium                                  | UG/L         | 84       | 71%       | 5        | 7          |                      |             | 50        | 1           | 1.4 U   | 1.4 U   | 1.4 U   | 1.4 U   | 27.5  |
| Cobalt                                    | UG/L         | 7.4      | 43%       | 3        | 7          | 7.30E+02             |             |           |             | 0.7 U   | 0.7 U   | 2.3 U   | 2.3 U   | 0.85 J  |
| Copper                                    | UG/L         | 167      | 43%       | 3        | 7          | 1.46E+03             |             | 200       |             | 3.6 U   | 3.6 U   | 2 U   | 2 U   | 3.6 U   |
| Cyanide                                   | UG/L         | 0        | 43%       | 0        | 0          | 7.30E+02             |             |           |             |   |   |   |   |   |
| Cyanide, Amenable                         | MG/L         | 0        | 0%        | 0        | 6          |                      |             |           |             | 0.01 U  |
| Cyanide, Total                            | MG/L         | 0        | 0%        | 0        | 0          |                      |             |           |             |   |   |   |   |   |
| Iron                                      | UG/L         | 255000   | 100%      | 7        | 7          | 1.09E+04             | 2           | 300       | 4           | 3780 J  | 3290 J  | 3810  | 3510  | 251 J   |
| Lead                                      | UG/L         | 204      | 29%       | 2        | 7          |                      |             | 15        | 2           | 3 U   | 3 U   | 3 U   | 3 U   | 3 U   |
| Magnesium                                 | UG/L         | 27400    | 100%      | 7        | 7          |                      |             |           |             | 11400   | 12500   | 11000   | 11400   | 25300   |
| Manganese                                 | UG/L         | 1645 4   | 100%      | 7        | 7          | 8.76E+02             | 4           | 50        | 7           | 1580  | 1710  | 1140  | 1180  | 347   |
| Mercury                                   | UG/L         | 0.28     | 29%       | 2        | 7          | 1.09E+01             |             | 0.7       |             | 0.2 U   |
| Nickel                                    | UG/L         | 38.8     | 86%       | 6        | 7          | 7.30E+02             | ļ           | 100       |             | 3 J   | 3.8 J   | 2 U   | 2 U   | 23.6  |
| Potassium                                 | UG/L         | 12300    | 100%      | 7        | 7          |                      | ļ           |           |             | 9450 J  | 10600 J   | 8820  | 9430  | 2460  |
| Selenium                                  | UG/L         | 7.5      | 57%       | 4        | 7          | 1.82E+02             |             | 10        |             | 4.2 J   | 3.3 J   | 1.3 U   | 3.2 J   | 3.4 J   |
| Silver                                    | UG/L         | 8.6      | 14%       | 1        | 7          | 1.82E+02             | ļ           | 50        |             | 3.7 U   |
| Sodium                                    | UG/L         | 42850 4  | 100%      | 7        | 7          |                      |             | 20000     | 7           | 40400   | 45300   | 41100   | 44000   | 37700   |
| Thallium                                  | UG/L         | 3.3 4    | 14%       | 1        | 7          | 2.41E+00             | 1           | 2         | 1           | 5.3 U   | 5.3 U   | 4.4 J   | 4.2 U   | 5.3 U   |
| Vanadium                                  | UG/L         | 4.4      | 14%       | 1        | 7          | 3.65E+01             |             |           |             | 1.4 U   | 1.4 U   | 2.5 U   | 2.5 U   | 1.4 U   |
| Zinc                                      | UG/L         | 5740     | 100%      | 7        | 7          | 1.09E+04             |             | 5000      | 2           | 7.1 J   | 7.1 J   | 14.4 J  | 17 J  | 10.4  |
| Other                                     |              |          |           |          |            |                      |             |           |             |   |   |   |   |   |
| Total Petroleum Hydrocarbons              | MG/L         | 1.52     | 33%       | 2        | 6          |                      |             |           |             | 1 U   | 1 U   | 1 U   | 1 U   | 1 U   |

#### NOTES:

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Lowest Groundwater Criteria Values came from the following:
- A) NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
- B) Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
- C) Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate pairs:
- DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

| Sample Depth to To<br>Sample Depth to Botto | om of Sample<br>Sample Date<br>QC Code |         |                 |                    |              | Region IX       |             |                       |             | Building 360<br>MW-2<br>GW<br>DRMO-2014D<br>16.7<br>16.7<br>5/8/2003<br>DU | Building 360<br>MW-2<br>GW<br>DRMO-2014<br>16.7<br>16.7<br>5/8/2003<br>SA | Building 360<br>T-SUMP<br>GW<br>DRMO-2007<br>3<br>3<br>4/3/2003<br>SA | Building 360<br>T-SUMP<br>GW<br>DRMO-2015<br>0<br>5/8/2003<br>SA |
|---|--|---------|-----------------|--------------------|--------------|-----------------|-------------|-----------------------|-------------|--|---|---|--|
|   | Study ID                               | Maximum | Frequency<br>of | Number<br>of Times | Number<br>of | PRG<br>Criteria |             | Lowest GW<br>Criteria | 7           | PID-RI<br>3  | PID-RI<br>3   | PID-RI<br>2   | PID-RI<br>3  |
| Parameter                                   | Units                                  | Value   | Detection       | Detected           | Analyses 1   | Value 2         | Exceedances | Value 3               | Exceedances |  | Value (Q)   | Value (Q)   | Value (Q)  |
| Volatile Organic Compounds                  |  |         |                 |                    |              |                 |             |                       |             |  |   |   |  |
| 1,1,1-Trichloroethane                       | UG/L                                   | 0       | 0%              | 0                  | 6            | 3.17E+03        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| 1,1,2,2-Tetrachloroethane                   | UG/L                                   | 0       | 0%              | 0                  | 6            | 5.53E-02        |             | 5                     |             |  | 0.3 U   | 5 U   | 0.3 U  |
| 1,1,2-Trichloroethane                       | UG/L                                   | 0       | 0%              | 0                  | 6            | 2.00E-01        |             | 1                     |             |  | 0.3 U   | 5 U   | 0.3 U  |
| 1.1-Dichloroethane                          | UG/L                                   | 4.3 4   | 67%             | 4                  | 6            | 8.11E+02        |             | 5                     |             |  | 0.4 U   | 1.3 J   | 2.1  |
| 1.1-Dichloroethene                          | UG/L                                   | 0       | 0%              | 0                  | 6            | 3.39E+02        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.3 UJ   |
| 1,2-Dibromo-3-chloropropane                 | UG/L                                   | 0       | 0%              | 0                  | 0            | 4.76E-02        |             | 0.04                  |             |  | 0.5 03  | 3.0   | 0.5 03   |
| 1,2-Dibromoethane                           | UG/L                                   | 0       | 0%              | 0                  | 0            | 5.60E-03        |             | 0.0006                |             |  |   |   |  |
| 1,2-Dichlorobenzene                         | UG/L                                   | 0       | 0%              | 0                  | 0            | 3.70E+02        |             | 3                     |             |  |   |   |  |
| 1,2-Dichloroethane                          | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.23E-01        |             | 0.6                   |             |  | 0.3 U   | 5 U   | 0.3 U  |
|   |  |         |                 |                    |              | II .            |             | l                     |             |  |   |   |  |
| 1,2-Dichloropropane                         | UG/L                                   | 0.4 4   | 17%             | 1                  | 6            | 1.65E-01        | 1           | 1                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| 1,3-Dichlorobenzene                         | UG/L                                   | 0       | 17%             | 0                  | 0            | 1.83E+02        |             | 3                     |             |  |   |   |  |
| 1,4-Dichlorobenzene                         | UG/L                                   | 0       | 17%             | 0                  | 0            | 5.02E-01        |             | 3                     |             |  |   |   |  |
| Acetone                                     | UG/L                                   | 8.4 4   | 25%             | 1                  | 4            | 5.48E+03        |             |                       |             |  | 5.9 UJ  | 10 UJ   | 9.1 UJ   |
| Benzene                                     | UG/L                                   | 0       | 0%              | 0                  | 6            | 3.54E-01        |             | 1                     |             |  | 0.3 U   | 5 U   | 0.3 U  |
| Bromochloromethane                          | UG/L                                   | 0       | 0%              | 0                  | 0            |                 |             | 5                     |             |  |   |   |  |
| Bromodichloromethane                        | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.81E-01        |             | 80                    |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Bromoform                                   | UG/L                                   | 0       | 0%              | 0                  | 6            | 8.51E+00        |             | 80                    |             |  | 0.3 U   | 5 U   | 0.3 U  |
| Carbon disulfide                            | UG/L                                   | 0.6     | 17%             | 1                  | 6            | 1.04E+03        |             |                       |             |  | 0.3 UJ  | 5 UJ  | 0.6 J  |
| Carbon tetrachloride                        | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.71E-01        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Chlorobenzene                               | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.06E+02        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Chlorodibromomethane                        | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.33E-01        |             | 80                    |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Chloroethane                                | UG/L                                   | 0       | 0%              | 0                  | 6            | 4.64E+00        |             | 5                     |             |  | 0.4 UJ  | 5 UJ  | 0.4 UJ   |
| Chloroform                                  | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.66E-01        |             | 7                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Cis-1,2-Dichloroethene                      | UG/L                                   | 1       | 33%             | 2                  | 6            | 6.08E+01        |             | 5                     |             |  | 0.3 U   | 5 U   | 1 J  |
| Cis-1,3-Dichloropropene                     | UG/L                                   | 0       | 0%              | 0                  | 6            |                 |             | 0.4                   |             |  | 0.3 UJ  | 5 U   | 0.3 UJ   |
| Ethyl benzene                               | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.34E+03        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Meta/Para Xylene                            | UG/L                                   | 0       | 0%              | 0                  | 6            |                 |             |                       |             |  | 0.8 U   | 5 U   | 0.8 U  |
| Methyl bromide                              | UG/L                                   | 0       | 0%              | 0                  | 6            | 8.66E+00        |             | 5                     |             |  | 0.4 U   | 5 UJ  | 0.4 U  |
| Methyl butyl ketone                         | UG/L                                   | 0       | 0%              | 0                  | 6            |                 |             |                       |             |  | 2.8 U   | 5 U   | 2.8 U  |
| Methyl chloride                             | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.58E+02        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Methyl ethyl ketone                         | UG/L                                   | 0       | 0%              | 0                  | 3            | 6,97E+03        |             |                       |             |  | 3.6 R   | 5 UJ  | 3.6 R  |
| Methyl isobutyl ketone                      | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.99E+03        |             |                       |             |  | 2.5 U   | 5 U   | 2.5 U  |
| Methylene chloride                          | UG/L                                   | 1.4     | 17%             | 1                  | 6            | 4.28E+00        |             | 5                     |             |  | 0.7 UJ  | 5 UJ  | 1.3 UJ   |
| Ortho Xylene                                | UG/L                                   | 0       | 0%              | 0                  | 6            | 4.28E+00        |             | 5                     |             |  | 0.7 UJ<br>0.4 U   | 5 U   | 0.4 U  |
| Styrene                                     | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.64E+03        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Tetrachloroethene                           | UG/L                                   | 0       | 0%              | 0                  | 6            | 1.04E+03        |             | 5                     |             |  | 0.5 U   | 5 UJ  | 0.5 U  |
| Toluene                                     | UG/L                                   | 0       | 0%              | 0                  | 6            | 7.23E+02        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Total Xylenes                               | UG/L<br>UG/L                           | 0       | 0%              | 0                  | 0            | 2.06E+02        |             | 5                     |             |  | 0.4 0   | 3 0   | 0.4 0  |
| 1 -   |  | 0       | 0%              | 0                  |              |                 |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Trans-1,2-Dichloroethene                    | UG/L<br>UG/L                           | 0       | 0%              | 0                  | 6            | 1.22E+02        |             | 0.4                   |             |  | 0.4 U<br>0.3 U  | 5 U   | 0.4 U<br>0.3 U   |
| Trans-1,3-Dichloropropene                   |  | 0       |                 | 0                  | 6            | 2 005 02        |             |                       |             |  |   |   |  |
| Trichloroethene                             | UG/L                                   |         | 0%              |                    | 6            | 2.80E-02        |             | 5                     |             |  | 0.4 U   | 5 U   | 0.4 U  |
| Vinyl chloride                              | UG/L                                   | 2.3 4   | 67%             | 4                  | 6            | 1.98E-02        | 4           | 2                     | 1           |  | 0.3 U   | 1.4 J   | 1.3  |
| Semivolatile Organic Compound               |  |         |                 |                    |              |                 |             |                       |             |  |   |   |  |
| 1,2,4-Trichlorobenzene                      | UG/L                                   | 0       | 0%              | 0                  | 6            | 7.16E+00        |             | 5                     |             |  | 1.2 U   | 1.2 UJ  | 1.2 U  |
| 1,2-Dichlorobenzene                         | UG/L                                   | 0       | 0%              | 0                  | 6            | 3.70E+02        |             | 3                     |             |  | 1 U   | 1 UJ  | 1 U  |

| Sample Depth to Sample Depth to Bot | tom of Sample<br>Sample Date |         |           |          |            |            |             |           |             | Building 360<br>MW-2<br>GW<br>DRMO-2014D<br>16.7<br>16.7<br>5/8/2003 | Building 360<br>MW-2<br>GW<br>DRMO-2014<br>16.7<br>16.7<br>5/8/2003 | Building 360<br>T-SUMP<br>GW<br>DRMO-2007<br>3<br>3<br>4/3/2003 | Building 360<br>T-SUMP<br>GW<br>DRMO-2015<br>0<br>0<br>5/8/2003 |
|-------------------------------------|------------------------------|---------|-----------|----------|------------|------------|-------------|-----------|-------------|--|---|---|---|
|                                     | QC Code                      |         | _         |          |            | Region IX  |             |           |             | DU   | SA  | SA  | SA  |
|                                     | Study ID                     |         | Frequency | Number   | Number     | PRG        |             | Lowest GW |             | PID-RI   | PID-RI  | PID-RI  | PID-RI  |
| _                                   |                              | Maximum | of        | of Times | of         | Criteria   | _           | Criteria  |             | 3  | 3   | 2   | 3   |
| Parameter                           | Units                        | Value   | Detection | Detected | Analyses 1 | Value 2    | Exceedances | Value 3   | Exceedances | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)   |
| 1,3-Dichlorobenzene                 | UG/L                         | 0       | 0%        | 0        | 6          | 1.83E+02   |             | 3         |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| 1,4-Dichlorobenzene                 | UG/L                         | 0       | 0%        | 0        | 6          | 5.02E-01   |             | 3         |             |  | 1 U   | 1 UJ  | 1 U   |
| 2,4,5-Trichlorophenol               | UG/L                         | 0       | 0%        | 0        | 3          | 3.65E+03   |             | 1         |             |  | 1 U   | 1 R   | 1 U   |
| 2,4,6-Trichlorophenol               | UG/L                         | 0       | 0%        | 0        | 6          | 3.65E+00   |             | 1         |             |  | 1 U   | 1 U   | 1 U   |
| 2,4-Dichlorophenol                  | UG/L                         | 0       | 0%        | 0        | 3          | 1.09E+02   |             | 5         |             |  | 1.4 U   | 1.3 R   | 1.3 U   |
| 2,4-Dimethylphenol                  | UG/L                         | 0       | 0%        | 0        | 3          | 7.30E+02   |             |           |             |  | 2.4 U   | 2.4 R   | 2.3 U   |
| 2,4-Dinitrophenol                   | UG/L                         | 0       | 0%        | 0        | 3          | 7.30E+01   |             |           |             |  | 2.1 UJ  |   | 2 UJ  |
| 2,4-Dinitrotoluene                  | UG/L                         | 0       | 0%        | 0        | 6          | 7.30E+01   |             | 5         |             |  | 1.1 U   | 1.1 UJ  | 1.1 U   |
| 2,6-Dinitrotoluene                  | UG/L                         | 0       | 0%        | 0        | 6          | 3.65E+01   |             | 5         |             |  | 1 U   | 1 UJ  | 1 U   |
| 2-Chloronaphthalene                 | UG/L                         | 0       | 0%        | 0        | 6          | 4.87E+02   |             |           |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| 2-Chlorophenol                      | UG/L                         | 0       | 0%        | 0        | 3          | 3.04E+01   |             |           |             |  | 1.1 U   | 1.1 R   | 1.1 U   |
| 2-Methylnaphthalene                 | UG/L                         | 0       | 0%        | 0        | 6          |            |             |           |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| 2-Methylphenol                      | UG/L                         | 0       | 0%        | 0        | 3          | 1.82E+03   |             |           |             |  | 1 U   | 1 R   | 1 U   |
| 2-Nitroaniline                      | UG/L                         | 0       | 0%        | 0        | 6          | 1.09E+02   |             | 5         |             |  | 1 U   | 1 UJ  | 1 U   |
| 2-Nitrophenol                       | UG/L                         | 0       | 0%        | 0        | 3          |            |             | 1         |             |  | 1.1 U   | 1.1 R   | 1.1 U   |
| 3 or 4-Methylphenol                 | UG/L                         | 0       | 0%        | 0        | 0          |            |             | 1         |             |  |   |   |   |
| 3,3'-Dichlorobenzidine              | UG/L                         | 0       | 0%        | 0        | 6          | 1.49E-01   |             | 5         |             |  | 1 U   | 1 UJ  | 1 U   |
| 3-Nitroaniline                      | UG/L                         | 0       | 0%        | 0        | 6          | 3.20E+00   |             | 5         |             |  | 1.2 UJ  | 1.2 UJ  | 1.2 UJ  |
| 4,6-Dinitro-2-methylphenol          | UG/L                         | 0       | 0%        | 0        | 3          | 3.65E+00   |             | 1         |             |  | 1.2 U   | 1.2 R   | 1.2 U   |
| 4-Bromophenyl phenyl ether          | UG/L                         | 0       | 0%        | 0        | 6          |            |             |           |             |  | 1.4 U   | 1.3 UJ  | 1.3 U   |
| 4-Chloro-3-methylphenol             | UG/L                         | 0       | 0%        | 0        | 3          |            |             | 1         |             |  | 1.1 U   | 1.1 R   | 1.1 U   |
| 4-Chloroaniline                     | UG/L                         | 0       | 0%        | 0        | 3          | 1.46E+02   |             | 5         |             |  | 1.2 U   | 1.2 R   | 1.2 U   |
| 4-Chlorophenyl phenyl ether         | UG/L                         | 0       | 0%        | 0        | 6          | 11.102.102 |             |           |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| 4-Methylphenol                      | UG/L                         | 0       | 0%        | 0        | 3          | 1.82E+02   |             |           |             |  | 1.9 U   | 1.9 R   | 1.8 U   |
| 4-Nitroaniline                      | UG/L                         | 0       | 0%        | 0        | 6          | 3.20E+00   |             | 5         |             |  | 2.5 U   | 2.5 UJ  | 2.4 U   |
| 4-Nitrophenol                       | UG/L                         | 0       | 0%        | 0        | 3          | 3.20E100   |             | 1         |             |  | 1.1 U   | 1.1 R   | 1.1 U   |
| Acenaphthene                        | UG/L                         | 0       | 0%        | 0        | 6          | 3.65E+02   |             | · ·       |             |  | 1.1 U   | 1.1 K<br>1 UJ   | 1.1 U   |
| Acenaphthylene                      | UG/L                         | 0       | 0%        | 0        | 6          | 3.03E+02   |             |           |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| Anthracene                          | UG/L                         | 0       | 0%        | 0        | 6          | 1.83E+03   |             |           |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
|                                     | UG/L                         | 0       | 0%        | 0        | 6          | 9.21E-02   |             |           |             |  | 1.4 U   | 1.5 UJ  | 1.5 U   |
| Benzo(a)anthracene                  | UG/L<br>UG/L                 | 0       | 0%        | 0        | 6          |            |             |           |             |  | 1.6 U   | 1.5 UJ  | 1.5 U   |
| Benzo(a)pyrene                      |                              | 0       |           | 0        |            | 9.21E-03   |             |           |             |  |   |   |   |
| Benzo(b)fluoranthene                | UG/L                         | 0       | 0%<br>0%  | 0        | 6          | 9.21E-02   |             |           |             |  | 1 U   | 1 UJ  | 1 U   |
| Benzo(ghi)perylene                  | UG/L                         | 0       |           | -        | 6          | 0.215.01   |             |           |             |  | 1.4 UJ  | 1.3 UJ  | 1.3 UJ  |
| Benzo(k)fluoranthene                | UG/L                         | -       | 0%        | 0        | 6          | 9.21E-01   |             |           |             |  | 2.7 U   | 2.7 UJ  | 2.7 U   |
| Bis(2-Chloroethoxy)methane          | UG/L                         | 0       | 0%        | 0        | 6          |            |             | 5         |             |  | 1 U   | 1 U   | 1 U   |
| Bis(2-Chloroethyl)ether             | UG/L                         | 0       | 0%        | 0        | 6          | 1.02E-02   |             | 1         |             |  | 1.2 U   | 1.2 U   | 1.2 U   |
| Bis(2-Chloroisopropyl)ether         | UG/L                         | 0       | 0%        | 0        | 6          | 2.74E-01   |             | 5         |             |  | 1 U   | 1 UJ  | 1 U   |
| Bis(2-Ethylhexyl)phthalate          | UG/L                         | 2.5     | 17%       | 1        | 6          | 4.80E+00   |             | 5         |             |  | 1 U   | 1 U   | 2.5 J   |
| Butylbenzylphthalate                | UG/L                         | 0       | 0%        | 0        | 6          | 7.30E+03   |             |           |             |  | 1 U   | 1 UJ  | 1 U   |
| Carbazole                           | UG/L                         | 0       | 0%        | 0        | 6          | 3.36E+00   |             |           |             |  | 0.43 U  | 0.43 UJ   | 0.42 U  |
| Chrysene                            | UG/L                         | 0       | 0%        | 0        | 6          | 9.21E+00   |             |           |             |  | 1.7 U   | 1.6 UJ  | 1.6 U   |
| Di-n-butylphthalate                 | UG/L                         | 0       | 0%        | 0        | 6          | 3.65E+03   |             | 50        |             |  | 1.2 U   | 1.2 UJ  | 1.2 U   |
| Di-n-octylphthalate                 | UG/L                         | 0       | 0%        | 0        | 6          | 1.46E+03   |             |           |             |  | 1.6 U   | 1.5 UJ  | 1.5 U   |
| Dibenz(a,h)anthracene               | UG/L                         | 0       | 0%        | 0        | 6          | 9.21E-03   |             |           |             |  | 1.6 UJ  | 1.5 UJ  | 1.5 UJ  |
| Dibenzofuran                        | UG/L                         | 0       | 0%        | 0        | 6          | 1.22E+01   |             |           |             |  | 1 U   | 1 UJ  | 1 U   |
| Diethyl phthalate                   | UG/L                         | 0       | 0%        | 0        | 6          | 2.92E+04   |             |           |             |  | 1 U   | 1 UJ  | 1 U   |

|                           |                |         |           |          |            |           | •           | •         | •           |              |                    |                   |                    |
|---------------------------|----------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|--------------|--------------------|-------------------|--------------------|
|                           | Facility       |         |           |          |            |           |             |           |             | Building 360 | Building 360       | Building 360      | Building 360       |
|                           | Location ID    |         |           |          |            |           |             |           |             | MW-2         | MW-2               | T-SUMP            | T-SUMP             |
|                           | Matrix         |         |           |          |            |           |             |           |             | GW           | GW                 | GW                | GW                 |
|                           | Sample ID      |         |           |          |            |           |             |           |             | DRMO-2014D   | DRMO-2014          | DRMO-2007         | DRMO-2015          |
| Sample Depth to           | Top of Sample  |         |           |          |            |           |             |           |             | 16.7         | 16.7               | 3                 | 0                  |
| Sample Depth to Bo        | ttom of Sample |         |           |          |            |           |             |           |             | 16.7         | 16.7               | 3                 | 0                  |
|                           | Sample Date    |         |           |          |            |           |             |           |             | 5/8/2003     | 5/8/2003           | 4/3/2003          | 5/8/2003           |
|                           | QC Code        |         |           |          |            | Region IX |             |           |             | DU           | SA                 | SA                | SA                 |
|                           | Study ID       |         | Frequency | Number   | Number     | PRG       |             | Lowest GW |             | PID-RI       | PID-RI             | PID-RI            | PID-RI             |
|                           |                | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             | 3            | 3                  | 2                 | 3                  |
| Parameter                 | Units          | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3   | Exceedances | Value (Q)    | Value (Q)          | Value (Q)         | Value (Q)          |
| Dimethylphthalate         | UG/L           | 0       | 0%        | 0        | 6          | 3.65E+05  |             |           |             |              | 1 U                | 1 UJ              | 1 U                |
| Fluoranthene              | UG/L           | 0       | 0%        | 0        | 6          | 1.46E+03  |             |           |             |              | 1 U                | 1 UJ              | 1 U                |
| Fluorene                  | UG/L           | 0       | 0%        | 0        | 6          | 2.43E+02  |             |           |             |              | 1.1 U              | 1.1 UJ            | 1.1 U              |
| Hexachlorobenzene         | UG/L           | 0       | 0%        | 0        | 6          | 4.20E-02  |             | 0.04      |             |              | 1.1 U              | 1.1 UJ            | 1.1 U              |
| Hexachlorobutadiene       | UG/L           | 0       | 0%        | 0        | 6          | 8.62E-01  |             | 0.5       |             |              | 1.6 U              | 1.5 UJ            | 1.5 U              |
| Hexachlorocyclopentadiene | UG/L           | 0       | 0%        | 0        | 3          | 2.19E+02  |             | 5         |             |              | 4 R                | 3.9 UJ            | 3.9 R              |
| Hexachloroethane          | UG/L           | 0       | 0%        | 0        | 6          | 4.80E+00  |             | 5         |             |              | 1.1 U              | 1.1 UJ            | 1.1 U              |
| Indeno(1,2,3-cd)pyrene    | UG/L           | 0       | 0%        | 0        | 6          | 9.21E-02  |             |           |             |              | 1.7 UJ             | 1.6 UJ            | 1.6 UJ             |
| Isophorone                | UG/L           | 0       | 0%        | 0        | 6          | 7.08E+01  |             |           |             |              | 1 U                | 1 UJ              | 1 U                |
| N-Nitrosodiphenylamine    | UG/L           | 0       | 0%        | 0        | 6          | 1.37E+01  |             |           |             |              | 2.1 U              | 2.1 UJ            | 2 U                |
| N-Nitrosodipropylamine    | UG/L           | 0       | 0%        | 0        | 6          | 9.60E-03  |             |           |             |              | 1 UJ               | 1 UJ              | 1 UJ               |
| Naphthalene               | UG/L           | 0       | 0%        | 0        | 6          | 6.20E+00  |             |           |             |              | 1.2 U              | 1.2 UJ            | 1.2 U              |
| Nitrobenzene              | UG/L           | 0       | 0%        | 0        | 6          | 3.40E+00  |             | 0.4       |             |              | 1 U                | 1 UJ              | 1 U                |
| Pentachlorophenol         | UG/L           | 0       | 0%        | 0        | 3          | 5.60E-01  |             | 1         |             |              | 2 U                | 2 R               | 1.9 U              |
| Phenanthrene              | UG/L           | 0       | 0%        | 0        | 6          | 0.002 01  |             | •         |             |              | 1 U                | 1 UJ              | 1 U                |
| Phenol                    | UG/L           | 0       | 0%        | 0        | 3          | 1.09E+04  |             | 1 1       |             |              | 1 U                | 1 R               | 1 U                |
| Pyrene                    | UG/L           | 0       | 0%        | 0        | 6          | 1.83E+02  |             |           |             |              | 1 U                | 1 UJ              | 1 U                |
| Pesticides/PCBs           | OG/L           | Ü       | 070       | U        | 0          | 1.63L+02  |             |           |             |              | 1 0                | 1 03              | 10                 |
| 4,4'-DDD                  | UG/L           | 0       | 0%        | 0        | 6          | 2.80E-01  |             | 0.3       |             |              | 0.01 U             | 0.01 U            | 0.01 UJ            |
| 4,4'-DDE                  | UG/L           | 0       | 0%        | 0        | 6          | 1.98E-01  |             | 0.3       |             |              | 0.005 U            | 0.005 U           | 0.005 U            |
| 4,4'-DDE<br>4.4'-DDT      | UG/L           | 0       | 0%        | 0        | 6          | 1.98E-01  |             | 0.2       |             |              | 0.003 U            | 0.003 U           | 0.003 U            |
| Aldrin                    | UG/L           | 0       | 0%        | 0        | 6          | 3.95E-01  |             | 0.2       |             |              | 0.01 UJ<br>0.02 UJ | 0.01 UJ<br>0.02 U | 0.01 U<br>0.02 UJ  |
| Alpha-BHC                 | UG/L           | 0       | 0%        | 0        | 6          | 1.07E-02  |             | 0.01      |             |              | 0.02 UJ            | 0.02 U<br>0.01 UJ | 0.02 UJ            |
| Alpha-Chlordane           | UG/L           | 0       | 0%        | 0        | 6          | 1.07E-02  |             | 0.01      |             |              | 0.01 UJ<br>0.02 UJ | 0.01 UJ<br>0.02 U | 0.01 UJ<br>0.02 UJ |
| Beta-BHC                  | UG/L<br>UG/L   | 0       | 0%        | 0        | 6          | 3.74E-02  |             | 0.04      |             |              | 0.02 UJ<br>0.01 U  | 0.02 U            | 0.02 UJ<br>0.01 U  |
|                           | UG/L<br>UG/L   | 0       | 0%        | 0        | 3          | 3.74E-02  |             | 0.04      |             |              | 0.01 U             | 0.01 U<br>0.14 U  | 0.01 0             |
| Chlordane<br>Delta-BHC    | UG/L<br>UG/L   | 0       | 0%        | 0        | 6          |           |             | 0.04      |             |              | 0.004 U            | 0.004 UJ          | 0.004 UJ           |
|                           |                |         |           | 0        |            | 4 205 02  |             |           |             |              |                    |                   |                    |
| Dieldrin                  | UG/L           | 0       | 0%<br>0%  | 0        | 6          | 4.20E-03  |             | 0.004     |             |              | 0.009 U            | 0.009 U           | 0.009 U            |
| Endosulfan I              | UG/L           | 0       |           | -        | 6          |           |             |           |             |              | 0.02 UJ            | 0.02 U            | 0.02 UJ            |
| Endosulfan II             | UG/L           | 0       | 0%        | 0        | 6          |           |             |           |             |              | 0.01 U             | 0.01 U            | 0.01 UJ            |
| Endosulfan sulfate        | UG/L           | 0       | 0%        | -        | 6          |           |             |           |             |              | 0.02 U             | 0.02 U            | 0.02 U             |
| Endrin                    | UG/L           | 0       | 0%        | 0        | 6          | 1.09E+01  |             | 0         |             |              | 0.02 UJ            | 0.02 U            | 0.02 U             |
| Endrin aldehyde           | UG/L           | 0       | 0%        | 0        | 6          |           |             | 5         |             |              | 0.02 U             | 0.02 U            | 0.02 U             |
| Endrin ketone             | UG/L           | 0       | 0%        | 0        | 6          |           |             | 5         |             |              | 0.009 UJ           | 0.009 U           | 0.009 UJ           |
| Gamma-BHC/Lindane         | UG/L           | 0       | 0%        | 0        | 6          | 5.17E-02  |             | 0.05      |             |              | 0.009 UJ           | 0.009 U           | 0.009 UJ           |
| Gamma-Chlordane           | UG/L           | 0       | 0%        | 0        | 6          |           |             |           |             |              | 0.01 UJ            | 0.01 UJ           | 0.01 U             |
| Heptachlor                | UG/L           | 0       | 0%        | 0        | 6          | 1.49E-02  |             | 0.04      |             |              | 0.007 U            | 0.007 U           | 0.007 U            |
| Heptachlor epoxide        | UG/L           | 0       | 0%        | 0        | 6          | 7.39E-03  |             | 0.03      |             |              | 0.009 U            | 0.009 U           | 0.009 U            |
| Methoxychlor              | UG/L           | 0       | 0%        | 0        | 6          | 1.82E+02  |             | 35        |             |              | 0.008 U            | 0.008 UJ          | 0.008 U            |
| Toxaphene                 | UG/L           | 0       | 0%        | 0        | 6          | 6.11E-02  |             | 0.06      |             |              | 0.12 U             | 0.12 U            | 0.12 U             |
| Aroclor-1016              | UG/L           | 0       | 0%        | 0        | 6          | 9.60E-01  |             | 0.09      |             |              | 0.24 UJ            | 0.25 UJ           | 0.24 UJ            |
| Aroclor-1221              | UG/L           | 0       | 0%        | 0        | 6          |           |             | 0.09      |             |              | 0.081 U            | 0.083 U           | 0.082 U            |
| Aroclor-1232              | UG/L           | 0       | 0%        | 0        | 6          |           |             | 0.09      |             |              | 0.091 UJ           | 0.094 UJ          | 0.092 UJ           |
| Aroclor-1242              | UG/L           | 0       | 0%        | 0        | 6          |           |             | 0.09      |             |              | 0.081 UJ           | 0.083 UJ          | 0.082 UJ           |
| Aroclor-1248              | UG/L           | 0       | 0%        | 0        | 6          |           |             | 0.09      |             |              | 0.12 U             | 0.12 U            | 0.12 U             |

|   | Facility<br>Location ID |          |           |          |            |           |             |           |             | Building 360<br>MW-2 | Building 360<br>MW-2 | Building 360<br>T-SUMP | Building 360<br>T-SUMP |
|---|-------------------------|----------|-----------|----------|------------|-----------|-------------|-----------|-------------|----------------------|----------------------|------------------------|------------------------|
|   | Matrix                  |          |           |          |            |           |             |           |             | GW                   | GW<br>DDMO 2014      | GW                     | GW                     |
| C 1 D 4 1 T                               | Sample ID               |          |           |          |            |           |             |           |             | DRMO-2014D           | DRMO-2014            | DRMO-2007              | DRMO-2015              |
| Sample Depth to T<br>Sample Depth to Bott |                         |          |           |          |            |           |             |           |             | 16.7<br>16.7         | 16.7<br>16.7         | 3                      | 0                      |
|   | Sample Date             |          |           |          |            |           |             |           |             | 5/8/2003             | 5/8/2003             | 4/3/2003               | 5/8/2003               |
|   | QC Code                 |          |           |          |            | Region IX |             |           |             | DU                   | SA                   | 4/3/2003<br>SA         | SA                     |
|   | Study ID                |          | Frequency | Number   | Number     | PRG       |             | Lowest GW |             | PID-RI               | PID-RI               | PID-RI                 | PID-RI                 |
|   | Study 1D                | Maximum  | of        | of Times | of         | Criteria  |             | Criteria  |             | 3                    | 3                    | 2                      | 3                      |
| Parameter                                 | Units                   | Value    | Detection |          | Analyses 1 | Value 2   | Exceedances |           | Exceedances | Value (Q)            | Value (Q)            | Value (Q)              | Value (Q)              |
| Aroclor-1254                              | UG/L                    | 0        | 0%        | 0        | 6          | 3.36E-02  | Exceedances | 0.09      | Exceedances | value (Q)            | 0.051 U              | 0.052 U                | 0.051 U                |
| Aroclor-1260                              | UG/L                    | 0        | 0%        | 0        | 6          | 3.30L 02  |             | 0.09      |             |                      | 0.01 UJ              | 0.01 U                 | 0.01 UJ                |
| Metals and Cyanide                        |                         | -        |           |          | -          |           |             |           |             |                      | ****                 |                        |                        |
| Aluminum                                  | UG/L                    | 105      | 57%       | 4        | 7          | 3.65E+04  |             | 50        | 4           | 18.4 U               | 18.4 U               | 83.7 J                 | 105 J                  |
| Antimony                                  | UG/L                    | 0        | 0%        | 0        | 7          | 1.46E+01  |             | 3         |             | 3.8 U                | 3.8 U                | 3.8 U                  | 3.8 U                  |
| Arsenic                                   | UG/L                    | 4.7 4    | 14%       | 1        | 7          | 4.48E-02  | 1           | 10        |             | 4.5 U                | 4.5 U                | 4.5 U                  | 4.5 U                  |
| Barium                                    | UG/L                    | 141 4    | 100%      | 7        | 7          | 2.55E+03  |             | 1000      |             | 125.27 J             | 125 J                | 124                    | 123 J                  |
| Beryllium                                 | UG/L                    | 0        | 0%        | 0        | 7          | 7.30E+01  |             | 4         |             | 0.1 U                | 0.1 U                | 0.1 U                  | 0.1 U                  |
| Cadmium                                   | UG/L                    | 3.9      | 14%       | 1        | 7          | 1.82E+01  |             | 5         |             | 0.8 U                | 0.8 U                | 3.9 J                  | 0.8 U                  |
| Calcium                                   | UG/L                    | 119149.8 | 100%      | 7        | 7          |           |             |           |             | 119149.8             | 119000               | 54700                  | 62800                  |
| Chromium                                  | UG/L                    | 84       | 71%       | 5        | 7          |           |             | 50        | 1           | 10.99                | 11.3                 | 30.3                   | 84                     |
| Cobalt                                    | UG/L                    | 7.4      | 43%       | 3        | 7          | 7.30E+02  |             |           |             | 0.7 U                | 0.7 U                | 7.4 J                  | 7 J                    |
| Copper                                    | UG/L                    | 167      | 43%       | 3        | 7          | 1.46E+03  |             | 200       |             | 3.6 U                | 3.6 J                | 145                    | 167                    |
| Cyanide                                   | UG/L                    | 0        | 43%       | 0        | 0          | 7.30E+02  |             |           |             |                      |                      |                        |                        |
| Cyanide, Amenable                         | MG/L                    | 0        | 0%        | 0        | 6          |           |             |           |             |                      | 0.01 U               | 0.01 U                 | 0.01 U                 |
| Cyanide, Total                            | MG/L                    | 0        | 0%        | 0        | 0          |           |             |           |             |                      |                      |                        |                        |
| Iron                                      | UG/L                    | 255000   | 100%      | 7        | 7          | 1.09E+04  | 2           | 300       | 4           | 119.08               | 118                  | 145000 J               | 255000                 |
| Lead                                      | UG/L                    | 204      | 29%       | 2        | 7          |           |             | 15        | 2           | 3 U                  | 3 U                  | 93.7                   | 204                    |
| Magnesium                                 | UG/L                    | 27400    | 100%      | 7        | 7          |           |             |           |             | 27359.2598           | 27400                | 18900                  | 20800                  |
| Manganese                                 | UG/L                    | 1645 4   | 100%      | 7        | 7          | 8.76E+02  | 4           | 50        | 7           | 528.01               | 527                  | 1180                   | 1250                   |
| Mercury                                   | UG/L                    | 0.28     | 29%       | 2        | 7          | 1.09E+01  |             | 0.7       |             | 0.2 U                | 0.2                  | 0.2 U                  | 0.28                   |
| Nickel                                    | UG/L                    | 38.8     | 86%       | 6        | 7          | 7.30E+02  |             | 100       |             | 24.8 J               | 24.3 J               | 31.4                   | 38.8 J                 |
| Potassium                                 | UG/L                    | 12300    | 100%      | 7        | 7          | 1.005.00  |             | 10        |             | 2021.03 J            | 2040 J               | 11800 J                | 12300 J                |
| Selenium                                  | UG/L                    | 7.5      | 57%       | 4        | 7          | 1.82E+02  |             | 10        |             | 1.3 U                | 1.3 U                | 7.5                    | 1.3 U                  |
| Silver                                    | UG/L                    | 8.6      | 14%       | 1        | 7          | 1.82E+02  |             | 50        |             | 3.7 U                | 3.7 U                | 3.7 U                  | 8.6 J                  |
| Sodium                                    | UG/L                    | 42850 4  | 100%      | 7        | 7          |           |             | 20000     | 7           | 37900.7383           | 37800                | 32300                  | 35000                  |
| Thallium                                  | UG/L                    | 3.3 4    | 14%       | 1        | 7          | 2.41E+00  | 1           | 2         | 1           | 5.3 U                | 5.3 U                | 5.3 U                  | 5.3 U                  |
| Vanadium                                  | UG/L                    | 4.4      | 14%       | 1        | 7          | 3.65E+01  |             |           |             | 1.4 U                | 1.4 U                | 1.4 U                  | 4.4 J                  |
| Zinc                                      | UG/L                    | 5740     | 100%      | 7        | 7          | 1.09E+04  |             | 5000      | 2           | 18.32 J              | 17.9 J               | 5500                   | 5740                   |
| Other                                     |                         |          |           |          |            |           |             |           |             |                      |                      |                        |                        |
| Total Petroleum Hydrocarbons              | MG/L                    | 1.52     | 33%       | 2        | 6          |           |             |           |             |                      | 1                    | 1.52                   | 1 U                    |

#### NOTES:

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Lowest Groundwater Criteria Values came from the following:
- A) NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
- B) Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
- C) Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate pairs:

DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.

- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

| Sample Depth to T<br>Sample Depth to Botto |       |         | Frequency | Number   | Number     | Region IX<br>PRG   |             | NYSDEC             |             | SEAD-121C<br>SWDRMO-1<br>SW<br>DRMO-3000<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SWDRMO-10<br>SW<br>DRMO-3010<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SWDRMO-2<br>SW<br>DRMO-3001<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SWDRMO-3<br>SW<br>DRMO-3002<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SWDRMO-4<br>SW<br>DRMO-3003<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI | SEAD-121C<br>SWDRMO-5<br>SW<br>DRMO-3004<br>0<br>N/A<br>11/5/2002<br>SA<br>PID-RI |
|--|-------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|---|--|---|---|---|---|
|  | •     | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | 1   |  | 1   | 1   | 1   | 1   |
| Parameter Volatile Organic Compounds       | Units | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)   | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)   | Value (Q)   |
| 1,1,1-Trichloroethane                      | UG/L  | 0       | 0%        | 0        | 10         | 3.17E+03           |             |                    |             | 0.75 U  | 0.75 U   | 0.75 U  | 0.75 U  | 0.75 U  | 0.75 U  |
| 1,1,2,2-Tetrachloroethane                  | UG/L  | 0       | 0%        | 0        | 10         | 5.53E-02           |             |                    |             | 0.73 U  | 0.7 U  | 0.73 U  | 0.73 U  | 0.73 U  | 0.7 U   |
| 1,1,2-Trichloroethane                      | UG/L  | 0       | 0%        | 0        | 10         | 2.00E-01           |             |                    |             | 0.62 U  | 0.62 U   | 0.62 U  | 0.62 U  | 0.62 U  | 0.62 U  |
| 1,1-Dichloroethane                         | UG/L  | 0       | 0%        | 0        | 10         | 8.11E+02           |             |                    |             | 0.66 U  | 0.66 U   | 0.66 U  | 0.66 U  | 0.66 U  | 0.66 U  |
| 1,1-Dichloroethene                         | UG/L  | 0       | 0%        | 0        | 10         | 3.39E+02           |             |                    |             | 0.69 U  | 0.69 U   | 0.69 U  | 0.69 U  | 0.69 U  | 0.69 U  |
| 1,2-Dichloroethane                         | UG/L  | 0       | 0%        | 0        | 10         | 1.23E-01           |             |                    |             | 0.56 U  | 0.56 U   | 0.56 U  | 0.56 U  | 0.56 U  | 0.56 U  |
| 1,2-Dichloropropane                        | UG/L  | 0       | 0%        | 0        | 10         | 1.65E-01           |             |                    |             | 0.73 U  | 0.73 U   | 0.73 U  | 0.73 U  | 0.73 U  | 0.73 U  |
| Acetone                                    | UG/L  | 0       | 0%        | 0        | 10         | 5.48E+03           |             |                    |             | 3.5 UJ  | 3.5 UJ   | 3.5 UJ  | 3.5 UJ  | 3.5 UJ  | 3.5 UJ  |
| Benzene                                    | UG/L  | 0       | 0%        | 0        | 10         | 3.54E-01           |             |                    |             | 0.71 U  | 0.71 U   | 0.71 U  | 0.71 U  | 0.71 U  | 0.71 U  |
| Bromodichloromethane                       | UG/L  | 0       | 0%        | 0        | 10         | 1.81E-01           |             |                    |             | 0.73 U  | 0.73 U   | 0.73 U  | 0.73 U  | 0.73 U  | 0.73 U  |
| Bromoform                                  | UG/L  | 0       | 0%        | 0        | 10         | 8.51E+00           |             |                    |             | 0.49 U  | 0.49 U   | 0.49 U  | 0.49 U  | 0.49 U  | 0.49 U  |
| Carbon disulfide                           | UG/L  | 0       | 0%        | 0        | 10         | 1.04E+03           |             |                    |             | 0.72 UJ   | 0.72 U   | 0.72 UJ   | 0.72 UJ   | 0.72 UJ   | 0.72 UJ   |
| Carbon tetrachloride                       | UG/L  | 0       | 0%        | 0        | 10         | 1.71E-01           |             |                    |             | 0.47 U  | 0.47 U   | 0.47 U  | 0.47 U  | 0.47 U  | 0.47 U  |
| Chlorobenzene                              | UG/L  | 0       | 0%        | 0        | 10         | 1.06E+02           |             | 5                  |             | 0.78 U  | 0.78 U   | 0.78 U  | 0.78 U  | 0.78 U  | 0.78 U  |
| Chlorodibromomethane                       | UG/L  | 0       | 0%        | 0        | 10         | 1.33E-01           |             |                    |             | 0.66 U  | 0.66 U   | 0.66 U  | 0.66 U  | 0.66 U  | 0.66 U  |
| Chloroethane                               | UG/L  | 0       | 0%        | 0        | 10         | 4.64E+00           |             |                    |             | 2.4 U   | 2.4 U  | 2.4 U   | 2.4 U   | 2.4 U   | 2.4 U   |
| Chloroform                                 | UG/L  | 0       | 0%        | 0        | 10         | 1.66E-01           |             |                    |             | 0.61 U  | 0.61 U   | 0.61 U  | 0.61 U  | 0.61 U  | 0.61 U  |
| Cis-1,2-Dichloroethene                     | UG/L  | 0       | 0%        | 0        | 10         | 6.08E+01           |             |                    |             | 0.62 U  | 0.62 U   | 0.62 U  | 0.62 U  | 0.62 U  | 0.62 U  |
| Cis-1,3-Dichloropropene                    | UG/L  | 0       | 0%        | 0        | 10         | 0.002101           |             |                    |             | 0.66 U  | 0.66 U   | 0.66 U  | 0.66 U  | 0.66 U  | 0.66 U  |
| Ethyl benzene                              | UG/L  | 0       | 0%        | 0        | 10         | 1.34E+03           |             |                    |             | 0.76 U  | 0.76 U   | 0.76 U  | 0.76 U  | 0.76 U  | 0.76 U  |
| Meta/Para Xylene                           | UG/L  | 0       | 0%        | 0        | 10         |                    |             |                    |             | 1.5 U   | 1.5 U  | 1.5 U   | 1.5 U   | 1.5 U   | 1.5 U   |
| Methyl bromide                             | UG/L  | 0       | 0%        | 0        | 10         | 8.66E+00           |             |                    |             | 0.38 U  | 0.38 UJ  | 0.38 U  | 0.38 U  | 0.38 U  | 0.38 U  |
| Methyl butyl ketone                        | UG/L  | 0       | 0%        | 0        | 10         |                    |             |                    |             | 0.6 U   | 0.6 U  | 0.6 U   | 0.6 U   | 0.6 U   | 0.6 U   |
| Methyl chloride                            | UG/L  | 0       | 0%        | 0        | 10         | 1.58E+02           |             |                    |             | 0.51 U  | 0.51 U   | 0.51 U  | 0.51 U  | 0.51 U  | 0.51 U  |
| Methyl ethyl ketone                        | UG/L  | 0       | 0%        | 0        | 10         | 6.97E+03           |             |                    |             | 2.3 U   | 2.3 U  | 2.3 U   | 2.3 U   | 2.3 U   | 2.3 U   |
| Methyl isobutyl ketone                     | UG/L  | 0       | 0%        | 0        | 10         | 1.99E+03           |             |                    |             | 0.81 U  | 0.81 UJ  | 0.81 U  | 0.81 U  | 0.81 U  | 0.81 U  |
| Methylene chloride                         | UG/L  | 0       | 0%        | 0        | 10         | 4.28E+00           |             |                    |             | 1.8 U   | 1.8 U  | 1.8 U   | 1.8 U   | 1.8 U   | 1.8 U   |
| Ortho Xylene                               | UG/L  | 0       | 0%        | 0        | 10         |                    |             |                    |             | 0.72 U  | 0.72 U   | 0.72 U  | 0.72 U  | 0.72 U  | 0.72 U  |
| Styrene                                    | UG/L  | 0       | 0%        | 0        | 10         | 1.64E+03           |             |                    |             | 0.92 U  | 0.92 U   | 0.92 U  | 0.92 U  | 0.92 U  | 0.92 U  |
| Tetrachloroethene                          | UG/L  | 0       | 0%        | 0        | 10         | 1.04E-01           |             |                    |             | 0.7 UJ  | 0.7 UJ   | 0.7 UJ  | 0.7 UJ  | 0.7 UJ  | 0.7 UJ  |
| Toluene                                    | UG/L  | 0       | 0%        | 0        | 10         | 7.23E+02           |             | 6000               |             | 0.71 U  | 0.71 U   | 0.71 U  | 0.71 U  | 0.71 U  | 0.71 U  |
| Trans-1,2-Dichloroethene                   | UG/L  | 0       | 0%        | 0        | 10         | 1.22E+02           |             |                    |             | 0.81 UJ   | 0.81 U   | 0.81 UJ   | 0.81 UJ   | 0.81 UJ   | 0.81 UJ   |
| Trans-1,3-Dichloropropene                  | UG/L  | 0       | 0%        | 0        | 10         |                    |             |                    |             | 0.66 U  | 0.66 U   | 0.66 U  | 0.66 U  | 0.66 U  | 0.66 U  |
| Trichloroethene                            | UG/L  | 0       | 0%        | 0        | 10         | 2.80E-02           |             | 40                 |             | 0.72 U  | 0.72 U   | 0.72 U  | 0.72 U  | 0.72 U  | 0.72 U  |
| Vinyl chloride                             | UG/L  | 0       | 0%        | 0        | 10         | 1.98E-02           |             |                    |             | 0.79 U  | 0.79 U   | 0.79 U  | 0.79 U  | 0.79 U  | 0.79 U  |
| Semivolatile Organic Compou                | ınds  |         |           |          |            |                    |             |                    |             |   |  |   |   |   | l   |
| 1,2,4-Trichlorobenzene                     | UG/L  | 0       | 0%        | 0        | 10         | 7.16E+00           |             | 5                  |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 1,2-Dichlorobenzene                        | UG/L  | 0       | 0%        | 0        | 10         | 3.70E+02           |             | 5                  |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 1,3-Dichlorobenzene                        | UG/L  | 0       | 0%        | 0        | 10         | 1.83E+02           |             | 5                  |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 1,4-Dichlorobenzene                        | UG/L  | 0       | 0%        | 0        | 10         | 5.02E-01           |             | 5                  |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,4,5-Trichlorophenol                      | UG/L  | 0       | 0%        | 0        | 10         | 3.65E+03           |             |                    |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,4,6-Trichlorophenol                      | UG/L  | 0       | 0%        | 0        | 10         | 3.65E+00           |             |                    |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,4-Dichlorophenol                         | UG/L  | 0       | 0%        | 0        | 10         | 1.09E+02           |             | 1                  |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,4-Dimethylphenol                         | UG/L  | 0       | 0%        | 0        | 10         | 7.30E+02           |             | 1000               |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,4-Dinitrophenol                          | UG/L  | 0       | 0%        | 0        | 10         | 7.30E+01           |             | 400                |             | 10 UJ   | 10 UJ  | 10 U  | 10 UJ   | 10 U  | 10 UJ   |
| 2,4-Dinitrotoluene                         | UG/L  | 0       | 0%        | 0        | 10         | 7.30E+01           |             |                    |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
| 2,6-Dinitrotoluene                         | UG/L  | 0       | 0%        | 0        | 10         | 3.65E+01           |             |                    |             | 10 U  | 10 U   | 10 U  | 10 U  | 10 U  | 10 U  |
|  |       |         |           | -        | -          |                    |             |                    |             |   |  |   |   |   |   |

SEAD-121C

SWDRMO-1

DRMO-3000

SW

10 U

10 UJ

10 U

10 UJ

10 U

10 UJ

10 U

10 U

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 U

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 UJ

10 U

10 U

10 U

10 U

SEAD-121C

SW

SWDRMO-10

DRMO-3010

SEAD-121C

SWDRMO-2

DRMO-3001

SW

SEAD-121C

SWDRMO-3

DRMO-3002

SW

SEAD-121C

SWDRMO-4

DRMO-3003

SW

SEAD-121C

SWDRMO-5

DRMO-3004

SW

Facility Location ID Matrix Sample ID Sa

Fluoranthene Fluorene

Hexachlorobenzene

Hexachloroethane

Isophorone

Naphthalene

Hexachlorobutadiene

Indeno(1,2,3-cd)pyrene

N-Nitrosodiphenylamine

N-Nitrosodipropylamine

Hexachlorocyclopentadiene

UG/L

UG/L

UG/L

UG/L

UG/L

UG/L

UG/L

UG/L

UG/L

UG/L

0

0

0

0

0

0

0

0

0

|   | Sample 1D    |         |           |          |            |           |             |          |             | DKWO-3000 | DKWIO-3010 | DKWIO-3001 | DKWO-3002 | DKWO-3003 | DKWIO-3004 |
|---|--------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------|------------|------------|-----------|-----------|------------|
| Sample Depth to                         |              |         |           |          |            |           |             |          |             | 0         | 0          | 0          | 0         | 0         | 0          |
| Sample Depth to Bot                     |              |         |           |          |            |           |             |          |             | N/A       | N/A        | N/A        | N/A       | N/A       | N/A        |
|   | Sample Date  |         |           |          |            |           |             |          |             | 11/5/2002 | 11/5/2002  | 11/5/2002  | 11/5/2002 | 11/5/2002 | 11/5/2002  |
|   | QC Code      |         |           |          |            | Region IX |             |          |             | SA        | SA         | SA         | SA        | SA        | SA         |
|   | Study ID     |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI    | PID-RI     | PID-RI     | PID-RI    | PID-RI    | PID-RI     |
|   |              | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             | 1         |            | 1          | 1         | 1         | 1          |
| Parameter                               | Units        | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q) | Value (Q)  | Value (Q)  | Value (Q) | Value (Q) | Value (Q)  |
| 2-Chloronaphthalene                     | UG/L         | 0       | 0%        | 0        | 10         | 4.87E+02  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 2-Chlorophenol                          | UG/L         | 0       | 0%        | 0        | 10         | 3.04E+01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 2-Methylnaphthalene                     | UG/L         | 0       | 0%        | 0        | 10         |           |             | 4.7      |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 2-Methylphenol                          | UG/L         | 0       | 0%        | 0        | 10         | 1.82E+03  |             |          |             | 10 U      | 10 UJ      | 10 U       | 10 U      | 10 U      | 10 UJ      |
| 2-Nitroaniline                          | UG/L         | 0       | 0%        | 0        | 10         | 1.09E+02  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 2-Nitrophenol                           | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 3 or 4-Methylphenol                     | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 3.3'-Dichlorobenzidine                  | UG/L         | 0       | 0%        | 0        | 10         | 1.49E-01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 3-Nitroaniline                          | UG/L         | 0       | 0%        | 0        | 10         | 3.20E+00  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 UJ      |
| 4,6-Dinitro-2-methylphenol              | UG/L         | 0       | 0%        | 0        | 10         | 3.65E+00  |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 UJ     | 10 UJ      |
| 4-Bromophenyl phenyl ether              | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 UJ     | 10 UJ      |
| 4-Chloro-3-methylphenol                 | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 4-Chloroaniline                         | UG/L         | 0       | 0%        | 0        | 10         | 1.46E+02  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 4-Chlorophenyl phenyl ether             | UG/L         | 0       | 0%        | 0        | 10         | 1.102.02  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| 4-Nitroaniline                          | UG/L         | 0       | 0%        | 0        | 10         | 3.20E+00  |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 UJ     | 10 UJ      |
| 4-Nitrophenol                           | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 UJ     | 10 UJ      |
| Acenaphthene                            | UG/L         | 0       | 0%        | 0        | 10         | 3.65E+02  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Acenaphthylene                          | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Anthracene                              | UG/L         | 0       | 0%        | 0        | 10         | 1.83E+03  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Benzo(a)anthracene                      | UG/L         | 0       | 0%        | 0        | 10         | 9.21E-02  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Benzo(a)pyrene                          | UG/L         | 0       | 0%        | 0        | 10         | 9.21E-03  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Benzo(b)fluoranthene                    | UG/L         | 0       | 0%        | 0        | 10         | 9.21E-02  |             |          |             | 10 U      | 10 U       | 10 UJ      | 10 U      | 10 U      | 10 UJ      |
| Benzo(ghi)perylene                      | UG/L         | 0       | 0%        | 0        | 10         |           |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 U      | 10 U       |
| Benzo(k)fluoranthene                    | UG/L         | 0       | 0%        | 0        | 10         | 9.21E-01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Bis(2-Chloroethoxy)methane              | UG/L         | 0       | 0%        | 0        | 10         | 7.212 01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Bis(2-Chloroethyl)ether                 | UG/L         | 0       | 0%        | 0        | 10         | 1.02E-02  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Bis(2-Chloroisopropyl)ether             | UG/L         | 0       | 0%        | 0        | 10         | 2.74E-01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Bis(2-Ethylhexyl)phthalate              | UG/L         | 4.2     | 10%       | 1        | 10         | 4.80E+00  |             | 0.6      | 1           | 10 U      | 10 U       | 4.2 J      | 10 U      | 10 U      | 10 U       |
| Butylbenzylphthalate                    | UG/L         | 0       | 0%        | 0        | 10         | 7.30E+03  |             | 0.0      | •           | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Carbazole                               | UG/L         | 0       | 0%        | 0        | 10         | 3.36E+00  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Chrysene                                | UG/L         | 0       | 0%        | 0        | 10         | 9.21E+00  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Di-n-butylphthalate                     | UG/L         | 0       | 0%        | 0        | 10         | 3.65E+03  |             |          |             | 10 UJ     | 10 UJ      | 10 U       | 10 U      | 10 UJ     | 10 UJ      |
| Di-n-octylphthalate                     | UG/L         | 0       | 0%        | 0        | 10         | 1.46E+03  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Dibenz(a,h)anthracene                   | UG/L         | 0       | 0%        | 0        | 10         | 9.21E-03  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Dibenzofuran                            | UG/L         | 0       | 0%        | 0        | 10         | 1.22E+01  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Diethyl phthalate                       | UG/L         | 0       | 0%        | 0        | 10         | 2.92E+04  |             |          |             | 10 UJ     | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Dimethylphthalate                       | UG/L         | 0       | 0%        | 0        | 10         | 3.65E+05  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| Fluoranthene                            | UG/L<br>UG/L | 0       | 0%        | 0        | 10         | 1.46E+03  |             |          |             | 10 U      | 10 U       | 10 U       | 10 U      | 10 U      | 10 U       |
| T I I I I I I I I I I I I I I I I I I I | UG/L         | U       | 0%        | 0        | 10         | 1.40E+03  |             |          |             | 10 0      | 10 U       | 10 0       | 10 U      | 10 U      | 10.0       |

0.00003

0.01

0.45

0.6

10 U

10 UJ

10 U

10 UJ

10 UJ

10 U

10 U

10 UJ

10 U

10 U

0%

0%

0%

0%

0%

0%

0%

0%

0%

0%

0

0

0

0

0

0

0

0

0

10

10

10

10

10

10

10

10

10

10

2.43E+02

4.20E-02

8.62E-01

2.19E+02

4.80E+00

9.21E-02

7.08E+01

1.37E+01

9.60E-03

6.20E+00

SEAD-121C

SWDRMO-1

SW

SEAD-121C

sw

SWDRMO-10

SEAD-121C

SWDRMO-2

SW

Facility Location ID Matrix

|                        | Sample ID    |           |           |          |            |                      |             |                    |             | DRMO-3000          | DRMO-3010          | DRMO-3001          | DRMO-3002          | DRMO-3003          | DRMO-3004          |
|------------------------|--------------|-----------|-----------|----------|------------|----------------------|-------------|--------------------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Sample Depth to        |              |           |           |          |            |                      |             |                    |             | 0                  | 0                  | 0                  | 0                  | 0                  | 0                  |
| Sample Depth to Bo     |              |           |           |          |            |                      |             |                    |             | N/A                | N/A                | N/A                | N/A                | N/A                | N/A                |
|                        | Sample Date  |           |           |          |            |                      |             |                    |             | 11/5/2002          | 11/5/2002          | 11/5/2002          | 11/5/2002          | 11/5/2002          | 11/5/2002          |
|                        | QC Code      |           |           |          |            | Region IX            |             |                    |             | SA                 | SA                 | SA                 | SA                 | SA                 | SA                 |
|                        | Study ID     |           | Frequency | Number   | Number     | PRG                  |             | NYSDEC             |             | PID-RI             | PID-RI             | PID-RI             | PID-RI             | PID-RI             | PID-RI             |
|                        |              | Maximum   | of        | of Times | of         | Criteria             |             | Criteria           |             | 1                  |                    | 1                  | 1                  | 1                  | 1                  |
| Parameter              | Units        | Value     | Detection | Detected | Analyses 1 | Value <sup>2</sup>   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)          | Value (Q)          | Value (Q)          | Value (Q)          | Value (Q)          | Value (Q)          |
| Nitrobenzene           | UG/L         | 0         | 0%        | 0        | 10         | 3.40E+00             |             |                    |             | 10 U               |
| Pentachlorophenol      | UG/L         | 0         | 0%        | 0        | 10         | 5.60E-01             |             | 1                  |             | 10 UJ              | 10 UJ              | 10 U               | 10 U               | 10 UJ              | 10 UJ              |
| Phenanthrene           | UG/L         | 0         | 0%        | 0        | 10         | 1005 01              |             |                    |             | 10 U               |
| Phenol                 | UG/L         | 0         | 0%        | 0        | 10         | 1.09E+04             |             | 5                  |             | 10 U               |
| Pyrene Pesticides/PCBs | UG/L         | 0         | 0%        | 0        | 10         | 1.83E+02             |             |                    |             | 10 UJ              | 10 UJ              | 10 U               | 10 U               | 10 UJ              | 10 UJ              |
| 4,4'-DDD               | UG/L         | 0         | 0%        | 0        | 10         | 2.80E-01             |             | 0.00008            |             | 0.01 U             |
| 4,4'-DDE               | UG/L<br>UG/L | 0         | 0%        | 0        | 10         | 1.98E-01             |             | 0.00008            |             | 0.01 U             | 0.001 U            | 0.001 U            | 0.001 U            | 0.005 U            | 0.005 U            |
| 4,4'-DDE<br>4,4'-DDT   | UG/L<br>UG/L | 0         | 0%        | 0        | 10         | 1.98E-01<br>1.98E-01 |             | 0.000007           |             | 0.003 U<br>0.01 UJ | 0.003 U<br>0.01 UJ | 0.003 U<br>0.01 UJ | 0.003 U<br>0.01 UJ | 0.003 U<br>0.01 UJ | 0.003 U<br>0.01 UJ |
| Aldrin                 | UG/L         | 0         | 0%        | 0        | 10         | 3.95E-03             |             | 0.0001             |             | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  | 0.01 UJ            | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  |
| Alpha-BHC              | UG/L         | 0         | 0%        | 0        | 10         | 1.07E-02             |             | 0.001              |             | 0.02 U<br>0.01 UJ  | 0.02 U<br>0.01 UJ  | 0.02 U<br>0.01 UJ  | 0.02 U<br>0.01 UJ  | 0.02 U<br>0.01 UJ  | 0.02 U<br>0.01 UJ  |
| Alpha-Chlordane        | UG/L         | 0         | 0%        | 0        | 10         | 1.0712-02            |             |                    |             | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  | 0.01 UJ            | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  | 0.01 UJ<br>0.02 U  |
| Beta-BHC               | UG/L         | 0         | 0%        | 0        | 10         | 3.74E-02             |             |                    |             | 0.01 U             |
| Chlordane              | UG/L         | 0         | 0%        | 0        | 10         | 3.742.02             |             |                    |             | 0.13 U             |
| Delta-BHC              | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.004 U            |
| Dieldrin               | UG/L         | 0         | 0%        | 0        | 10         | 4.20E-03             |             | 0.0000006          |             | 0.009 UJ           | 0.009 U            | 0.009 UJ           | 0.009 UJ           | 0.009 UJ           | 0.009 UJ           |
| Endosulfan I           | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.009              |             | 0.01 U             |
| Endosulfan II          | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.009              |             | 0.01 UJ            |
| Endosulfan sulfate     | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.02 U             |
| Endrin                 | UG/L         | 0         | 0%        | 0        | 10         | 1.09E+01             |             | 0.002              |             | 0.02 U             |
| Endrin aldehyde        | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.02 U             |
| Endrin ketone          | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.009 U            |
| Gamma-BHC/Lindane      | UG/L         | 0         | 0%        | 0        | 10         | 5.17E-02             |             |                    |             | 0.009 U            |
| Gamma-Chlordane        | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.01 U             |
| Heptachlor             | UG/L         | 0         | 0%        | 0        | 10         | 1.49E-02             |             | 0.0002             |             | 0.007 U            |
| Heptachlor epoxide     | UG/L         | 0         | 0%        | 0        | 10         | 7.39E-03             |             | 0.0003             |             | 0.008 U            |
| Methoxychlor           | UG/L         | 0         | 0%        | 0        | 10         | 1.82E+02             |             | 0.03               |             | 0.008 U            |
| Toxaphene              | UG/L         | 0         | 0%        | 0        | 10         | 6.11E-02             |             | 0.000006           |             | 0.12 U             |
| Aroclor-1016           | UG/L         | 0         | 0%        | 0        | 10         | 9.60E-01             |             | 0.000001           |             | 0.24 UJ            |
| Aroclor-1221           | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.000001           |             | 0.08 U             |
| Aroclor-1232           | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.000001           |             | 0.09 UJ            |
| Aroclor-1242           | UG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.08 UJ            |
| Aroclor-1248           | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.000001           |             | 0.12 U             |
| Aroclor-1254           | UG/L         | 0         | 0%        | 0        | 10         | 3.36E-02             |             | 0.000001           |             | 0.05 U             |
| Aroclor-1260           | UG/L         | 0         | 0%        | 0        | 10         |                      |             | 0.000001           |             | 0.01 UJ            |
| Metals and Cyanide     | ***          | 07.50     | 1000      |          |            | 2 550 04             |             | 100                | _           |                    | 210                | 07.00              | 4500               | 20                 | 524                |
| Aluminum               | UG/L         | 8760      | 100%      | 10       | 10         | 3.65E+04             |             | 100                | 5           | 146                | 219                | 8760               | 4500               | 39                 | 524                |
| Antimony               | UG/L<br>UG/L | 0<br>50.3 | 0%<br>10% | 0        | 10<br>10   | 1.46E+01<br>4.48E-02 | 1           | 150                |             | 4.7 U<br>2.8 U     | 4.7 U<br>2.8 U     | 4.7 U<br>50.3      | 4.7 U<br>2.8 U     | 4.7 U<br>2.8 U     | 4.7 U<br>2.8 U     |
| Arsenic<br>Barium      | UG/L<br>UG/L | 423       | 10%       | 10       | 10         | 4.48E-02<br>2.55E+03 | '           | 130                |             | 53.7               | 75.9               | 30.3<br>423        | 149                | 49.5               | 72.5               |
| Beryllium              | UG/L<br>UG/L | 0.86      | 90%       | 9        | 10         | 7.30E+01             |             | 1100               |             | 0.1 U              | 75.9<br>0.16 J     | 0.86 J             | 0.52 J             | 49.5<br>0.12 J     | 0.16               |
| Cadmium                | UG/L<br>UG/L | 19.5      | 40%       | 4        | 10         | 1.82E+01             | 1           | 3.84               | 2           | 0.1 U<br>0.4 U     | 0.16 J<br>0.4 U    | 19.5               | 4.3                | 0.12 J<br>0.4 U    | 1.4                |
| Calcium                | UG/L<br>UG/L | 166000    | 100%      | 10       | 10         | 1.02E+UI             | '           | 3.04               | 2           | 73800              | 115000             | 150000             | 166000             | 66700              | 92600              |
| Chromium               | UG/L<br>UG/L | 129       | 80%       | 8        | 10         |                      |             | 139.45             |             | 1.8                | 1.9                | 130000             | 13.7               | 0.69               | 2.2                |
| Cobalt                 | UG/L<br>UG/L | 47        | 70%       | 7        | 10         | 7.30E+02             |             | 139.43             | 2           | 2.2                | 0.6 U              | 47                 | 9.7                | 0.69<br>0.6 U      | 3                  |
| Copper                 | UG/L         | 1160      | 100%      | 10       | 10         | 1.46E+03             |             | 17.32              | 2           | 4                  | 3.8                | 1160               | 118                | 2.3                | 12.3               |
| Cyanide, Amenable      | MG/L         | 0         | 0%        | 0        | 10         | 1.400-03             |             | 17.52              | 2           | 0.01 U             |
| Cyanide, Total         | MG/L         | 0         | 0%        | 0        | 10         |                      |             |                    |             | 0.01 U             |
| Cyamac, Total          | 141G/L       |           | 070       |          | 10         |                      |             |                    |             | 0.01 0             | 0.01 0             | 0.01 0             | 0.01 0             | 0.01 0             | 0.01 0             |

SEAD-121C

SWDRMO-3

SW

SEAD-121C

SWDRMO-4

sw

SEAD-121C SWDRMO-5

SW

|                              | Facility    |         |           |          |            |           |             |           |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                              | Location ID |         |           |          |            |           |             |           |             | SWDRMO-1  | SWDRMO-10 | SWDRMO-2  | SWDRMO-3  | SWDRMO-4  | SWDRMO-5  |
|                              | Matrix      |         |           |          |            |           |             |           |             | SW        | SW        | SW        | SW        | SW        | SW        |
|                              | Sample ID   |         |           |          |            |           |             |           |             | DRMO-3000 | DRMO-3010 | DRMO-3001 | DRMO-3002 | DRMO-3003 | DRMO-3004 |
| Sample Depth to 7            |             |         |           |          |            |           |             |           |             | 0         | 0         | 0         | 0         | 0         | 0         |
| Sample Depth to Bott         |             |         |           |          |            |           |             |           |             | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       |
|                              | Sample Date |         |           |          |            |           |             |           |             | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 |
|                              | QC Code     |         |           |          |            | Region IX |             |           |             | SA        | SA        | SA        | SA        | SA        | SA        |
|                              | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC    |             | PID-RI    | PID-RI    | PID-RI    | PID-RI    | PID-RI    | PID-RI    |
|                              |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             | 1         |           | 1         | 1         | 1         | 1         |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3   | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Iron                         | UG/L        | 110000  | 80%       | 8        | 10         | 1.09E+04  | 2           | 300       | 5           | 1460      | 421       | 110000    | 17200     | 105       | 2020      |
| Lead                         | UG/L        | 839     | 100%      | 10       | 10         |           |             | 1.4624632 | 10          | 6.5 J     | 8 J       | 839       | 261       | 5.9 J     | 16.1      |
| Magnesium                    | UG/L        | 26200   | 100%      | 10       | 10         |           |             |           |             | 12200     | 16100     | 26200     | 20000     | 11400     | 12300     |
| Manganese                    | UG/L        | 2380    | 100%      | 10       | 10         | 8.76E+02  | 1           |           |             | 315       | 55.2      | 2380      | 828       | 37.4      | 235       |
| Mercury                      | UG/L        | 2.1     | 20%       | 2        | 10         | 1.09E+01  |             | 0.0007    | 2           | 0.2 U     | 0.2 U     | 2.1       | 0.26      | 0.2 U     | 0.2 U     |
| Nickel                       | UG/L        | 154     | 30%       | 3        | 10         | 7.30E+02  |             | 99.92     | 1           | 1.8 U     | 1.8 U     | 154       | 20.4      | 1.8 U     | 10.6      |
| Potassium                    | UG/L        | 5350    | 100%      | 10       | 10         |           |             |           |             | 3420 J    | 2310 J    | 2580 J    | 5350 J    | 3440 J    | 3720 J    |
| Selenium                     | UG/L        | 4.6     | 10%       | 1        | 10         | 1.82E+02  |             | 4.6       |             | 3 U       | 3 U       | 4.6 J     | 3 U       | 3 U       | 3 U       |
| Silver                       | UG/L        | 8       | 20%       | 2        | 10         | 1.82E+02  |             | 0.1       | 2           | 1 U       | 1 U       | 8         | 1.7       | 1 U       | 1 U       |
| Sodium                       | UG/L        | 123000  | 100%      | 10       | 10         |           |             |           |             | 123000 J  | 73900 J   | 71500 J   | 75200 J   | 117000 J  | 70400 J   |
| Thallium                     | UG/L        | 6.3     | 20%       | 2        | 10         | 2.41E+00  | 2           | 8         |             | 5.5 J     | 5.4 U     | 5.4 U     | 5.4 U     | 6.3       | 5.4 U     |
| Vanadium                     | UG/L        | 233     | 50%       | 5        | 10         | 3.65E+01  | 1           | 14        | 2           | 1.2       | 0.7 U     | 233       | 14.6      | 0.7 U     | 2.1       |
| Zinc                         | UG/L        | 6910    | 100%      | 10       | 10         | 1.09E+04  |             | 159.25    | 2           | 19.6      | 19.7      | 6910      | 425       | 16.4      | 102       |
| Other                        |             |         |           |          |            |           |             |           |             |           |           |           |           |           |           |
| Total Petroleum Hydrocarbons | MG/L        | 8.08    | 11%       | 1        | 9          |           |             |           |             | 1 U       | 1 U       | 8.08      | 1 U       | 1 U       | 1 U       |

#### NOTES

- 1) Sample-duplicate pair (DRMO-3008/DRMO-3005) collected from SWDRMO-8 was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate

|                             | Facility            |         |           |          |            |           |             |          |             | SEAD-121C       | SEAD-121C       | SEAD-121C       | SEAD-121C       | SEAD-121C       |
|-----------------------------|---------------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | Location ID         |         |           |          |            |           |             |          |             | SWDRMO-6        | SWDRMO-7        | SWDRMO-8        | SWDRMO-8        | SWDRMO-9        |
|                             | Matrix<br>Sample ID |         |           |          |            |           |             |          |             | SW<br>DRMO-3006 | SW<br>DRMO-3007 | SW<br>DRMO-3008 | SW<br>DRMO-3005 | SW<br>DRMO-3009 |
| Sample Depth to To          |                     |         |           |          |            |           |             |          |             | 0 DKWO-3000     | 0 DKWO-3007     | 0               | 0 DKWO-3003     | DKMO-3009<br>0  |
| Sample Depth to Botto       |                     |         |           |          |            |           |             |          |             | N/A             | N/A             | N/A             | N/A             | N/A             |
|                             | Sample Date         |         |           |          |            |           |             |          |             | 11/5/2002       | 11/5/2002       | 11/5/2002       | 11/5/2002       | 11/5/2002       |
|                             | QC Code             |         |           |          |            | Region IX |             |          |             | SA              | SA              | SA              | SA              | SA              |
|                             | Study ID            |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI          | PID-RI          | PID-RI          | PID-RI          | PID-RI          |
|                             |                     | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             | 1               | 1               | 1               |                 |                 |
| Parameter                   | Units               | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)       | Value (Q)       | Value (Q)       | Value (Q)       | Value (Q)       |
| Volatile Organic Compounds  |                     |         |           |          |            |           |             |          |             | 1               | (4)             | (4)             | · (4)           |                 |
| 1,1,1-Trichloroethane       | UG/L                | 0       | 0%        | 0        | 10         | 3.17E+03  |             |          |             | 0.75 U          |
| 1,1,2,2-Tetrachloroethane   | UG/L                | 0       | 0%        | 0        | 10         | 5.53E-02  |             |          |             | 0.7 U           |
| 1,1,2-Trichloroethane       | UG/L                | 0       | 0%        | 0        | 10         | 2.00E-01  |             |          |             | 0.62 U          |
| 1,1-Dichloroethane          | UG/L                | 0       | 0%        | 0        | 10         | 8.11E+02  |             |          |             | 0.66 U          |
| 1,1-Dichloroethene          | UG/L                | 0       | 0%        | 0        | 10         | 3.39E+02  |             |          |             | 0.69 U          |
| 1,2-Dichloroethane          | UG/L                | 0       | 0%        | 0        | 10         | 1.23E-01  |             |          |             | 0.56 U          |
| 1,2-Dichloropropane         | UG/L                | 0       | 0%        | 0        | 10         | 1.65E-01  |             |          |             | 0.73 U          |
| Acetone                     | UG/L                | 0       | 0%        | 0        | 10         | 5.48E+03  |             |          |             | 3.5 UJ          |
| Benzene                     | UG/L                | 0       | 0%        | 0        | 10         | 3.54E-01  |             |          |             | 0.71 U          |
| Bromodichloromethane        | UG/L                | 0       | 0%        | 0        | 10         | 1.81E-01  |             |          |             | 0.73 U          |
| Bromoform                   | UG/L                | 0       | 0%        | 0        | 10         | 8.51E+00  |             |          |             | 0.49 U          |
| Carbon disulfide            | UG/L                | 0       | 0%        | 0        | 10         | 1.04E+03  |             |          |             | 0.72 UJ         | 0.72 UJ         | 0.72 U          | 0.72 U          | 0.72 U          |
| Carbon tetrachloride        | UG/L                | 0       | 0%        | 0        | 10         | 1.71E-01  |             |          |             | 0.47 U          |
| Chlorobenzene               | UG/L                | 0       | 0%        | 0        | 10         | 1.06E+02  |             | 5        |             | 0.78 U          |
| Chlorodibromomethane        | UG/L                | 0       | 0%        | 0        | 10         | 1.33E-01  |             |          |             | 0.66 U          |
| Chloroethane                | UG/L                | 0       | 0%        | 0        | 10         | 4.64E+00  |             |          |             | 2.4 U           |
| Chloroform                  | UG/L                | 0       | 0%        | 0        | 10         | 1.66E-01  |             |          |             | 0.61 U          |
| Cis-1,2-Dichloroethene      | UG/L                | 0       | 0%        | 0        | 10         | 6.08E+01  |             |          |             | 0.62 U          |
| Cis-1,3-Dichloropropene     | UG/L                | 0       | 0%        | 0        | 10         |           |             |          |             | 0.66 U          |
| Ethyl benzene               | UG/L                | 0       | 0%        | 0        | 10         | 1.34E+03  |             |          |             | 0.76 U          |
| Meta/Para Xylene            | UG/L                | 0       | 0%        | 0        | 10         |           |             |          |             | 1.5 U           |
| Methyl bromide              | UG/L                | 0       | 0%        | 0        | 10         | 8.66E+00  |             |          |             | 0.38 U          | 0.38 U          | 0.38 UJ         | 0.38 UJ         | 0.38 UJ         |
| Methyl butyl ketone         | UG/L                | 0       | 0%        | 0        | 10         |           |             |          |             | 0.6 U           |
| Methyl chloride             | UG/L                | 0       | 0%        | 0        | 10         | 1.58E+02  |             |          |             | 0.51 U          |
| Methyl ethyl ketone         | UG/L                | 0       | 0%        | 0        | 10         | 6.97E+03  |             |          |             | 2.3 U           |
| Methyl isobutyl ketone      | UG/L                | 0       | 0%        | 0        | 10         | 1.99E+03  |             |          |             | 0.81 U          | 0.81 U          | 0.81 UJ         | 0.81 UJ         | 0.81 UJ         |
| Methylene chloride          | UG/L                | 0       | 0%        | 0        | 10         | 4.28E+00  |             |          |             | 1.8 U           |
| Ortho Xylene                | UG/L                | 0       | 0%        | 0        | 10         |           |             |          |             | 0.72 U          |
| Styrene                     | UG/L                | 0       | 0%        | 0        | 10         | 1.64E+03  |             |          |             | 0.92 U          |
| Tetrachloroethene           | UG/L                | 0       | 0%        | 0        | 10         | 1.04E-01  |             |          |             | 0.7 UJ          |
| Toluene                     | UG/L                | 0       | 0%        | 0        | 10         | 7.23E+02  |             | 6000     |             | 0.71 U          |
| Trans-1,2-Dichloroethene    | UG/L                | 0       | 0%        | 0        | 10         | 1.22E+02  |             |          |             | 0.81 UJ         | 0.81 UJ         | 0.81 U          | 0.81 U          | 0.81 U          |
| Trans-1,3-Dichloropropene   | UG/L                | 0       | 0%        | 0        | 10         |           |             |          |             | 0.66 U          |
| Trichloroethene             | UG/L                | 0       | 0%        | 0        | 10         | 2.80E-02  |             | 40       |             | 0.72 U          |
| Vinyl chloride              | UG/L                | 0       | 0%        | 0        | 10         | 1.98E-02  |             |          |             | 0.79 U          |
| Semivolatile Organic Compou |                     |         |           |          |            |           |             |          |             |                 |                 |                 |                 | ****            |
| 1,2,4-Trichlorobenzene      | UG/L                | 0       | 0%        | 0        | 10         | 7.16E+00  |             | 5        |             | 10 U            |
| 1.2-Dichlorobenzene         | UG/L                | 0       | 0%        | 0        | 10         | 3.70E+02  |             | 5        |             | 10 U            |
| 1,3-Dichlorobenzene         | UG/L                | 0       | 0%        | 0        | 10         | 1.83E+02  |             | 5        |             | 10 U            |
| 1,4-Dichlorobenzene         | UG/L                | 0       | 0%        | 0        | 10         | 5.02E-01  |             | 5        |             | 10 U            |
| 2,4,5-Trichlorophenol       | UG/L                | 0       | 0%        | 0        | 10         | 3.65E+03  |             | -        |             | 10 U            |
| 2,4,6-Trichlorophenol       | UG/L                | 0       | 0%        | 0        | 10         | 3.65E+00  |             |          |             | 10 U            |
| 2,4-Dichlorophenol          | UG/L                | 0       | 0%        | 0        | 10         | 1.09E+02  |             | 1        |             | 10 U            |
| 2,4-Dimethylphenol          | UG/L                | 0       | 0%        | 0        | 10         | 7.30E+02  |             | 1000     |             | 10 U            |
| 2,4-Dinitrophenol           | UG/L                | 0       | 0%        | 0        | 10         | 7.30E+01  |             | 400      |             | 10 UJ           | 10 UJ           | 10 U            | 10 U            | 10 UJ           |
| 2,4-Dinitrotoluene          | UG/L                | 0       | 0%        | 0        | 10         | 7.30E+01  |             |          |             | 10 U            |
| 2,6-Dinitrotoluene          | UG/L                | 0       | 0%        | 0        | 10         | 3.65E+01  | l           |          |             | 10 U            |

|  | Facility<br>Location ID |         |           |          |            |                      |             |          |             | SEAD-121C<br>SWDRMO-6 | SEAD-121C<br>SWDRMO-7 | SEAD-121C<br>SWDRMO-8 | SEAD-121C<br>SWDRMO-8 | SEAD-121C<br>SWDRMO-9 |
|--|-------------------------|---------|-----------|----------|------------|----------------------|-------------|----------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|  | Matrix                  |         |           |          |            |                      |             |          |             | SW                    | SW                    | SW                    | SW                    | SW                    |
|  | Sample ID               |         |           |          |            |                      |             |          |             | DRMO-3006             | DRMO-3007             | DRMO-3008             | DRMO-3005             | DRMO-3009             |
| Sample Depth to 7                                  | Top of Sample           |         |           |          |            |                      |             |          |             | 0                     | 0                     | 0                     | 0                     | 0                     |
| Sample Depth to Bott                               | tom of Sample           |         |           |          |            |                      |             |          |             | N/A                   | N/A                   | N/A                   | N/A                   | N/A                   |
|  | Sample Date             |         |           |          |            |                      |             |          |             | 11/5/2002             | 11/5/2002             | 11/5/2002             | 11/5/2002             | 11/5/2002             |
|  | QC Code                 |         |           |          |            | Region IX            |             |          |             | SA                    | SA                    | SA                    | SA                    | SA                    |
|  | Study ID                |         | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI                | PID-RI                | PID-RI                | PID-RI                | PID-RI                |
|  |                         | Maximum | of        | of Times | of         | Criteria             |             | Criteria |             | 1                     | 1                     | 1                     |                       |                       |
| Parameter  | Units                   | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup>   | Exceedances | Value 3  | Exceedances | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             |
| 2-Chloronaphthalene                                | UG/L                    | 0       | 0%        | 0        | 10         | 4.87E+02             |             |          |             | 10 U                  |
| 2-Chlorophenol                                     | UG/L                    | 0       | 0%        | 0        | 10         | 3.04E+01             |             |          |             | 10 U                  |
| 2-Methylnaphthalene                                | UG/L                    | 0       | 0%        | 0        | 10         |                      |             | 4.7      |             | 10 U                  |
| 2-Methylphenol                                     | UG/L                    | 0       | 0%        | 0        | 10         | 1.82E+03             |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| 2-Nitroaniline                                     | UG/L                    | 0       | 0%        | 0        | 10         | 1.09E+02             |             |          |             | 10 U                  |
| 2-Nitrophenol                                      | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 U                  |
| 3 or 4-Methylphenol                                | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 U                  |
| 3,3'-Dichlorobenzidine                             | UG/L                    | 0       | 0%        | 0        | 10         | 1.49E-01             |             |          |             | 10 U                  |
| 3-Nitroaniline                                     | UG/L                    | 0       | 0%        | 0        | 10         | 3.20E+00             |             |          |             | 10 UJ                 | 10 U                  | 10 U                  | 10 U                  | 10 U                  |
| 4,6-Dinitro-2-methylphenol                         | UG/L                    | 0       | 0%        | 0        | 10         | 3.65E+00             |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| 4-Bromophenyl phenyl ether                         | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| 4-Chloro-3-methylphenol                            | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 U                  |
| 4-Chloroaniline                                    | UG/L                    | 0       | 0%        | 0        | 10         | 1.46E+02             |             |          |             | 10 U                  |
| 4-Chlorophenyl phenyl ether                        | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 U                  |
| 4-Nitroaniline                                     | UG/L                    | 0       | 0%        | 0        | 10         | 3.20E+00             |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| 4-Nitrophenol                                      | UG/L                    | 0       | 0%        | 0        | 10         |                      |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| Acenaphthene                                       | UG/L                    | 0       | 0%        | 0        | 10         | 3.65E+02             |             |          |             | 10 U                  |
| Acenaphthylene                                     | UG/L                    | 0       | 0%        | 0        | 10         | 1.000 00             |             |          |             | 10 U                  |
| Anthracene   | UG/L                    | 0       | 0%        | 0        | 10         | 1.83E+03             |             |          |             | 10 U                  |
| Benzo(a)anthracene                                 | UG/L                    | 0       | 0%        | 0        | 10         | 9.21E-02             |             |          |             | 10 U                  |
| Benzo(a)pyrene                                     | UG/L<br>UG/L            | 0<br>0  | 0%<br>0%  | 0        | 10<br>10   | 9.21E-03<br>9.21E-02 |             |          |             | 10 U<br>10 UJ         | 10 U<br>10 U          | 10 U<br>10 U          | 10 U<br>10 U          | 10 U<br>10 U          |
| Benzo(b)fluoranthene                               | UG/L<br>UG/L            | 0       | 0%        | 0        | 10         | 9.21E-02             |             |          |             | 10 U                  |
| Benzo(ghi)perylene                                 | UG/L<br>UG/L            | 0       | 0%        | 0        | 10         | 9.21E-01             |             |          |             | 10 U                  |
| Benzo(k)fluoranthene<br>Bis(2-Chloroethoxy)methane | UG/L<br>UG/L            | 0       | 0%        | 0        | 10         | 9.21E-01             |             |          |             | 10 U                  |
| Bis(2-Chloroethyl)ether                            | UG/L                    | 0       | 0%        | 0        | 10         | 1.02E-02             |             |          |             | 10 U                  | 10 U                  | 10 UJ                 | 10 UJ                 | 10 U                  |
| Bis(2-Chloroisopropyl)ether                        | UG/L                    | 0       | 0%        | 0        | 10         | 2.74E-01             |             |          |             | 10 U                  |
| Bis(2-Ethylhexyl)phthalate                         | UG/L                    | 4.2     | 10%       | 1        | 10         | 4.80E+00             |             | 0.6      | 1           | 10 U                  |
| Butylbenzylphthalate                               | UG/L                    | 0       | 0%        | 0        | 10         | 7.30E+03             |             | 0.0      | '           | 10 U                  |
| Carbazole  | UG/L                    | 0       | 0%        | 0        | 10         | 3.36E+00             |             |          |             | 10 U                  |
| Chrysene   | UG/L                    | 0       | 0%        | 0        | 10         | 9.21E+00             |             |          |             | 10 U                  |
| Di-n-butylphthalate                                | UG/L                    | 0       | 0%        | 0        | 10         | 3.65E+03             |             |          |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| Di-n-octylphthalate                                | UG/L                    | 0       | 0%        | 0        | 10         | 1.46E+03             |             |          |             | 10 U                  |
| Dibenz(a,h)anthracene                              | UG/L                    | 0       | 0%        | 0        | 10         | 9.21E-03             |             |          |             | 10 U                  |
| Dibenzofuran                                       | UG/L                    | 0       | 0%        | 0        | 10         | 1.22E+01             |             |          |             | 10 U                  |
| Diethyl phthalate                                  | UG/L                    | 0       | 0%        | 0        | 10         | 2.92E+04             |             |          |             | 10 U                  |
| Dimethylphthalate                                  | UG/L                    | 0       | 0%        | 0        | 10         | 3.65E+05             |             |          |             | 10 U                  |
| Fluoranthene                                       | UG/L                    | 0       | 0%        | 0        | 10         | 1.46E+03             |             |          |             | 10 U                  |
| Fluorene   | UG/L                    | 0       | 0%        | 0        | 10         | 2.43E+02             |             |          |             | 10 U                  |
| Hexachlorobenzene                                  | UG/L                    | 0       | 0%        | 0        | 10         | 4.20E-02             |             | 0.00003  |             | 10 UJ                 | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| Hexachlorobutadiene                                | UG/L                    | 0       | 0%        | 0        | 10         | 8.62E-01             |             | 0.01     |             | 10 U                  |
| Hexachlorocyclopentadiene                          | UG/L                    | 0       | 0%        | 0        | 10         | 2.19E+02             |             | 0.45     |             | 10 UJ                 | 10 U                  | 10 UJ                 | 10 UJ                 | 10 U                  |
| Hexachloroethane                                   | UG/L                    | 0       | 0%        | 0        | 10         | 4.80E+00             |             | 0.6      |             | 10 UJ                 | 10 U                  | 10 U                  | 10 U                  | 10 U                  |
| Indeno(1,2,3-cd)pyrene                             | UG/L                    | 0       | 0%        | 0        | 10         | 9.21E-02             |             |          |             | 10 U                  | 10 UJ                 | 10 U                  | 10 U                  | 10 UJ                 |
| Isophorone   | UG/L                    | 0       | 0%        | 0        | 10         | 7.08E+01             |             |          |             | 10 U                  |
| N-Nitrosodiphenylamine                             | UG/L                    | 0       | 0%        | 0        | 10         | 1.37E+01             |             |          |             | 10 UJ                 | 10 U                  | 10 U                  | 10 U                  | 10 U                  |
| N-Nitrosodipropylamine                             | UG/L                    | 0       | 0%        | 0        | 10         | 9.60E-03             |             |          |             | 10 U                  |
| Naphthalene  | UG/L                    | 0       | 0%        | 0        | 10         | 6.20E+00             |             |          |             | 10 U                  |

| Sample Depth to<br>Sample Depth to Bo |                        |                |             |          |            |           |             |            |             | SEAD-121C<br>SWDRMO-6<br>SW<br>DRMO-3006<br>0<br>N/A | SEAD-121C<br>SWDRMO-7<br>SW<br>DRMO-3007<br>0<br>N/A | SEAD-121C<br>SWDRMO-8<br>SW<br>DRMO-3008<br>0<br>N/A | SEAD-121C<br>SWDRMO-8<br>SW<br>DRMO-3005<br>0<br>N/A | SEAD-121C<br>SWDRMO-9<br>SW<br>DRMO-3009<br>0<br>N/A |
|---------------------------------------|------------------------|----------------|-------------|----------|------------|-----------|-------------|------------|-------------|--|--|--|--|--|
|                                       | Sample Date<br>OC Code |                |             |          |            | Region IX |             |            |             | 11/5/2002<br>SA                                      | 11/5/2002<br>SA                                      | 11/5/2002<br>SA                                      | 11/5/2002<br>SA                                      | 11/5/2002<br>SA                                      |
|                                       | Study ID               |                | Frequency   | Number   | Number     | PRG       |             | NYSDEC     |             | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   |
|                                       | Study ID               | Maximum        | of          | of Times | of         | Criteria  |             | Criteria   |             | 1  | 1  | 1  | TID KI   | TID-KI   |
| Parameter                             | Units                  | Value          | Detection   | Detected | Analyses 1 | Value 2   | Exceedances | Value 3    | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Nitrobenzene                          | UG/L                   | 0              | 0%          | 0        | 10         | 3.40E+00  |             | 1          |             | 10 U   |
| Pentachlorophenol                     | UG/L                   | 0              | 0%          | 0        | 10         | 5.60E-01  |             | 1          |             | 10 UJ  | 10 UJ  | 10 U   | 10 U   | 10 UJ  |
| Phenanthrene                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             |            |             | 10 U   |
| Phenol                                | UG/L                   | 0              | 0%          | 0        | 10         | 1.09E+04  |             | 5          |             | 10 U   |
| Pyrene                                | UG/L                   | 0              | 0%          | 0        | 10         | 1.83E+02  |             |            |             | 10 UJ  | 10 UJ  | 10 U   | 10 U   | 10 UJ  |
| Pesticides/PCBs                       |                        |                |             |          |            |           |             |            |             |  |  |  |  |  |
| 4,4'-DDD                              | UG/L                   | 0              | 0%          | 0        | 10         | 2.80E-01  |             | 0.00008    |             | 0.01 U   |
| 4,4'-DDE                              | UG/L                   | 0              | 0%          | 0        | 10         | 1.98E-01  |             | 0.000007   |             | 0.005 U  |
| 4,4'-DDT                              | UG/L                   | 0              | 0%          | 0        | 10         | 1.98E-01  |             | 0.00001    |             | 0.01 UJ  |
| Aldrin                                | UG/L                   | 0              | 0%          | 0        | 10         | 3.95E-03  |             | 0.001      |             | 0.02 U   |
| Alpha-BHC                             | UG/L                   | 0              | 0%          | 0        | 10         | 1.07E-02  |             |            |             | 0.01 UJ  |
| Alpha-Chlordane                       | UG/L                   | 0              | 0%          | 0        | 10         | 2.745.02  |             |            |             | 0.02 U   |
| Beta-BHC<br>Chlordane                 | UG/L<br>UG/L           | 0              | 0%<br>0%    | 0        | 10<br>10   | 3.74E-02  |             |            |             | 0.01 U   |
| Delta-BHC                             | UG/L<br>UG/L           | 0              | 0%          | 0        | 10         |           |             |            |             | 0.13 U<br>0.004 U                                    |
| Dieldrin                              | UG/L<br>UG/L           | 0              | 0%          | 0        | 10         | 4.20E-03  |             | 0.0000006  |             | 0.004 U<br>0.009 UJ                                  | 0.004 U<br>0.009 UJ                                  | 0.004 U<br>0.009 UJ                                  | 0.004 U  | 0.004 U  |
| Endosulfan I                          | UG/L                   | 0              | 0%          | 0        | 10         | 4.20E-03  |             | 0.000      |             | 0.009 UJ   | 0.009 UJ   | 0.009 UJ<br>0.01 U                                   | 0.009 U  | 0.009 U<br>0.01 U                                    |
| Endosulfan II                         | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.009      |             | 0.01 U   | 0.01 UJ  | 0.01 UJ  | 0.01 U   | 0.01 U<br>0.01 UJ                                    |
| Endosulfan sulfate                    | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.009      |             | 0.01 UJ<br>0.02 U                                    | 0.01 UJ  | 0.01 UJ<br>0.02 U                                    | 0.01 UJ  | 0.01 UJ<br>0.02 U                                    |
| Endrin Surface                        | UG/L                   | 0              | 0%          | 0        | 10         | 1.09E+01  |             | 0.002      |             | 0.02 U   |
| Endrin aldehyde                       | UG/L                   | 0              | 0%          | 0        | 10         | 1.09L+01  |             | 0.002      |             | 0.02 U   |
| Endrin ketone                         | UG/L                   | 0              | 0%          | 0        | 10         |           |             |            |             | 0.009 U  |
| Gamma-BHC/Lindane                     | UG/L                   | 0              | 0%          | 0        | 10         | 5.17E-02  |             |            |             | 0.009 U  |
| Gamma-Chlordane                       | UG/L                   | 0              | 0%          | 0        | 10         |           |             |            |             | 0.01 U   |
| Heptachlor                            | UG/L                   | 0              | 0%          | 0        | 10         | 1.49E-02  |             | 0.0002     |             | 0.007 U  |
| Heptachlor epoxide                    | UG/L                   | 0              | 0%          | 0        | 10         | 7.39E-03  |             | 0.0003     |             | 0.008 U  |
| Methoxychlor                          | UG/L                   | 0              | 0%          | 0        | 10         | 1.82E+02  |             | 0.03       |             | 0.008 U  |
| Toxaphene                             | UG/L                   | 0              | 0%          | 0        | 10         | 6.11E-02  |             | 0.000006   |             | 0.12 U   |
| Aroclor-1016                          | UG/L                   | 0              | 0%          | 0        | 10         | 9.60E-01  |             | 0.000001   |             | 0.24 UJ  |
| Aroclor-1221                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.000001   |             | 0.08 U   |
| Aroclor-1232                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.000001   |             | 0.09 UJ  |
| Aroclor-1242                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             |            |             | 0.08 UJ  |
| Aroclor-1248                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.000001   |             | 0.12 U   |
| Aroclor-1254                          | UG/L                   | 0              | 0%          | 0        | 10         | 3.36E-02  |             | 0.000001   |             | 0.05 U   |
| Aroclor-1260                          | UG/L                   | 0              | 0%          | 0        | 10         |           |             | 0.000001   |             | 0.01 UJ  |
| Metals and Cyanide                    |                        |                |             |          |            |           |             |            |             |  |  |  |  |  |
| Aluminum                              | UG/L                   | 8760           | 100%        | 10       | 10         | 3.65E+04  |             | 100        | 5           | 27.5   | 14.4   | 23.9   | 23.4   | 19.4   |
| Antimony                              | UG/L                   | 0              | 0%          | 0        | 10         | 1.46E+01  |             |            |             | 4.7 U  |
| Arsenic                               | UG/L                   | 50.3           | 10%         | 1        | 10         | 4.48E-02  | 1           | 150        |             | 2.8 U  |
| Barium                                | UG/L                   | 423            | 100%        | 10<br>9  | 10         | 2.55E+03  |             | 1100       |             | 50.4   | 54   | 43.7   | 47.4   | 37.2   |
| Beryllium                             | UG/L                   | 0.86           | 90%         |          | 10         | 7.30E+01  | 4           | 1100       | 0           | 0.16   | 0.16   | 0.14   | 0.12   | 0.14   |
| Cadmium                               | UG/L<br>UG/L           | 19.5<br>166000 | 40%<br>100% | 4<br>10  | 10<br>10   | 1.82E+01  | 1           | 3.84       | 2           | 0.4 U<br>72300                                       | 0.4 U<br>91700                                       | 0.4 U<br>67700                                       | 0.4 U  | 0.46<br>84100  |
| Calcium                               | UG/L<br>UG/L           | 166000         |             | 10<br>8  | 10         |           |             | 139.45     |             | 72300<br>0.6 U                                       | 91700<br>0.89  | 67/00<br>0.6 U                                       | 72200<br>0.6 U                                       | 84100<br>1.9   |
| Chromium<br>Cobalt                    | UG/L<br>UG/L           | 129<br>47      | 80%<br>70%  | 8<br>7   | 10         | 7.30E+02  |             |            | 2           |  | 0.89<br>0.6 U  | 0.6 U<br>0.6   | 0.6 U<br>0.6   | 0.91   |
|                                       | UG/L<br>UG/L           | 1160           | 100%        | 10       | 10         | 1.46E+03  |             | 5<br>17.32 | 2           | 1.1<br>2.6   | 1.7  | 1.8  | 2.1  | 6.7  |
| Copper<br>Cyanide, Amenable           | MG/L                   | 0              | 0%          | 0        | 10         | 1.40£+05  |             | 17.32      | 2           | 0.01 U   | 0.01 U   | 0.01 U   | 0.01 U   | 6.7<br>0.01 U  |
| Cyanide, Total                        | MG/L<br>MG/L           | 0              | 0%          | 0        | 10         |           |             |            |             | 0.01 U   |
| Cyaniuc, Totai                        | IVIO/L                 | U              | 0 /0        | U        | 10         | I         |             | <u> </u>   |             | 0.01 0   | 0.01 U   | 0.01 U   | 0.01 U   | 0.01 0   |

|                              | Facility    |         |           |          |            |           |             |           |             | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C | SEAD-121C |
|------------------------------|-------------|---------|-----------|----------|------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|-----------|-----------|
|                              | Location ID |         |           |          |            |           |             |           |             | SWDRMO-6  | SWDRMO-7  | SWDRMO-8  | SWDRMO-8  | SWDRMO-9  |
|                              | Matrix      |         |           |          |            |           |             |           |             | SW        | SW        | SW        | SW        | SW        |
|                              | Sample ID   |         |           |          |            |           |             |           |             | DRMO-3006 | DRMO-3007 | DRMO-3008 | DRMO-3005 | DRMO-3009 |
| Sample Depth to T            |             |         |           |          |            |           |             |           |             | 0         | 0         | 0         | 0         | 0         |
| Sample Depth to Botte        |             |         |           |          |            |           |             |           |             | N/A       | N/A       | N/A       | N/A       | N/A       |
|                              | Sample Date |         |           |          |            |           |             |           |             | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 | 11/5/2002 |
|                              | QC Code     |         |           |          |            | Region IX |             |           |             | SA        | SA        | SA        | SA        | SA        |
|                              | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC    |             | PID-RI    | PID-RI    | PID-RI    | PID-RI    | PID-RI    |
|                              |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria  |             | 1         | 1         | 1         |           |           |
| Parameter                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3   | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Iron                         | UG/L        | 110000  | 80%       | 8        | 10         | 1.09E+04  | 2           | 300       | 5           | 109       | 17.3 U    | 19 J      | 34.2 J    | 17.3 U    |
| Lead                         | UG/L        | 839     | 100%      | 10       | 10         |           |             | 1.4624632 | 10          | 6.8 J     | 7.7 J     | 3.7       | 5.1 J     | 5.7 J     |
| Magnesium                    | UG/L        | 26200   | 100%      | 10       | 10         |           |             |           |             | 12000     | 12400     | 11600     | 12300     | 11100     |
| Manganese                    | UG/L        | 2380    | 100%      | 10       | 10         | 8.76E+02  | 1           |           |             | 45.7      | 20.7      | 11.6      | 26.1      | 3.2       |
| Mercury                      | UG/L        | 2.1     | 20%       | 2        | 10         | 1.09E+01  |             | 0.0007    | 2           | 0.2 U     |
| Nickel                       | UG/L        | 154     | 30%       | 3        | 10         | 7.30E+02  |             | 99.92     | 1           | 1.8 U     |
| Potassium                    | UG/L        | 5350    | 100%      | 10       | 10         |           |             |           |             | 3860 J    | 2070 J    | 3450 J    | 3660 J    | 4380 J    |
| Selenium                     | UG/L        | 4.6     | 10%       | 1        | 10         | 1.82E+02  |             | 4.6       |             | 3 U       | 3 U       | 3 U       | 3 U       | 3 U       |
| Silver                       | UG/L        | 8       | 20%       | 2        | 10         | 1.82E+02  |             | 0.1       | 2           | 1 U       | 1 U       | 1 U       | 1 U       | 1 U       |
| Sodium                       | UG/L        | 123000  | 100%      | 10       | 10         |           |             |           |             | 113000 J  | 34800 J   | 102000 J  | 108000 J  | 4490      |
| Thallium                     | UG/L        | 6.3     | 20%       | 2        | 10         | 2.41E+00  | 2           | 8         |             | 5.4 U     |
| Vanadium                     | UG/L        | 233     | 50%       | 5        | 10         | 3.65E+01  | 1           | 14        | 2           | 0.89      | 0.7 U     | 0.7 U     | 0.7 U     | 0.7 U     |
| Zinc                         | UG/L        | 6910    | 100%      | 10       | 10         | 1.09E+04  |             | 159.25    | 2           | 17.8      | 15.9      | 13.9      | 16.8      | 42.7      |
| Other                        |             |         |           |          |            |           |             |           |             |           |           |           |           |           |
| Total Petroleum Hydrocarbons | MG/L        | 8.08    | 11%       | 1        | 9          |           |             |           |             | 1 U       | 1 U       | 1 U       | 1 U       |           |

#### NOTES

- 1) Sample-duplicate pair (DRMO-3008/DRMO-3005) collected from SWDRMO-8 was averaged and the average results were used in the summary statistic presented in this tabl
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate

### SEAD-121C and SEAD-121I RI REPORT

|                               | Facility<br>Location ID<br>Matrix |         |           |          |             |           |             |          |              | SEAD-121I<br>SB121I-1<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-3<br>SOIL | SEAD-121I<br>SB121I-4<br>SOIL | SEAD-121I<br>SB121I-5<br>SOIL | SEAD-121I<br>SS121I-1<br>SOIL |
|-------------------------------|-----------------------------------|---------|-----------|----------|-------------|-----------|-------------|----------|--------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                               | Sample ID                         |         |           |          |             |           |             |          |              | 121I-1040                     | 121I-1043                     | 121I-1044                     | 121I-1047                     | 121I-1050                     | 121I-1053                     | EB147                         |
| Sample Depth to To            |                                   |         |           |          |             |           |             |          |              | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sample Depth to Botto         | m of Sample<br>Sample Date        |         |           |          |             |           |             |          |              | 2<br>10/24/2002               | 2<br>10/24/2002               | 2<br>10/24/2002               | 2<br>10/24/2002               | 2<br>10/24/2002               | 2<br>10/24/2002               | 0.2<br>3/10/1998              |
| •                             | QC Code                           |         |           |          |             | Region IX |             |          |              | 10/24/2002<br>SA              | 10/24/2002<br>SA              | 10/24/2002<br>SA              | 10/24/2002<br>SA              | 10/24/2002<br>SA              | 10/24/2002<br>SA              | SA                            |
|                               | Study ID                          |         | Frequency | Number   | Number      | PRG       |             | NYSDEC   |              | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        | EBS                           |
|                               |                                   | Maximum |           | of Times | of          | Criteria  |             | Criteria |              | I ID-KI                       | TID-KI                        | TID-KI                        | TID-KI                        | TID-KI                        | TID-KI                        | LDS                           |
| Parameter                     | Units                             | Value   |           | Detected |             | Value 2   | Exceedances |          | Exceedances  | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     |
| Volatile Organic Compounds    | Cinto                             | , mac   | Detection | Detected | . zaranyoeo | , unue    | Zaccedunees | 1        | Zaccedunices | ranae (Q)                     | vinue (Q)                     | value (Q)                     | value (Q)                     | ranc (Q)                      | ruiuc (Q)                     | y unde (Q)                    |
| 1,1,1-Trichloroethane         | UG/KG                             | 0       | 0%        | 0        | 45          | 1.20E+06  |             | 800      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,1,2,2-Tetrachloroethane     | UG/KG                             | 0       | 0%        | 0        | 45          | 4.08E+02  |             | 600      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,1,2-Trichloroethane         | UG/KG                             | 0       | 0%        | 0        | 45          | 7.29E+02  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,1-Dichloroethane            | UG/KG                             | 0       | 0%        | 0        | 45          | 5.06E+05  |             | 200      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,1-Dichloroethene            | UG/KG                             | 0       | 0%        | 0        | 45          | 1.24E+05  |             | 400      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,2-Dichloroethane            | UG/KG                             | 0       | 0%        | 0        | 45          | 2.78E+02  |             | 100      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| 1,2-Dichloropropane           | UG/KG                             | 0       | 0%        | 0        | 45          | 3.42E+02  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Acetone                       | UG/KG                             | 150     | 80%       | 36       | 45          | 1.41E+07  |             | 200      |              | 11 UJ                         | 110 U                         | 33 UJ                         | 7.3 UJ                        | 7.6 UJ                        | 17 UJ                         |                               |
| Benzene                       | UG/KG                             | 41 4    | 20%       | 9        | 45          | 6.43E+02  |             | 60       |              | 2.9 UJ                        | 6.6 J                         | 10 J                          | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Bromodichloromethane          | UG/KG                             | 0       | 0%        | 0        | 45          | 8.24E+02  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Bromoform                     | UG/KG                             | 0       | 0%        | 0        | 45          | 6.16E+04  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Carbon disulfide              | UG/KG                             | 0       | 0%        | 0        | 45          | 3.55E+05  |             | 2700     |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Carbon tetrachloride          | UG/KG                             | 0       | 0%        | 0        | 45          | 2.51E+02  |             | 600      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Chlorobenzene                 | UG/KG                             | 0       | 0%        | 0        | 45          | 1.51E+05  |             | 1700     |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Chlorodibromomethane          | UG/KG                             | 0       | 0%        | 0        | 45          | 1.11E+03  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Chloroethane                  | UG/KG                             | 0       | 0%        | 0        | 45          | 3.03E+03  |             | 1900     |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Chloroform                    | UG/KG                             | 0       | 0%        | 0        | 45          | 2.21E+02  |             | 300      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Cis-1,2-Dichloroethene        | UG/KG                             | 0       | 0%        | 0        | 45          | 4.29E+04  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Cis-1,3-Dichloropropene       | UG/KG                             | 0       | 0%        | 0        | 45          |           |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Ethyl benzene                 | UG/KG                             | 7.8     | 13%       | 6        | 45          | 3.95E+05  |             | 5500     |              | 2.9 UJ                        | 2 J                           | 3.5 J                         | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Meta/Para Xylene              | UG/KG                             | 6.3 4   | 13%       | 6        | 45          |           |             |          |              | 2.9 UJ                        | 2.2 J                         | 3.4 J                         | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methyl bromide                | UG/KG                             | 0       | 0%        | 0        | 45          | 3.90E+03  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methyl butyl ketone           | UG/KG                             | 0       | 0%        | 0        | 45          |           |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methyl chloride               | UG/KG                             | 0       | 0%        | 0        | 45          | 4.69E+04  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methyl ethyl ketone           | UG/KG                             | 78      | 24%       | 11       | 45          | 2.23E+07  |             | 300      |              | 2.9 UJ                        | 55                            | 27 J                          | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methyl isobutyl ketone        | UG/KG                             | 0       | 0%        | 0        | 45          | 5.28E+06  |             | 1000     |              | 2.9 UJ                        | 3.1 U                         | 2.8 U                         | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Methylene chloride            | UG/KG                             | 2.8     | 20%       | 9        | 45          | 9.11E+03  |             | 100      |              | 1.8 J                         | 3.1 U                         | 2.7 J                         | 1.6 J                         | 2.8 J                         | 2.4 J                         |                               |
| Ortho Xylene                  | UG/KG                             | 3.64    | 13%       | 6        | 45          |           |             |          |              | 2.9 UJ                        | 1.1 J                         | 2 J                           | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Styrene                       | UG/KG                             | 0       | 0%        | 0        | 45          | 1.70E+06  |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Tetrachloroethene             | UG/KG                             | 0       | 0%        | 0        | 45          | 4.84E+02  |             | 1400     |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Toluene                       | UG/KG                             | 31 4    | 18%       | 8        | 45          | 5.20E+05  |             | 1500     |              | 2.9 UJ                        | 6.9                           | 11 J                          | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Trans-1,2-Dichloroethene      | UG/KG                             | 0       | 0%        | 0        | 45          | 6.95E+04  |             | 300      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Trans-1,3-Dichloropropene     | UG/KG                             | 0       | 0%        | 0        | 45          |           |             |          |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Trichloroethene               | UG/KG                             | 0       | 0%        | 0        | 45          | 5.30E+01  |             | 700      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Vinyl chloride                | UG/KG                             | 0       | 0%        | 0        | 45          | 7.91E+01  |             | 200      |              | 2.9 UJ                        | 3.1 U                         | 2.8 UJ                        | 2.9 UJ                        | 3.1 UJ                        | 3.2 UJ                        |                               |
| Semivolatile Organic Compound | ls                                |         |           |          |             |           |             |          |              |                               |                               |                               |                               |                               |                               |                               |
| 1,2,4-Trichlorobenzene        | UG/KG                             | 0       | 0%        | 0        | 51          | 6.22E+04  |             | 3400     |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 1,2-Dichlorobenzene           | UG/KG                             | 0       | 0%        | 0        | 51          | 6.00E+05  |             | 7900     |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 1,3-Dichlorobenzene           | UG/KG                             | 0       | 0%        | 0        | 51          | 5.31E+05  |             | 1600     |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 1,4-Dichlorobenzene           | UG/KG                             | 0       | 0%        | 0        | 51          | 3.45E+03  |             | 8500     |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2,4,5-Trichlorophenol         | UG/KG                             | 0       | 0%        | 0        | 51          | 6.11E+06  |             | 100      |              | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 U                        |
| 2,4,6-Trichlorophenol         | UG/KG                             | 0       | 0%        | 0        | 51          | 6.11E+03  |             |          |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2,4-Dichlorophenol            | UG/KG                             | 0       | 0%        | 0        | 51          | 1.83E+05  |             | 400      |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2,4-Dimethylphenol            | UG/KG                             | 0       | 0%        | 0        | 51          | 1.22E+06  |             |          |              | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2,4-Dinitrophenol             | UG/KG                             | 0       | 0%        | 0        | 51          | 1.22E+05  |             | 200      |              | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 UJ                       |

## SEAD-121C and SEAD-121I RI REPORT

|                              | Facility<br>Location ID<br>Matrix |                  |                 |                |            |                  |             |            |             | SEAD-121I<br>SB121I-1<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-2<br>SOIL | SEAD-121I<br>SB121I-3<br>SOIL | SEAD-121I<br>SB121I-4<br>SOIL | SEAD-121I<br>SB121I-5<br>SOIL | SEAD-121I<br>SS121I-1<br>SOIL |
|------------------------------|-----------------------------------|------------------|-----------------|----------------|------------|------------------|-------------|------------|-------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                              | Sample ID                         |                  |                 |                |            |                  |             |            |             | 121I-1040                     | 121I-1043                     | 121I-1044                     | 121I-1047                     | 121I-1050                     | 121I-1053                     | EB147                         |
| Sample Depth to To           |                                   |                  |                 |                |            |                  |             |            |             | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sample Depth to Botton       |                                   |                  |                 |                |            |                  |             |            |             | 2                             | 2                             | 2                             | 2                             | 2                             | 2                             | 0.2                           |
| S                            | Sample Date                       |                  |                 |                |            | n . m            |             |            |             | 10/24/2002                    | 10/24/2002                    | 10/24/2002                    | 10/24/2002                    | 10/24/2002                    | 10/24/2002                    | 3/10/1998                     |
|                              | QC Code<br>Study ID               |                  | Frequency       | Name           | Number     | Region IX<br>PRG |             | NYSDEC     |             | SA<br>PID-RI                  | SA<br>PID-RI                  | SA<br>PID-RI                  | SA<br>PID-RI                  | SA<br>PID-RI                  | SA<br>PID-RI                  | SA<br>EBS                     |
|                              | -                                 | Maximum          | of              | of Times       | of         | Criteria         |             | Criteria   |             | PID-KI                        | PID-KI                        | PID-KI                        | PID-KI                        | PID-KI                        | PID-KI                        | EDS                           |
| Domonoston                   |                                   |                  |                 |                |            | Value 2          | Edo         | ,          | Edomes      | V-1 (O)                       | Value (O)                     | Value (O)                     | Value (O)                     | V-l (0)                       | V-l (0)                       | Value (O)                     |
| Parameter 2,4-Dinitrotoluene | Units<br>UG/KG                    | Value<br>()      | Detection<br>0% | Detected<br>() | Analyses 1 | 1.22E+05         | Exceedances | vaiue<br>I | Exceedances | Value (Q)<br>390 U            | Value (Q)<br>390 U            | Value (Q)<br>390 U            | Value (Q)<br>360 U            | Value (Q)<br>380 U            | Value (Q)<br>390 U            | Value (Q)<br>470 U            |
| 2,6-Dinitrotoluene           | UG/KG                             | 0                | 0%              | 0              | 51         | 6.11E+04         |             | 1000       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2-Chloronaphthalene          | UG/KG                             | 0                | 0%              | 0              | 51         | 4.94E+06         |             | 1000       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2-Chlorophenol               | UG/KG                             | 0                | 0%              | 0              | 51         | 6.34E+04         |             | 800        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2-Methylnaphthalene          | UG/KG                             | 260              | 10%             | 5              | 51         | 0.54L+04         |             | 36400      |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2-Methylphenol               | UG/KG                             | 0                | 0%              | 0              | 51         | 3.06E+06         |             | 100        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 2-Nitroaniline               | UG/KG                             | 0                | 0%              | 0              | 51         | 1.83E+05         |             | 430        |             | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 U                        |
| 2-Nitrophenol                | UG/KG                             | 0                | 0%              | 0              | 51         | 1.032.103        |             | 330        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 3 or 4-Methylphenol          | UG/KG                             | 0                | 0%              | 0              | 45         |                  |             | 550        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | .,,,                          |
| 3,3'-Dichlorobenzidine       | UG/KG                             | 315 4            | 2%              | 1              | 47         | 1.08E+03         |             |            |             | 390 U                         | 390 UJ                        | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 3-Nitroaniline               | UG/KG                             | 0                | 0%              | 0              | 51         | 1.83E+04         |             | 500        |             | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 U                        |
| 4,6-Dinitro-2-methylphenol   | UG/KG                             | 0                | 0%              | 0              | 50         | 6.11E+03         |             | 300        |             | 970 U                         | 970 U                         | 980 UJ                        | 900 UJ                        | 950 U                         | 990 UJ                        | 1100 UJ                       |
| 4-Bromophenyl phenyl ether   | UG/KG                             | 0                | 0%              | 0              | 50         | 0.1112+03        |             |            |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 4-Chloro-3-methylphenol      | UG/KG                             | 0                | 0%              | 0              | 51         |                  |             | 240        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 4-Chloroaniline              | UG/KG                             | 0                | 0%              | 0              | 51         | 2.44E+05         |             | 220        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 4-Chlorophenyl phenyl ether  | UG/KG                             | 0                | 0%              | 0              | 51         | 22.05            |             | 220        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| 4-Methylphenol               | UG/KG                             | 0                | 0%              | 0              | 6          | 3.06E+05         |             | 900        |             | 3,00                          | 3,00                          | 3,00                          | 300 0                         | 300 0                         | 3,0 0                         | 470 U                         |
| 4-Nitroaniline               | UG/KG                             | 0                | 0%              | 0              | 51         | 2.32E+04         |             |            |             | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 UJ                       |
| 4-Nitrophenol                | UG/KG                             | 0                | 0%              | 0              | 51         |                  |             | 100        |             | 970 U                         | 970 U                         | 980 U                         | 900 U                         | 950 U                         | 990 U                         | 1100 U                        |
| Acenaphthene                 | UG/KG                             | 6100             | 51%             | 26             | 51         | 3.68E+06         |             | 50000      |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 170 J                         |
| Acenaphthylene               | UG/KG                             | 560              | 12%             | 6              | 51         |                  |             | 41000      |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Anthracene                   | UG/KG                             | 12000            | 58%             | 29             | 50         | 2.19E+07         |             | 50000      |             | 390 U                         | 89 J                          | 74 J                          | 360 U                         | 380 U                         | 390 U                         | 170 J                         |
| Benzo(a)anthracene           | UG/KG                             | 28000            | 90%             | 46             | 51         | 6.21E+02         | 18          | 224        | 28          | 67 J                          | 350 J                         | 350 J                         | 100 J                         | 380 U                         | 43 J                          | 1400                          |
| Benzo(a)pyrene               | UG/KG                             | 23000            | 88%             | 45             | 51         | 6.21E+01         | 44          | 61         | 44          | 97 J                          | 390 J                         | 450 J                         | 150 J                         | 380 UJ                        | 390 U                         | 1300                          |
| Benzo(b)fluoranthene         | UG/KG                             | 29000            | 94%             | 48             | 51         | 6.21E+02         | 21          | 1100       | 14          | 140 J                         | 600 J                         | 620 J                         | 160 J                         | 380 UJ                        | 66 J                          | 1500                          |
| Benzo(ghi)perylene           | UG/KG                             | 29000            | 82%             | 42             | 51         |                  |             | 50000      |             | 390 U                         | 220 J                         | 140 J                         | 73 J                          | 380 UJ                        | 390 U                         | 820                           |
| Benzo(k)fluoranthene         | UG/KG                             | 23000            | 74%             | 37             | 50         | 6.21E+03         | 4           | 1100       | 14          | 390 UJ                        | 300 J                         | 360 J                         | 100 J                         | 380 UJ                        | 390 UJ                        | 1500                          |
| Bis(2-Chloroethoxy)methane   | UG/KG                             | 0                | 0%              | 0              | 51         |                  |             |            |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Bis(2-Chloroethyl)ether      | UG/KG                             | 0                | 0%              | 0              | 51         | 2.18E+02         |             |            |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 UJ                        | 390 U                         | 470 U                         |
| Bis(2-Chloroisopropyl)ether  | UG/KG                             | 0                | 0%              | 0              | 51         | 2.88E+03         |             |            |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Bis(2-Ethylhexyl)phthalate   | UG/KG                             | 1600             | 33%             | 17             | 51         | 3.47E+04         |             | 50000      |             | 58 J                          | 78 J                          | 390 U                         | 38 J                          | 380 U                         | 390 U                         | 51 J                          |
| Butylbenzylphthalate         | UG/KG                             | 420 4            | 6%              | 3              | 48         | 1.22E+07         |             | 50000      |             | 130 J                         | 390 UJ                        | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Carbazole                    | UG/KG                             | 6800             | 57%             | 29             | 51         | 2.43E+04         |             |            |             | 390 U                         | 56 J                          | 67 J                          | 360 U                         | 380 U                         | 390 U                         | 230 J                         |
| Chrysene                     | UG/KG                             | 32000            | 86%             | 44             | 51         | 6.21E+04         |             | 400        | 25          | 89 J                          | 380 J                         | 400                           | 100 J                         | 380 U                         | 390 U                         | 1700                          |
| Di-n-butylphthalate          | UG/KG                             | 45               | 2%              | 1              | 50         | 6.11E+06         |             | 8100       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 45 J                          |
| Di-n-octylphthalate          | UG/KG                             | 420 4            | 2%              | 1              | 47         | 2.44E+06         |             | 50000      |             | 390 U                         | 390 UJ                        | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 UJ                        |
| Dibenz(a,h)anthracene        | UG/KG                             | 5000             | 34%             | 15             | 44         | 6.21E+01         | 15          | 14         | 15          | 390 U                         | 390 UJ                        | 390 U                         | 360 U                         | 380 UJ                        | 390 U                         | 350 J                         |
| Dibenzofuran                 | UG/KG                             | 2000             | 27%             | 14             | 51         | 1.45E+05         |             | 6200       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 29 J                          |
| Diethyl phthalate            | UG/KG                             | 640 <sup>4</sup> | 2%              | 1              | 51         | 4.89E+07         |             | 7100       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Dimethylphthalate            | UG/KG                             | 0                | 0%              | 0              | 51         | 1.00E+08         |             | 2000       |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Fluoranthene                 | UG/KG                             | 62000            | 94%             | 48             | 51         | 2.29E+06         |             | 50000      | 1           | 170 J                         | 720                           | 920                           | 210 J                         | 380 U                         | 120 J                         | 3200                          |
| Fluorene                     | UG/KG                             | 4200             | 43%             | 22             | 51         | 2.75E+06         |             | 50000      |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 83 J                          |
| Hexachlorobenzene            | UG/KG                             | 0                | 0%              | 0              | 50         | 3.04E+02         |             | 410        |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Hexachlorobutadiene          | UG/KG                             | 0                | 0%              | 0              | 51         | 6.24E+03         |             |            |             | 390 UJ                        | 390 UJ                        | 390 UJ                        | 360 U                         | 380 U                         | 390 UJ                        | 470 U                         |
| Hexachlorocyclopentadiene    | UG/KG                             | 0                | 0%              | 0              | 51         | 3.65E+05         |             | 1          |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |
| Hexachloroethane             | UG/KG                             | 0                | 0%              | 0              | 51         | 3.47E+04         |             |            |             | 390 U                         | 390 U                         | 390 U                         | 360 U                         | 380 U                         | 390 U                         | 470 U                         |

## SEAD-121C and SEAD-121I RI REPORT

| 6. I.D. II.                           | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |           |             |             |             | SEAD-121I<br>SB121I-1<br>SOIL<br>121I-1040 | SEAD-121I<br>SB121I-2<br>SOIL<br>121I-1043 | SEAD-121I<br>SB121I-2<br>SOIL<br>121I-1044 | SEAD-121I<br>SB121I-3<br>SOIL<br>121I-1047 | SEAD-121I<br>SB121I-4<br>SOIL<br>121I-1050 | SEAD-121I<br>SB121I-5<br>SOIL<br>121I-1053 | SEAD-121I<br>SS121I-1<br>SOIL<br>EB147 |
|---------------------------------------|--|---------|-----------|----------|------------|-----------|-------------|-------------|-------------|--|--|--|--|--|--|--|
| Sample Depth to<br>Sample Depth to Bo |  |         |           |          |            |           |             |             |             | 2  | 2  | 2  | 0 2  | 0 2  | 0 2  | 0.2                                    |
| Sample Beptil to Bo                   | Sample Date                                    |         |           |          |            |           |             |             |             | 10/24/2002                                 | 10/24/2002                                 | 10/24/2002                                 | 10/24/2002                                 | 10/24/2002                                 | 10/24/2002                                 | 3/10/1998                              |
|                                       | QC Code  |         |           |          |            | Region IX |             |             |             | SA   | SA   | SA   | SA   | SA   | SA   | SA                                     |
|                                       | Study ID                                       |         | Frequency |          | Number     | PRG       |             | NYSDEC      |             | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | EBS                                    |
|                                       |  | Maximum | of        | of Times | of         | Criteria  |             | Criteria    |             |  |  |  |  |  |  |  |
| Parameter                             | Units  | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances |             | Exceedances | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                              |
| Indeno(1,2,3-cd)pyrene                | UG/KG  | 12000   | 71%       | 35       | 49         | 6.21E+02  | 13          | 3200        | 3           | 390 UJ                                     | 63 J                                       | 79 J                                       | 360 UJ                                     | 380 U                                      | 390 UJ                                     | 760                                    |
| Isophorone                            | UG/KG  | 315 4   | 2%        | 1        | 51         | 5.12E+05  |             | 4400        |             | 390 UJ                                     | 390 UJ                                     | 390 UJ                                     | 360 UJ                                     | 380 UJ                                     | 390 UJ                                     | 470 U                                  |
| N-Nitrosodiphenylamine                | UG/KG  | 0       | 0%        | 0        | 50         | 9.93E+04  |             |             |             | 390 U                                      | 390 U                                      | 390 U                                      | 360 U                                      | 380 U                                      | 390 U                                      | 470 U                                  |
| N-Nitrosodipropylamine                | UG/KG  | 0       | 0%        | 0        | 51         | 6.95E+01  |             |             |             | 390 U                                      | 390 U                                      | 390 U                                      | 360 U                                      | 380 U                                      | 390 U                                      | 470 U                                  |
| Naphthalene                           | UG/KG  | 630     | 14%       | 7        | 51         | 5.59E+04  |             | 13000       |             | 390 U                                      | 390 U                                      | 390 U                                      | 360 U                                      | 380 U                                      | 390 U                                      | 470 U                                  |
| Nitrobenzene                          | UG/KG  | 315 4   | 2%        | 1        | 51         | 1.96E+04  |             | 200         | 1           | 390 UJ                                     | 390 UJ                                     | 390 UJ                                     | 360 UJ                                     | 380 UJ                                     | 390 UJ                                     | 470 U                                  |
| Pentachlorophenol                     | UG/KG  | 0       | 0%        | 0        | 50         | 2.98E+03  |             | 1000        |             | 970 U                                      | 970 U                                      | 980 U                                      | 900 U                                      | 950 U                                      | 990 U                                      | 1100 U                                 |
| Phenanthrene                          | UG/KG  | 52000   | 94%       | 48       | 51         |           |             | 50000       | 1           | 69 J                                       | 450  | 440  | 110 J                                      | 380 U                                      | 53 J                                       | 1200                                   |
| Phenol                                | UG/KG  | 315 4   | 2%        | 1        | 51         | 1.83E+07  |             | 30          | 1           | 390 U                                      | 390 U                                      | 390 U                                      | 360 U                                      | 380 UJ                                     | 390 U                                      | 470 U                                  |
| Pyrene                                | UG/KG  | 64000   | 94%       | 48       | 51         | 2.32E+06  |             | 50000       | 1           | 120 J                                      | 1200 J                                     | 660  | 160 J                                      | 380 U                                      | 72 J                                       | 2700                                   |
| Pesticides/PCBs                       |  |         |           |          |            |           |             |             |             |  |  |  |  |  |  |  |
| 4,4'-DDD                              | UG/KG  | 0       | 0%        | 0        | 45         | 2.44E+03  |             | 2900        |             | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       | 1.8 UJ                                     | 1.9 UJ                                     | 2 UJ                                       |  |
| 4,4'-DDE                              | UG/KG  | 34      | 11%       | 5        | 45         | 1.72E+03  |             | 2100        |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| 4,4'-DDT                              | UG/KG  | 39      | 5%        | 2        | 44         | 1.72E+03  |             | 2100        |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Aldrin                                | UG/KG  | 12      | 9%        | 4        | 45         | 2.86E+01  |             | 41          |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Alpha-BHC                             | UG/KG  | 0       | 0%        | 0        | 45         | 9.02E+01  |             | 110         |             | 2 UJ                                       | 2 UJ                                       | 2 U  | 1.8 UJ                                     | 1.9 UJ                                     | 2 UJ                                       |  |
| Alpha-Chlordane                       | UG/KG  | 0       | 0%        | 0        | 41         |           |             |             |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Beta-BHC                              | UG/KG  | 0       | 0%        | 0        | 45         | 3.16E+02  |             | 200         |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Chlordane                             | UG/KG  | 0       | 0%        | 0        | 45         |           |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Delta-BHC                             | UG/KG  | 0       | 0%        | 0        | 45         |           |             | 300         |             | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       | 1.8 UJ                                     | 1.9 UJ                                     | 2 UJ                                       |  |
| Dieldrin                              | UG/KG  | 34      | 4%        | 2        | 45         | 3.04E+01  | 1           | 44          |             | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       | 1.8 UJ                                     | 1.9 UJ                                     | 2 UJ                                       |  |
| Endosulfan I                          | UG/KG  | 95      | 59%       | 24       | 41         |           |             | 900         |             | 2 U  | 11 J                                       | 6.9 J                                      | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Endosulfan II                         | UG/KG  | 0       | 0%        | 0        | 45         |           |             | 900         |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Endosulfan sulfate<br>Endrin          | UG/KG<br>UG/KG                                 | 0<br>30 | 0%<br>4%  | 2        | 45<br>45   | 1.83E+04  |             | 1000<br>100 |             | 2 U<br>2 U                                 | 2 U<br>2 U                                 | 2 U<br>2 U                                 | 1.8 U<br>1.8 U                             | 1.9 U<br>1.9 U                             | 2 U<br>2 U                                 |  |
| Endrin<br>Endrin aldehyde             | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         | 1.83E+04  |             | 100         |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Endrin aldenyde<br>Endrin ketone      | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         |           |             |             |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Gamma-BHC/Lindane                     | UG/KG  | 0       | 0%        | 0        | 45         | 4.37E+02  |             | 60          |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Gamma-Chlordane                       | UG/KG  | 0       | 0%        | 0        | 45         | 4.57E+02  |             | 540         |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Heptachlor                            | UG/KG  | 0       | 0%        | 0        | 45         | 1.08E+02  |             | 100         |             | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Heptachlor epoxide                    | UG/KG  | 55      | 21%       | 8        | 39         | 5.34E+01  | 1           | 20          | 3           | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  |  |
| Methoxychlor                          | UG/KG  | 0       | 0%        | 0        | 45         | 3.06E+05  |             |             | -           | 2 U  | 2 U  | 2 U  | 1.8 U                                      | 1.9 U                                      | 2 U  | l                                      |
| Toxaphene                             | UG/KG  | 0       | 0%        | 0        | 45         | 4.42E+02  |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1016                          | UG/KG  | 0       | 0%        | 0        | 45         | 3.93E+03  |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1221                          | UG/KG  | 0       | 0%        | 0        | 45         |           |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1232                          | UG/KG  | 0       | 0%        | 0        | 45         |           |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1242                          | UG/KG  | 0       | 0%        | 0        | 45         |           |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1248                          | UG/KG  | 0       | 0%        | 0        | 45         |           |             |             |             | 20 U                                       | 20 U                                       | 20 U                                       | 18 U                                       | 19 U                                       | 20 U                                       |  |
| Aroclor-1254                          | UG/KG  | 67      | 4%        | 2        | 45         | 2.22E+02  |             | 10000       |             | 20 UJ                                      | 20 UJ                                      | 20 UJ                                      | 18 UJ                                      | 19 UJ                                      | 20 UJ                                      |  |
| Aroclor-1260                          | UG/KG  | 46      | 7%        | 3        | 45         |           |             | 10000       |             | 20 UJ                                      | 20 UJ                                      | 20 UJ                                      | 18 UJ                                      | 19 UJ                                      | 20 UJ                                      |  |
| Metals and Cyanide                    |  |         |           |          |            |           |             |             |             |  |  |  |  |  |  |  |
| Aluminum                              | MG/KG  | 13200   | 100%      | 45       | 45         | 7.61E+04  |             | 19300       |             | 4400                                       | 9700                                       | 9020                                       | 5510                                       | 13000                                      | 13200                                      |  |
| Antimony                              | MG/KG  | 7.5     | 31%       | 14       | 45         | 3.13E+01  |             | 5.9         | 1           | 3.8 J                                      | 1.8  | 8.6  | 1.7  | 1 U  | 1.1 U                                      |  |
| Arsenic                               | MG/KG  | 104     | 100%      | 34       | 34         | 3.90E-01  | 34          | 8.2         | 8           | 4.5 J                                      | 21.2 J                                     | 43 J                                       | 5.4 J                                      | 7.3 J                                      | 11.5 J                                     | l                                      |
| Barium                                | MG/KG  | 207     | 100%      | 45       | 45         | 5.37E+03  |             | 300         |             | 105 J                                      | 74.3 J                                     | 83.6 J                                     | 67.3 J                                     | 102 J                                      | 91.3 J                                     |  |
| Beryllium                             | MG/KG  | 0.68    | 98%       | 44       | 45         | 1.54E+02  |             | 1.1         |             | 0.27                                       | 0.49                                       | 0.46                                       | 0.31                                       | 0.67                                       | 0.68                                       |  |

### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                              | Facility      |                    |           |          |            |           |             |          |             | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I |
|------------------------------|---------------|--------------------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|------------|------------|-----------|
|                              | Location ID   |                    |           |          |            |           |             |          |             | SB121I-1   | SB121I-2   | SB121I-2   | SB121I-3   | SB121I-4   | SB121I-5   | SS121I-1  |
|                              | Matrix        |                    |           |          |            |           |             |          |             | SOIL       
|                              | Sample ID     |                    |           |          |            |           |             |          |             | 121I-1040  | 121I-1043  | 121I-1044  | 121I-1047  | 121I-1050  | 121I-1053  | EB147     |
| Sample Depth to              |               |                    |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0          | 0          | 0         |
| Sample Depth to Bot          | tom of Sample |                    |           |          |            |           |             |          |             | 2          | 2          | 2          | 2          | 2          | 2          | 0.2       |
| • •                          | Sample Date   |                    |           |          |            |           |             |          |             | 10/24/2002 | 10/24/2002 | 10/24/2002 | 10/24/2002 | 10/24/2002 | 10/24/2002 | 3/10/1998 |
|                              | QC Code       |                    |           |          |            | Region IX |             |          |             | SA         
|                              | Study ID      |                    | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     | PID-RI     | EBS       |
|                              |               | Maximum            | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |            |            |           |
| Parameter                    | Units         | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances |          | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q) |
| Cadmium                      | MG/KG         | 6.6                | 31%       | 14       | 45         | 3.70E+01  |             | 2.3      | 3           | 0.53       | 0.14 U     | 0.14 U     | 6.6        | 0.14 U     | 0.14 U     |           |
| Calcium                      | MG/KG         | 298000             | 100%      | 45       | 45         |           |             | 121000   | 18          | 171000     | 30900      | 27800      | 121000     | 10300      | 18800      |           |
| Chromium                     | MG/KG         | 439 4              | 100%      | 45       | 45         |           |             | 29.6     | 6           | 11.2 J     | 25.9 J     | 50 J       | 14.1 J     | 22 J       | 22.6 J     |           |
| Cobalt                       | MG/KG         | 206 4              | 100%      | 45       | 45         | 9.03E+02  |             | 30       | 4           | 6.9 J      | 23.9 J     | 40.6 J     | 12.4 J     | 18 J       | 13.7 J     |           |
| Copper                       | MG/KG         | 209 4              | 100%      | 40       | 40         | 3.13E+03  |             | 33       | 10          | 21 R       | 37.5 R     | 66.1 R     | 20.6 R     | 24.4 R     | 27.6 R     |           |
| Cyanide, Amenable            | MG/KG         | 0                  | 0%        | 0        | 45         |           |             |          |             | 0.59 U     | 0.59 U     | 0.6 U      | 0.55 U     | 0.58 U     | 0.6 U      |           |
| Cyanide, Total               | MG/KG         | 2.00 4             | 7%        | 3        | 45         |           |             |          |             | 0.592 U    | 0.592 U    | 0.595 U    | 0.552 U    | 0.575 U    | 0.602 U    |           |
| Iron                         | MG/KG         | 58400 <sup>4</sup> | 100%      | 45       | 45         | 2.35E+04  | 12          | 36500    | 2           | 11500      | 27100      | 31500      | 15400      | 30400      | 30200      |           |
| Lead                         | MG/KG         | 122                | 100%      | 45       | 45         | 4.00E+02  |             | 24.8     | 22          | 15.7       | 31.3       | 42.1       | 20.3       | 13.7       | 12.8       |           |
| Magnesium                    | MG/KG         | 22300              | 100%      | 45       | 45         |           |             | 21500    | 1           | 18800      | 6110       | 4240       | 12000      | 5240       | 5980       |           |
| Manganese                    | MG/KG         | 310500 4           | 100%      | 45       | 45         | 1.76E+03  | 11          | 1060     | 15          | 474 J      | 33200 J    | 57800 J    | 534 J      | 1420 J     | 1010 J     |           |
| Mercury                      | MG/KG         | 0.18               | 98%       | 44       | 45         | 2.35E+01  |             | 0.1      | 1           | 0.07       | 0.04       | 0.05       | 0.03       | 0.05       | 0.05       |           |
| Nickel                       | MG/KG         | 342 4              | 100%      | 45       | 45         | 1.56E+03  |             | 49       | 7           | 53.6 J     | 38.9 J     | 46.3 J     | 26.7 J     | 37.4 J     | 33.3 J     |           |
| Potassium                    | MG/KG         | 1450               | 100%      | 45       | 45         |           |             | 2380     |             | 1080 J     | 859 J      | 929 J      | 950 J      | 1090 J     | 949 J      |           |
| Selenium                     | MG/KG         | 146 4              | 47%       | 21       | 45         | 3.91E+02  |             | 2        | 5           | 0.65 J     | 5.1 J      | 17.9 J     | 0.46 UJ    | 1.4 J      | 1.4 J      |           |
| Silver                       | MG/KG         | 10.5               | 18%       | 6        | 34         | 3.91E+02  |             | 0.75     | 4           | 0.31 UJ    | 1.9 J      | 4.2 J      | 0.29       | 0.3 UJ     | 0.32 UJ    |           |
| Sodium                       | MG/KG         | 372                | 82%       | 37       | 45         |           |             | 172      | 24          | 372        | 118 U      | 115 U      | 207        | 113 U      | 118 U      |           |
| Thallium                     | MG/KG         | 163 4              | 20%       | 9        | 45         | 5.16E+00  | 5           | 0.7      | 5           | 0.36 U     | 3          | 14.4       | 0.34 U     | 0.35 U     | 0.5 J      |           |
| Vanadium                     | MG/KG         | $182^{-4}$         | 100%      | 45       | 45         | 7.82E+01  | 1           | 150      | 1           | 8.3 J      | 22.6 J     | 31.6 J     | 11.4 J     | 24.3 J     | 21 J       |           |
| Zinc                         | MG/KG         | 532                | 100%      | 45       | 45         | 2.35E+04  |             | 110      | 14          | 176 J      | 85.1 J     | 82 J       | 70.7 J     | 92.1 J     | 93.9 J     |           |
| Other                        |               |                    |           |          |            |           |             |          |             |            |            |            |            |            |            |           |
| Total Organic Carbon         | MG/KG         | 8900               | 100%      | 45       | 45         |           |             |          |             | 5400       | 5600       | 6800       | 6500       | 7100       | 6700       |           |
| Total Petroleum Hydrocarbons | MG/KG         | 2200               | 33%       | 15       | 45         | I         |             | I        |             | 47 U       | 47 U       | 48 U       | 44 U       | 46 U       | 48 U       |           |

#### NOTES:

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|   | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |           |             |          |             | SEAD-121I<br>SS121I-10<br>SOIL<br>121I-1006 | SEAD-121I<br>SS121I-10<br>SOIL<br>121I-1031 | SEAD-121I<br>SS121I-11<br>SOIL<br>121I-1007 | SEAD-121I<br>SS121I-12<br>SOIL<br>121I-1008 | SEAD-121I<br>SS121I-13<br>SOIL<br>121I-1009 | SEAD-121I<br>SS121I-14<br>SOIL<br>121I-1010 | SEAD-121I<br>SS121I-15<br>SOIL<br>121I-1011 |
|---|--|---------|-----------|----------|------------|-----------|-------------|----------|-------------|---|---|---|---|---|---|---|
| Sample Depth to To                              |  |         |           |          |            |           |             |          |             | 0   | 0   | 0   | 0   | 0   | 0<br>0.2                                    | 0<br>0.2                                    |
| Sample Depth to Botto                           | m of Sample<br>Sample Date                     |         |           |          |            |           |             |          |             | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 10/23/2002                                  | 10/23/2002                                  |
|   | QC Code  |         |           |          |            | Region IX |             |          |             | SA  |
|   | Study ID                                       |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI                                      |
|   |  | Maximun |           | of Times | of         | Criteria  |             | Criteria |             | TID KI                                      |
| Parameter                                       | Units  | Value   | Detection |          | Analyses 1 | Value 2   | Exceedances |          | Exceedances | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   |
| Volatile Organic Compounds                      | Cinto  | , and   | Detection | Dettettu | rinaryses  | , and     | Laccedances | T and c  | Execedances | value (Q)                                   | value (Q)                                   | varue (Q)                                   | value (Q)                                   | value (Q)                                   | value (Q)                                   | value (Q)                                   |
| 1,1,1-Trichloroethane                           | UG/KG  | 0       | 0%        | 0        | 45         | 1.20E+06  |             | 800      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,1,2,2-Tetrachloroethane                       | UG/KG  | 0       | 0%        | 0        | 45         | 4.08E+02  |             | 600      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,1,2-Trichloroethane                           | UG/KG  | 0       | 0%        | 0        | 45         | 7.29E+02  |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,1-Dichloroethane                              | UG/KG  | 0       | 0%        | 0        | 45         | 5.06E+05  |             | 200      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,1-Dichloroethene                              | UG/KG  | 0       | 0%        | 0        | 45         | 1.24E+05  |             | 400      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,2-Dichloroethane                              | UG/KG  | 0       | 0%        | 0        | 45         | 2.78E+02  |             | 100      |             | 2.5 UJ                                      | 2.2 U                                       | 3.1 UJ                                      | 2.8 UJ                                      | 2.6 UJ                                      | 3 UJ  | 2.9 UJ                                      |
| 1,2-Dichloropropane                             | UG/KG  | 0       | 0%        | 0        | 45         | 3.42E+02  |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Acetone   | UG/KG  | 150     | 80%       | 36       | 45         | 1.41E+07  |             | 200      |             | 4.5 J                                       | 2.2 U                                       | 15 J  | 12 J  | 30 J  | 37  | 110   |
| Benzene   | UG/KG  | 41 4    | 20%       | 9        | 45         | 6.43E+02  |             | 60       |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 29  |
| Bromodichloromethane                            | UG/KG  | 0       | 0%        | ó        | 45         | 8.24E+02  |             | 00       |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Bromoform                                       | UG/KG  | 0       | 0%        | 0        | 45         | 6.16E+04  |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Carbon disulfide                                | UG/KG  | 0       | 0%        | 0        | 45         | 3.55E+05  |             | 2700     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Carbon tetrachloride                            | UG/KG  | 0       | 0%        | 0        | 45         | 2.51E+02  |             | 600      |             | 2.5 UJ                                      | 2.2 U                                       | 3.1 UJ                                      | 2.8 UJ                                      | 2.6 UJ                                      | 3 UJ  | 2.9 UJ                                      |
| Chlorobenzene                                   | UG/KG  | 0       | 0%        | 0        | 45         | 1.51E+05  |             | 1700     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Chlorodibromomethane                            | UG/KG  | 0       | 0%        | 0        | 45         | 1.11E+03  |             | 1,00     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Chloroethane                                    | UG/KG  | 0       | 0%        | 0        | 45         | 3.03E+03  |             | 1900     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 UJ  | 2.9 UJ                                      |
| Chloroform                                      | UG/KG  | 0       | 0%        | 0        | 45         | 2.21E+02  |             | 300      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Cis-1,2-Dichloroethene                          | UG/KG  | 0       | 0%        | 0        | 45         | 4.29E+04  |             | 300      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Cis-1,3-Dichloropropene                         | UG/KG  | 0       | 0%        | 0        | 45         |           |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Ethyl benzene                                   | UG/KG  | 7.8     | 13%       | 6        | 45         | 3.95E+05  |             | 5500     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 7.8   |
| Meta/Para Xylene                                | UG/KG  | 6.3 4   | 13%       | 6        | 45         |           |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 5.9   |
| Methyl bromide                                  | UG/KG  | 0.3     | 0%        | 0        | 45         | 3.90E+03  |             |          |             | 2.5 UJ                                      | 2.2 U                                       | 3.1 UJ                                      | 2.8 UJ                                      | 2.6 UJ                                      | 3 UJ  | 2.9 UJ                                      |
| Methyl butyl ketone                             | UG/KG  | 0       | 0%        | 0        | 45         | 3.90E+03  |             |          |             | 2.5 UJ                                      | 2.2 U                                       | 3.1 UJ                                      | 2.8 UJ                                      | 2.6 UJ                                      | 3 UJ  | 2.9 UJ                                      |
| Methyl chloride                                 | UG/KG  | 0       | 0%        | 0        | 45         | 4.69E+04  |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Methyl ethyl ketone                             | UG/KG  | 78      | 24%       | 11       | 45         | 2.23E+07  |             | 300      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 5   | 14  | 70  |
| Methyl isobutyl ketone                          | UG/KG  | 0       | 0%        | 0        | 45         | 5.28E+06  |             | 1000     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Methylene chloride                              | UG/KG  | 2.8     | 20%       | 9        | 45         | 9.11E+03  |             | 1000     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 2.1 J                                       | 2.9 U                                       |
| *   |  | 3.6 4   |           | -        |            | J.11E103  |             | 100      |             |   |   |   |   |   |   |   |
| Ortho Xylene                                    | UG/KG  | 0.0     | 13%       | 6<br>0   | 45         | 1.705.06  |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 3.4   |
| Styrene   | UG/KG  | 0       | 0%<br>0%  | 0        | 45         | 1.70E+06  |             | 1400     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Tetrachloroethene                               | UG/KG  |         |           | -        | 45         | 4.84E+02  |             | 1400     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 UJ  | 2.9 UJ                                      |
| Toluene   | UG/KG  | 31 4    | 18%       | 8        | 45         | 5.20E+05  |             | 1500     |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 25  |
| Trans-1,2-Dichloroethene                        | UG/KG  | 0       | 0%        | 0        | 45         | 6.95E+04  |             | 300      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Trans-1,3-Dichloropropene                       | UG/KG  | 0       | 0%        | 0        | 45         |           |             |          |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Trichloroethene                                 | UG/KG  | 0       | 0%        | 0        | 45         | 5.30E+01  |             | 700      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| Vinyl chloride<br>Semivolatile Organic Compound | UG/KG<br>ls                                    | 0       | 0%        | 0        | 45         | 7.91E+01  |             | 200      |             | 2.5 U                                       | 2.2 U                                       | 3.1 U                                       | 2.8 U                                       | 2.6 U                                       | 3 U   | 2.9 U                                       |
| 1,2,4-Trichlorobenzene                          | UG/KG  | 0       | 0%        | 0        | 51         | 6.22E+04  |             | 3400     |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 1,2-Dichlorobenzene                             | UG/KG  | 0       | 0%        | 0        | 51         | 6.00E+05  |             | 7900     |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 1,3-Dichlorobenzene                             | UG/KG  | 0       | 0%        | 0        | 51         | 5.31E+05  |             | 1600     |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 1,4-Dichlorobenzene                             | UG/KG  | 0       | 0%        | 0        | 51         | 3.45E+03  |             | 8500     |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 2,4,5-Trichlorophenol                           | UG/KG  | 0       | 0%        | 0        | 51         | 6.11E+06  |             | 100      |             | 910 U                                       | 910 U                                       | 930 U                                       | 920 U                                       | 4500 U                                      | 980 U                                       | 970 U                                       |
| 2,4,6-Trichlorophenol                           | UG/KG  | 0       | 0%        | 0        | 51         | 6.11E+03  |             |          |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 2,4-Dichlorophenol                              | UG/KG  | 0       | 0%        | 0        | 51         | 1.83E+05  |             | 400      |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 2,4-Dimethylphenol                              | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+06  |             |          |             | 360 U                                       | 360 U                                       | 370 U                                       | 370 U                                       | 1800 U                                      | 390 U                                       | 390 U                                       |
| 2,4-Dinitrophenol                               | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+05  |             | 200      |             | 910 UJ                                      | 910 UJ                                      | 930 U                                       | 920 UJ                                      | 4500 UJ                                     | 980 U                                       | 970 U                                       |

Page 5 of 32 4/27/2006

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I Location ID SS121I-10 SS121I-10 SS121I-11 SS121I-12 SS121I-13 SS121I-14 SS121I-15 Matrix SOIL SOIL SOIL SOIL SOIL SOIL SOIL Sample ID 121I-1006 121I-1031 121I-1007 121I-1008 121I-1009 121I-1010 121I-1011 Sample Depth to Top of Sample 0 0 0 0 Sample Depth to Bottom of Sample 0.2 0.2 0.2 0.2 0.2 0.2 0.2 10/22/2002 10/22/2002 10/22/2002 10/22/2002 10/22/2002 10/23/2002 10/23/2002 Sample Date QC Code Region IX SA SA SA SA SA SA SA PID-RI Study ID Frequency Number Number PRG NYSDEC PID-RI PID-RI PID-RI PID-RI PID-RI PID-RI of Times of Criteria Criteria Maximum of Value 2 Value 3 Exceedances Exceedances Parameter Units Value Detection Detected Analyses Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) 2.4-Dinitrotoluene UG/KG 51 1.22E+05 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 0% 0 2,6-Dinitrotoluene UG/KG 0% 0 51 6.11E+04 1000 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 51 370 U 1800 U 390 U 390 U 2-Chloronaphthalene UG/KG 0 0% 0 4.94E+06 360 U 360 U 370 U UG/KG 6.34E+04 800 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 2-Chlorophenol 0 0% 0 51 2-Methylnaphthalene UG/KG 260 10% 36400 360 U 360 U 370 U 370 U 1800 II 390 U 390 U 5 51 2-Methylphenol UG/KG 0 0% 0 51 3.06E+06 100 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 2-Nitroaniline UG/KG 0 0% 0 51 1.83E+05 430 910 U 910 UJ 930 UJ 920 U 4500 UJ 980 UJ 970 UJ 2-Nitrophenol UG/KG 0 0% 0 51 330 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 3 or 4-Methylphenol UG/KG 0 0% 0 45 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 3,3'-Dichlorobenzidine UG/KG 315 4 2% 47 1.08E+03 360 U 360 U 370 UJ 370 UJ 1800 U 390 UJ 390 UJ 3-Nitroaniline UG/KG 0% 51 1.83E+04 500 910 U 910 U 930 U 920 U 4500 U 980 U 970 U 0 0 UG/KG 910 III 930 U 920 III 4500 III 970 II 4,6-Dinitro-2-methylphenol 0 0% 0 50 6.11E+03 910 UJ 980 II 4-Bromophenyl phenyl ether UG/KG 0 0% 50 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 4-Chloro-3-methylphenol UG/KG 0 0% 0 51 240 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 4-Chloroaniline UG/KG 0 0% 0 51 2.44E+05 220 360 UJ 360 U 370 U 370 UJ 1800 U 390 U 390 U 4-Chlorophenyl phenyl ether UG/KG 0% 0 51 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 4-Methylphenol UG/KG 0% 0 3.06E+05 900 0 6 4-Nitroaniline UG/KG 0 0% 0 51 2.32E+04 910 U 910 U 930 U 920 U 4500 U 980 U 970 U 4-Nitrophenol UG/KG 0 0% 0 51 100 910 U 910 U 930 II 920 U 4500 H 980 II 970 U Acenaphthene UG/KG 6100 51% 26 51 3.68E+06 50000 360 U 360 U 370 U 370 U 1800 U 53 J 57 J Acenaphthylene UG/KG 560 12% 6 51 41000 360 U 360 U 370 U 370 U 1800 U 390 U 390 U UG/KG 12000 29 50 2 19F±07 50000 360 U 360 U 370 U 370 H 1800 II 110 J Anthracene 58% 79 J UG/KG 28000 46 51 6.21E+02 18 224 28 47 J 120 J 660 J 270 J 180 J Benzo(a)anthracene 90% 48 J 63 J 45 44 1100 I Benzo(a)pyrene UG/KG 23000 88% 51 6.21E+01 61 44 66 J 60 J 75 J 180 J 290 I 190 I 48 21 Benzo(b)fluoranthene UG/KG 29000 94% 51 6.21E+02 1100 14 53 J 51 J 100 J 160 J 920 J 280 J 140 J Benzo(ghi)perylene UG/KG 29000 82% 42 51 50000 67 J 63 J 70 J 160 J 840 J 290 J 160 J Benzo(k)fluoranthene UG/KG 23000 74% 37 50 6.21E+03 4 1100 14 360 U 360 U 110 J 150 J 980 J 280 J 220 J Bis(2-Chloroethoxy)methane UG/KG 51 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 0% 51 2 18F±02 Bis(2-Chloroethyl)ether UG/KG 0% 0 1800 II Ω 360 U 360 U 370 II 370 II 390 H 390 II Bis(2-Chloroisopropyl)ether UG/KG 0 0% 0 51 2.88E+03 360 U 360 U 370 U 370 U 1800 U 390 U 390 U Bis(2-Ethylhexyl)phthalate UG/KG 1600 33% 17 51 3.47E+04 50000 360 UJ 360 U 370 UJ 370 UJ 1800 U 390 UJ 390 UJ Butylbenzylphthalate UG/KG  $420^{4}$ 6% 3 48 1.22E+07 50000 360 U 360 U 370 UJ 370 UJ 1800 U 390 UJ 390 UJ Carbazole UG/KG 6800 57% 29 51 2.43E+04 360 U 360 U 370 U 370 U 1800 U 65 J 78 J UG/KG 32000 300 J Chrysene 86% 44 6.21E+04 400 25 63 I 100 I 210 I 800 I 190 I 51 62 I Di-n-butylphthalate UG/KG 45 2% 50 6.11E+06 8100 360 U 360 U 370 U 370 U 1800 U 390 U 390 U Di-n-octylphthalate UG/KG 420 4 2% 47 2.44E+06 50000 360 U 360 U 370 UJ 370 UJ 1800 U 390 UJ 390 UJ Dibenz(a,h)anthracene UG/KG 5000 34% 15 44 6.21E+01 15 14 15 360 U 360 UJ 370 R 370 UJ 1800 UJ 390 U 390 UJ Dibenzofuran UG/KG 2000 27% 14 51 1.45E+05 6200 360 U 360 U 370 U 370 U 1800 U 390 U 390 U Diethyl phthalate UG/KG 640 <sup>4</sup> 2% 1 51 4.89E+07 7100 360 U 360 U 370 U 370 U 1800 U 390 U 390 U UG/KG 0 1.00E+08 2000 360 H 370 II 370 II 1800 II 390 II 390 II Dimethylphthalate 0 0% 51 360 U 48 Fluoranthene UG/KG 62000 94% 51 2.29E+06 50000 100 J 78 J 130 J 220 J 1200 J 570 430 Fluorene UG/KG 4200 43% 22 51 2.75E+06 50000 360 U 360 U 370 U 370 U 1800 U 390 U 46 J Hexachlorobenzene UG/KG 0% 0 50 3.04E+02 410 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 Hexachlorobutadiene UG/KG 0% 0 51 6.24E+03 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 0 Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 360 U 370 U 370 U 1800 U 390 U 390 U 3.47E+04 370 U 370 U 1800 U 390 U

360 I

Page 6 of 32 4/27/2006

390 U

Hexachloroethane

UG/KG

0

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I Location ID SS121I-10 SS121I-10 SS121I-11 SS121I-12 SS121I-13 SS121I-14 SS121I-15 Matrix SOIL SOIL SOIL SOIL SOIL SOIL SOIL Sample ID 121I-1006 121I-1031 121I-1007 121I-1008 121I-1009 121I-1010 121I-1011 Sample Depth to Top of Sample 0 0 0 0 0 Sample Depth to Bottom of Sample 0.2 0.2 0.2 0.2 0.2 0.2 0.2 10/22/2002 10/22/2002 10/22/2002 10/22/2002 10/22/2002 10/23/2002 10/23/2002 Sample Date QC Code Region IX SA SA SA SA SA SA SA Study ID Frequency Number Number PRG NYSDEC PID-RI PID-RI PID-RI PID-RI PID-RI PID-RI PID-RI of Times of Criteria Criteria Maximum of Value 2 Value 3 Parameter Units Detection Detected Analyses Exceedances Exceedances Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Indeno(1,2,3-cd)pyrene UG/KG 12000 71% 35 49 6.21E+02 13 3200 83 J 74 J 370 UJ 250 J 440 J 290 J 91 J 315 4 UG/KG 51 5 12E+05 4400 360 II 360 U 370 II 370 II 1800 U 390 U 390 II Isophorone 2% N-Nitrosodiphenylamine UG/KG 0 0% 0 50 9.93E+04 360 U 360 U 370 U 370 U 1800 U 390 U 390 U N-Nitrosodipropylamine UG/KG 0 0% 0 51 6.95E+01 360 U 360 UJ 370 UJ 370 U 1800 UJ 390 UJ 390 UJ 630 51 13000 360 U 370 U 370 U 1800 U 390 U 390 U UG/KG 14% 7 5.59E+04 360 U Naphthalene Nitrobenzene UG/KG 315 <sup>4</sup> 2% 51 1.96E+04 200 360 U 360 U 370 U 370 U 1800 U 390 U 390 U Pentachlorophenol UG/KG 0 0% 0 50 2.98E+03 1000 910 II 910 U 930 II 920 U 4500 U 980 U 970 U Phenanthrene UG/KG 52000 94% 48 51 50000 60 J 56 J 70 J 170 J 760 J 400 430 1.83E+07 360 U 370 U 1800 U 390 U UG/KG 315 2% 1 51 30 360 II 370 II 390 II Phenol 48 50000 Pyrene UG/KG 64000 94% 51 2.32E+06 79 J 98 J 160 J 270 J 1500 J 610 J 590 J Pesticides/PCBs 4,4'-DDD UG/KG 0% 0 45 2.44E+03 2900 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 2 UJ 2 UJ 0 4,4'-DDE UG/KG 34 11% 5 45 1.72E+03 2100 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U 2 U 4.4'-DDT UG/KG 39 2 44 1.72E+03 2100 1.8 UJ 19 III 1.9 UJ 1.8 UJ 2 111 2 III 5% 19 III Aldrin UG/KG 12 9% 4 45 2.86E+01 41 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U 2 U Alpha-BHC UG/KG 0 0% 0 45 9.02E+01 110 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 2 UJ 2 UJ Alpha-Chlordane UG/KG 0 0% 0 41 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 2 UJ 2 UJ Beta-BHC UG/KG 0 0% 0 45 3.16E+02 200 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 II 2 II Chlordane UG/KG 0 0% 0 45 19 U 18 U 19 U 18 U 20 U 20 U 19 U Delta-BHC UG/KG 0 0% 0 45 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 2 UJ 2 UJ 300 3.04E+01 Dieldrin UG/KG 34 1 1.9 UJ 1.9 UJ 19 III 2 III 4% 2 45 44 18 III 18 III 16 I Endosulfan I UG/KG 95 59% 24 41 900 3.7 J 4.2 J 4.9 5.4 12 7.4 J 2 U Endosulfan II UG/KG 0 0% 0 45 900 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U 2 U Endosulfan sulfate UG/KG 0 0% 0 45 1000 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U 2 U Endrin UG/KG 30 4% 2 45 1.83E+04 100 1.9 UJ 1.8 UJ 1.9 UJ 1.9 UJ 1.8 UJ 2 II 2 U UG/KG 0% 45 19 II 18 II 19 II 19 II 18 II 2 II 2 11 Endrin aldehyde 0 0 UG/KG 45 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U 2 U Endrin ketone 0% Gamma-BHC/Lindane UG/KG 0 0% 0 45 4.37E+02 60 1.9 UJ 1.8 UJ 1.9 U. 1.9 UJ 1.8 UJ 2 U 2 U 45 2 U Gamma-Chlordane UG/KG 0 0% 0 540 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 U Heptachlor UG/KG 0 0% 0 45 1.08E+02 100 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 II 2 U UG/KG 55 21% 39 5.34E+01 1.9 U 1.8 U 1.9 U 1.9 U 2 U Heptachlor epoxide 1 20 6.1 4.1 R UG/KG 45 3.06E+05 1.9 U 1.8 U 1.9 U 1.9 U 1.8 U 2 UJ 2 UJ Methoxychlor 0% Toxaphene UG/KG 0 0% 0 45 4.42E+02 19 U 18 U 19 U 19 U 18 U 20 U 20 U Aroclor-1016 UG/KG 0 0% 0 45 3.93E+03 19 UJ 19 UJ 19 U 19 UJ 18 UJ 20 UJ 20 UJ Aroclor-1221 UG/KG 0 0% 0 45 19 U 19 II 19 U 19 U 18 U 20 III 20 UJ Aroclor-1232 UG/KG 0 0% 0 45 19 UJ 19 UJ 19 U 19 UJ 18 UJ 20 UJ 20 UJ Aroclor-1242 UG/KG 0% 45 19 UJ 19 UJ 19 U 19 UJ 18 UJ 20 UJ 20 UJ Aroclor-1248 UG/KG 0 0% 0 45 19 II 19 II 19 II 19 II 18 II 20 III 20 III 10000 19 U 20 UJ Aroclor-1254 UG/KG 67 4% 2 45 2.22E+02 19 U 19 U 19 UJ 18 U 20 UJ Aroclor-1260 UG/KG 46 7% 3 45 10000 19 U 19 U 19 UJ 19 U 8.3 J 46 J 20 UJ Metals and Cyanide Aluminum MG/KG 13200 100% 45 45 7.61E+04 19300 6480 7510 4290 5050 3380 10700 10600 MG/KG 7.5 14 45 3.13E+01 3.4 2.5 1.8 1.1 II 1.1 II Antimony 31% 5.9 1.3 6.5 U 104 34 34 3.90E-01 34 8.2 5.2 Arsenic MG/KG 100% 5.2 5.9 5.6 6.4 8.4 R 67.4 R Barium MG/KG 207 100% 45 45 5.37E+03 300 116 119 142 81.8 167 81.4 J 80 J Beryllium MG/KG 0.68 98% 44 45 1.54E+02 0.38 J 0.43 J 0.36 J 0.32 0.27 0.61 0.51

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

| 110011 |
|--------|
|        |
|        |
|        |

|                              | Facility        |                    |           |          |            |           |             |          |             | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  |
|------------------------------|-----------------|--------------------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|------------|------------|------------|
|                              | Location ID     |                    |           |          |            |           |             |          |             | SS121I-10  | SS121I-10  | SS121I-11  | SS121I-12  | SS121I-13  | SS121I-14  | SS121I-15  |
|                              | Matrix          |                    |           |          |            |           |             |          |             | SOIL       |
|                              | Sample ID       |                    |           |          |            |           |             |          |             | 121I-1006  | 121I-1031  | 121I-1007  | 121I-1008  | 121I-1009  | 121I-1010  | 121I-1011  |
| Sample Depth to              | Top of Sample   |                    |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| Sample Depth to Bo           | ottom of Sample |                    |           |          |            |           |             |          |             | 0.2        | 0.2        | 0.2        | 0.2        | 0.2        | 0.2        | 0.2        |
| • •                          | Sample Date     |                    |           |          |            |           |             |          |             | 10/22/2002 | 10/22/2002 | 10/22/2002 | 10/22/2002 | 10/22/2002 | 10/23/2002 | 10/23/2002 |
|                              | QC Code         |                    |           |          |            | Region IX |             |          |             | SA         |
|                              | Study ID        |                    | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     |
|                              |                 | Maximum            | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |            |            |            |
| Parameter                    | Units           | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Cadmium                      | MG/KG           | 6.6                | 31%       | 14       | 45         | 3.70E+01  |             | 2.3      | 3           | 5          | 4.1        | 0.55 U     | 0.17 J     | 0.54 U     | 0.2        | 0.14 U     |
| Calcium                      | MG/KG           | 298000             | 100%      | 45       | 45         |           |             | 121000   | 18          | 166000     | 143000     | 223000     | 205000     | 220000     | 7700 J     | 24700 J    |
| Chromium                     | MG/KG           | 439 4              | 100%      | 45       | 45         |           |             | 29.6     | 6           | 14.3       | 14.7       | 8.7        | 12.3       | 15.8       | 39.7       | 24.1       |
| Cobalt                       | MG/KG           | 206 4              | 100%      | 45       | 45         | 9.03E+02  |             | 30       | 4           | 8.4        | 8.9        | 6.8        | 7.4        | 7.9        | 12.5 J     | 66.1 J     |
| Copper                       | MG/KG           | 209 4              | 100%      | 40       | 40         | 3.13E+03  |             | 33       | 10          | 24.5 J     | 22.6 J     | 18.9 J     | 19.4 J     | 21.4 J     | 25         | 108        |
| Cyanide, Amenable            | MG/KG           | 0                  | 0%        | 0        | 45         |           |             |          |             | 0.56 UJ    | 0.55 UJ    | 0.56 UJ    | 0.56 UJ    | 0.55 UJ    | 0.59 U     | 0.59 U     |
| Cyanide, Total               | MG/KG           | $2.00^{4}$         | 7%        | 3        | 45         |           |             |          |             | 0.556 UJ   | 0.551 UJ   | 0.56 UJ    | 0.559 UJ   | 0.546 UJ   | 0.595 U    | 0.585 U    |
| Iron                         | MG/KG           | 58400 <sup>4</sup> | 100%      | 45       | 45         | 2.35E+04  | 12          | 36500    | 2           | 17100      | 17600      | 12600      | 13900      | 12500      | 26100      | 39800      |
| Lead                         | MG/KG           | 122                | 100%      | 45       | 45         | 4.00E+02  |             | 24.8     | 22          | 19         | 16.3       | 22.5       | 21.9       | 22.3       | 45.8 J     | 27.9 J     |
| Magnesium                    | MG/KG           | 22300              | 100%      | 45       | 45         |           |             | 21500    | 1           | 13500      | 9040       | 5410       | 16200      | 16300      | 4980 J     | 5100 J     |
| Manganese                    | MG/KG           | 310500 4           | 100%      | 45       | 45         | 1.76E+03  | 11          | 1060     | 15          | 786        | 822        | 1120       | 709        | 2650 J     | 2340       | 93100      |
| Mercury                      | MG/KG           | 0.18               | 98%       | 44       | 45         | 2.35E+01  |             | 0.1      | 1           | 0.03       | 0.03       | 0.02       | 0.02       | 0.02       | 0.04       | 0.04       |
| Nickel                       | MG/KG           | 342 <sup>4</sup>   | 100%      | 45       | 45         | 1.56E+03  |             | 49       | 7           | 26.7       | 26.9       | 18.1       | 21.1       | 23         | 66.1 J     | 125 J      |
| Potassium                    | MG/KG           | 1450               | 100%      | 45       | 45         |           |             | 2380     |             | 786        | 1150       | 819        | 956        | 908        | 1040 J     | 995        |
| Selenium                     | MG/KG           | 146 4              | 47%       | 21       | 45         | 3.91E+02  |             | 2        | 5           | 0.87       | 0.8        | 0.55 U     | 1.1        | 0.54 U     | 1.4 J      | 37.6 J     |
| Silver                       | MG/KG           | 10.5               | 18%       | 6        | 34         | 3.91E+02  |             | 0.75     | 4           | 1.1 U      | 0.32 R     | 6.4 R      |
| Sodium                       | MG/KG           | 372                | 82%       | 37       | 45         |           |             | 172      | 24          | 210        | 188        | 263        | 238        | 309        | 145        | 143        |
| Thallium                     | MG/KG           | 163 4              | 20%       | 9        | 45         | 5.16E+00  | 5           | 0.7      | 5           | 1.1 U      | 0.37 UJ    | 37.8 J     |
| Vanadium                     | MG/KG           | 182 4              | 100%      | 45       | 45         | 7.82E+01  | 1           | 150      | 1           | 11.6       | 13.2       | 10.7       | 9.9        | 10.8       | 20.5 J     | 62 J       |
| Zinc                         | MG/KG           | 532                | 100%      | 45       | 45         | 2.35E+04  |             | 110      | 14          | 84 J       | 67.9 J     | 55.5 J     | 57.7 J     | 88.1 J     | 109 J      | 140        |
| Other                        |                 |                    |           |          |            |           |             |          |             |            |            |            |            |            |            |            |
| Total Organic Carbon         | MG/KG           | 8900               | 100%      | 45       | 45         |           | l           |          |             | 5600       | 4500       | 5400       | 4400       | 3700       | 4800       | 5000       |
| Total Petroleum Hydrocarbons | MG/KG           | 2200               | 33%       | 15       | 45         |           |             |          |             | 44 UJ      | 44 UJ      | 45 UJ      | 45 UJ      | 1200 J     | 48 U       | 47 U       |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

### SEAD-121C and SEAD-121I RI REPORT

| Sample Depth to To            | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |           |             |          |             | SEAD-121I<br>SS121I-16<br>SOIL<br>121I-1012 | SEAD-121I<br>SS121I-17<br>SOIL<br>121I-1013 | SEAD-121I<br>SS121I-18<br>SOIL<br>121I-1014 | SEAD-121I<br>SS121I-19<br>SOIL<br>121I-1015 | SEAD-121I<br>SS121I-2<br>SOIL<br>EB150 | SEAD-121I<br>SS121I-20<br>SOIL<br>121I-1016 | SEAD-121I<br>SS121I-21<br>SOIL<br>121I-1017 |
|-------------------------------|--|---------|-----------|----------|------------|-----------|-------------|----------|-------------|---|---|---|---|--|---|---|
| Sample Depth to Botton        |  |         |           |          |            |           |             |          |             | 0.2   | 0.2   | 0.2   | 0.2   | 0.2                                    | 0.2   | 0.2   |
|                               | ample Date                                     |         |           |          |            |           |             |          |             | 10/23/2002                                  | 10/23/2002                                  | 10/22/2002                                  | 10/22/2002                                  | 3/10/1998                              | 10/22/2002                                  | 10/22/2002                                  |
|                               | QC Code  |         |           |          |            | Region IX |             |          |             | SA  | SA  | SA  | SA  | SA                                     | SA  | SA  |
|                               | Study ID                                       |         | Frequency |          |            | PRG       |             | NYSDEC   |             | PID-RI                                      | PID-RI                                      | PID-RI                                      | PID-RI                                      | EBS                                    | PID-RI                                      | PID-RI                                      |
|                               |  | Maximun | n of      | of Times | of         | Criteria  |             | Criteria |             |   |   |   |   |  |   |   |
| Parameter                     | Units  | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                              | Value (Q)                                   | Value (Q)                                   |
| Volatile Organic Compounds    |  |         |           |          |            |           |             |          |             |   |   |   |   |  |   |   |
| 1,1,1-Trichloroethane         | UG/KG  | 0       | 0%        | 0        | 45         | 1.20E+06  |             | 800      |             | 2.6 U                                       | 3 U   | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 U                                       |
| 1,1,2,2-Tetrachloroethane     | UG/KG  | 0       | 0%        | 0        | 45         | 4.08E+02  |             | 600      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| 1,1,2-Trichloroethane         | UG/KG  | 0       | 0%        | 0        | 45         | 7.29E+02  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| 1,1-Dichloroethane            | UG/KG  | 0       | 0%        | 0        | 45         | 5.06E+05  |             | 200      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| 1,1-Dichloroethene            | UG/KG  | 0       | 0%        | 0        | 45         | 1.24E+05  |             | 400      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| 1,2-Dichloroethane            | UG/KG  | 0       | 0%        | 0        | 45         | 2.78E+02  |             | 100      |             | 2.6 UJ                                      | 3 UJ  | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 UJ                                      |
| 1,2-Dichloropropane           | UG/KG  | 0       | 0%        | 0        | 45         | 3.42E+02  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Acetone                       | UG/KG  | 150     | 80%       | 36       | 45         | 1.41E+07  |             | 200      |             | 18  | 9.2   | 3.7   | 7   |  | 15 J  | 10  |
| Benzene                       | UG/KG  | 41 4    | 20%       | 9        | 45         | 6.43E+02  |             | 60       |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Bromodichloromethane          | UG/KG  | 0       | 0%        | 0        | 45         | 8.24E+02  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 UJ                                      |  | 3 UJ  | 2.7 U                                       |
| Bromoform                     | UG/KG  | 0       | 0%        | 0        | 45         | 6.16E+04  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Carbon disulfide              | UG/KG  | 0       | 0%        | 0        | 45         | 3.55E+05  |             | 2700     |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Carbon tetrachloride          | UG/KG  | 0       | 0%        | 0        | 45         | 2.51E+02  |             | 600      |             | 2.6 UJ                                      | 3 UJ  | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 UJ                                      |
| Chlorobenzene                 | UG/KG  | 0       | 0%        | 0        | 45         | 1.51E+05  |             | 1700     |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Chlorodibromomethane          | UG/KG  | 0       | 0%        | 0        | 45         | 1.11E+03  |             |          |             | 2.6 U                                       | 3 U   | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 U                                       |
| Chloroethane                  | UG/KG  | 0       | 0%        | 0        | 45         | 3.03E+03  |             | 1900     |             | 2.6 UJ                                      | 3 UJ  | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 U                                       |
| Chloroform                    | UG/KG  | 0       | 0%        | 0        | 45         | 2.21E+02  |             | 300      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Cis-1,2-Dichloroethene        | UG/KG  | 0       | 0%        | 0        | 45         | 4.29E+04  |             | 300      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Cis-1,3-Dichloropropene       | UG/KG  | 0       | 0%        | 0        | 45         | 1.252.01  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Ethyl benzene                 | UG/KG  | 7.8     | 13%       | 6        | 45         | 3.95E+05  |             | 5500     |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
|                               |  | 6.3 4   |           | 6        | 45         | 3.952.165 |             | 3300     |             |   | 3 U   | 2.7 U                                       | 2.9 U                                       |  |   | 2.7 U                                       |
| Meta/Para Xylene              | UG/KG  | 0.3     | 13%       | 0        |            | 2 005 02  |             |          |             | 2.6 U                                       | 3 UJ  |   |   |  | 3 UJ<br>3 UJ                                |   |
| Methyl bromide                | UG/KG  |         | 0%        | -        | 45         | 3.90E+03  |             |          |             | 2.6 UJ                                      |   | 2.7 UJ                                      | 2.9 UJ                                      |  |   | 2.7 UJ                                      |
| Methyl butyl ketone           | UG/KG  | 0       | 0%        | 0        | 45         | 4.505.04  |             |          |             | 2.6 UJ                                      | 3 UJ  | 2.7 UJ                                      | 2.9 UJ                                      |  | 3 UJ  | 2.7 UJ                                      |
| Methyl chloride               | UG/KG  | 0       | 0%        | 0        | 45         | 4.69E+04  |             | 200      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Methyl ethyl ketone           | UG/KG  | 78      | 24%       | 11       | 45         | 2.23E+07  |             | 300      |             | 2.6 U                                       | 3.6   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Methyl isobutyl ketone        | UG/KG  | 0       | 0%        | 0        | 45         | 5.28E+06  |             | 1000     |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Methylene chloride            | UG/KG  | 2.8     | 20%       | 9        | 45         | 9.11E+03  |             | 100      |             | 2.8   | 2.2 J                                       | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Ortho Xylene                  | UG/KG  | 3.6 4   | 13%       | 6        | 45         |           |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Styrene                       | UG/KG  | 0       | 0%        | 0        | 45         | 1.70E+06  |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Tetrachloroethene             | UG/KG  | 0       | 0%        | 0        | 45         | 4.84E+02  |             | 1400     |             | 2.6 UJ                                      | 3 UJ  | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Toluene                       | UG/KG  | 31 4    | 18%       | 8        | 45         | 5.20E+05  |             | 1500     |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Trans-1,2-Dichloroethene      | UG/KG  | 0       | 0%        | 0        | 45         | 6.95E+04  |             | 300      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Trans-1,3-Dichloropropene     | UG/KG  | 0       | 0%        | 0        | 45         |           |             |          |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Trichloroethene               | UG/KG  | 0       | 0%        | 0        | 45         | 5.30E+01  |             | 700      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Vinyl chloride                | UG/KG  | 0       | 0%        | 0        | 45         | 7.91E+01  |             | 200      |             | 2.6 U                                       | 3 U   | 2.7 U                                       | 2.9 U                                       |  | 3 UJ  | 2.7 U                                       |
| Semivolatile Organic Compound | s  |         |           |          |            |           |             |          |             |   |   |   |   |  |   |   |
| 1,2,4-Trichlorobenzene        | UG/KG  | 0       | 0%        | 0        | 51         | 6.22E+04  |             | 3400     |             | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 1,2-Dichlorobenzene           | UG/KG  | 0       | 0%        | 0        | 51         | 6.00E+05  |             | 7900     | l           | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 1,3-Dichlorobenzene           | UG/KG  | 0       | 0%        | 0        | 51         | 5.31E+05  |             | 1600     | l           | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 1,4-Dichlorobenzene           | UG/KG  | 0       | 0%        | 0        | 51         | 3.45E+03  |             | 8500     | l           | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 2,4,5-Trichlorophenol         | UG/KG  | 0       | 0%        | 0        | 51         | 6.11E+06  |             | 100      |             | 890 U                                       | 950 U                                       | 900 U                                       | 920 U                                       | 18000 UJ                               | 4600 U                                      | 4400 U                                      |
| 2,4,6-Trichlorophenol         | UG/KG  | 0       | 0%        | 0        | 51         | 6.11E+03  |             | 1 -50    |             | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 2,4-Dichlorophenol            | UG/KG  | 0       | 0%        | 0        | 51         | 1.83E+05  |             | 400      |             | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 2,4-Dimethylphenol            | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+06  |             |          |             | 360 U                                       | 380 U                                       | 360 U                                       | 370 U                                       | 7400 UJ                                | 1800 U                                      | 1800 U                                      |
| 2,4-Dinitrophenol             | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+05  |             | 200      |             | 890 UJ                                      | 950 UJ                                      | 900 U                                       | 920 U                                       | 18000 UJ                               | 4600 U                                      | 4400 U                                      |
| 2,7 Dimirophenol              | UU/KU  | U       | U70       | U        | JI         | 1.22E+U3  |             | 200      |             | 650 UJ                                      | 730 UJ                                      | 900 U                                       | 920 U                                       | 10000 03                               | 4000 U                                      | ++00 U                                      |

### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                                   | Facility<br>Location ID<br>Matrix |                  |           |          |            |                      |             |          |             | SEAD-121I<br>SS121I-16<br>SOIL | SEAD-121I<br>SS121I-17<br>SOIL | SEAD-121I<br>SS121I-18<br>SOIL | SEAD-121I<br>SS121I-19<br>SOIL | SEAD-121I<br>SS121I-2<br>SOIL | SEAD-121I<br>SS121I-20<br>SOIL | SEAD-121I<br>SS121I-21<br>SOIL |
|-----------------------------------|-----------------------------------|------------------|-----------|----------|------------|----------------------|-------------|----------|-------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|
|                                   | Sample ID                         |                  |           |          |            |                      |             |          |             | 121I-1012                      | 121I-1013                      | 121I-1014                      | 121I-1015                      | EB150                         | 121I-1016                      | 121I-1017                      |
| Sample Depth to 7                 | Top of Sample                     |                  |           |          |            |                      |             |          |             | 0                              | 0                              | 0                              | 0                              | 0                             | 0                              | 0                              |
| Sample Depth to Bott              | tom of Sample                     |                  |           |          |            |                      |             |          |             | 0.2                            | 0.2                            | 0.2                            | 0.2                            | 0.2                           | 0.2                            | 0.2                            |
|                                   | Sample Date                       |                  |           |          |            |                      |             |          |             | 10/23/2002                     | 10/23/2002                     | 10/22/2002                     | 10/22/2002                     | 3/10/1998                     | 10/22/2002                     | 10/22/2002                     |
|                                   | QC Code                           |                  |           |          |            | Region IX            |             |          |             | SA                             | SA                             | SA                             | SA                             | SA                            | SA                             | SA                             |
|                                   | Study ID                          |                  | Frequency |          |            | PRG                  |             | NYSDEC   |             | PID-RI                         | PID-RI                         | PID-RI                         | PID-RI                         | EBS                           | PID-RI                         | PID-RI                         |
|                                   |                                   | Maximun          | ı of      | of Times | of         | Criteria             |             | Criteria |             |                                |                                |                                |                                |                               |                                |                                |
| Parameter                         | Units                             | Value            | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3  | Exceedances | Value (Q)                      | Value (Q)                      | Value (Q)                      | Value (Q)                      | Value (Q)                     | Value (Q)                      | Value (Q)                      |
| 2,4-Dinitrotoluene                | UG/KG                             | 0                | 0%        | 0        | 51         | 1.22E+05             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 2,6-Dinitrotoluene                | UG/KG                             | 0                | 0%        | 0        | 51         | 6.11E+04             |             | 1000     |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 2-Chloronaphthalene               | UG/KG                             | 0                | 0%        | 0        | 51         | 4.94E+06             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 2-Chlorophenol                    | UG/KG                             | 0                | 0%        | 0        | 51         | 6.34E+04             |             | 800      |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 2-Methylnaphthalene               | UG/KG                             | 260              | 10%       | 5        | 51         |                      |             | 36400    |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 260 J                          | 1800 U                         |
| 2-Methylphenol                    | UG/KG                             | 0                | 0%        | 0        | 51         | 3.06E+06             |             | 100      |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 2-Nitroaniline                    | UG/KG                             | 0                | 0%        | 0        | 51         | 1.83E+05             |             | 430      |             | 890 UJ                         | 950 UJ                         | 900 U                          | 920 UJ                         | 18000 UJ                      | 4600 U                         | 4400 U                         |
| 2-Nitrophenol                     | UG/KG                             | 0                | 0%        | 0        | 51         |                      |             | 330      |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 3 or 4-Methylphenol               | UG/KG                             | 0                | 0%        | 0        | 45         |                      |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          |                               | 1800 U                         | 1800 U                         |
| 3,3'-Dichlorobenzidine            | UG/KG                             | 315 4            | 2%        | 1        | 47         | 1.08E+03             |             |          |             | 360 U                          | 380 U                          | 360 UJ                         | 370 UJ                         | 7400 U                        | 1800 UJ                        | 8800 U                         |
| 3-Nitroaniline                    | UG/KG                             | 0                | 0%        | 0        | 51         | 1.83E+04             |             | 500      |             | 890 UJ                         | 950 UJ                         | 900 U                          | 920 U                          | 18000 UJ                      | 4600 U                         | 4400 U                         |
| 4,6-Dinitro-2-methylphenol        | UG/KG                             | 0                | 0%        | 0        | 50         | 6.11E+03             |             |          |             | 890 UJ                         | 950 UJ                         | 900 U                          | 920 U                          | 18000 UJ                      | 4600 U                         | 4400 U                         |
| 4-Bromophenyl phenyl ether        | UG/KG                             | 0                | 0%        | 0        | 50         |                      |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 4-Chloro-3-methylphenol           | UG/KG                             | 0                | 0%        | 0        | 51         |                      |             | 240      |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 4-Chloroaniline                   | UG/KG                             | 0                | 0%        | 0        | 51         | 2.44E+05             |             | 220      |             | 360 U                          | 380 U                          | 360 UJ                         | 370 U                          | 7400 UJ                       | 1800 UJ                        | 1800 UJ                        |
| 4-Chlorophenyl phenyl ether       | UG/KG                             | 0                | 0%        | 0        | 51         |                      |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| 4-Methylphenol                    | UG/KG                             | 0                | 0%        | 0        | 6          | 3.06E+05             |             | 900      |             |                                |                                |                                |                                | 7400 UJ                       |                                |                                |
| 4-Nitroaniline                    | UG/KG                             | 0                | 0%        | 0        | 51         | 2.32E+04             |             |          |             | 890 UJ                         | 950 UJ                         | 900 U                          | 920 U                          | 18000 U                       | 4600 U                         | 4400 U                         |
| 4-Nitrophenol                     | UG/KG                             | 0                | 0%        | 0        | 51         |                      |             | 100      |             | 890 U                          | 950 U                          | 900 U                          | 920 U                          | 18000 UJ                      | 4600 U                         | 4400 U                         |
| Acenaphthene                      | UG/KG                             | 6100             | 51%       | 26       | 51         | 3.68E+06             |             | 50000    |             | 360 U                          | 380 U                          | 54 J                           | 90 J                           | 1900 J                        | 6100                           | 1400 J                         |
| Acenaphthylene                    | UG/KG                             | 560              | 12%       | 6        | 51         |                      |             | 41000    |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 U                        | 1800 U                         | 560 J                          |
| Anthracene                        | UG/KG                             | 12000            | 58%       | 29       | 50         | 2.19E+07             |             | 50000    |             | 360 U                          | 380 U                          | 94 J                           | 150 J                          | 2600 J                        | 12000                          | 2200                           |
| Benzo(a)anthracene                | UG/KG                             | 28000            | 90%       | 46       | 51         | 6.21E+02             | 18          | 224      | 28          | 58 J                           | 110 J                          | 470 J                          | 600 J                          | 13000 J                       | 28000 J                        | 6100 J                         |
| Benzo(a)pyrene                    | UG/KG                             | 23000            | 88%       | 45       | 51         | 6.21E+01             | 44          | 61       | 44          | 74 J                           | 120 J                          | 610 J                          | 620 J                          | 13000 J                       | 23000                          | 5800 J                         |
| Benzo(b)fluoranthene              | UG/KG                             | 29000            | 94%       | 48       | 51         | 6.21E+02             | 21          | 1100     | 14          | 74 J                           | 110 J                          | 580 J                          | 660 J                          | 12000 J                       | 29000                          | 5700 J                         |
| Benzo(ghi)perylene                | UG/KG                             | 29000            | 82%       | 42       | 51         |                      |             | 50000    |             | 360 UJ                         | 56 J                           | 300 J                          | 490 J                          | 8100 J                        | 29000 J                        | 5000 J                         |
| Benzo(k)fluoranthene              | UG/KG                             | 23000            | 74%       | 37       | 50         | 6.21E+03             | 4           | 1100     | 14          | 360 U                          | 140 J                          | 760 J                          | 540 J                          | 15000 J                       | 21000 J                        | 7100 J                         |
| Bis(2-Chloroethoxy)methane        | UG/KG                             | 0                | 0%        | 0        | 51         |                      |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Bis(2-Chloroethyl)ether           | UG/KG                             | 0                | 0%        | 0        | 51         | 2.18E+02             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Bis(2-Chloroisopropyl)ether       | UG/KG                             | 0                | 0%        | 0        | 51         | 2.88E+03             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Bis(2-Ethylhexyl)phthalate        | UG/KG                             | 1600             | 33%       | 17       | 51         | 3.47E+04             |             | 50000    |             | 360 UJ                         | 380 UJ                         | 360 UJ                         | 370 UJ                         | 7400 UJ                       | 1800 UJ                        | 8800 U                         |
| Butylbenzylphthalate              | UG/KG                             | $420^{4}$        | 6%        | 3        | 48         | 1.22E+07             |             | 50000    |             | 360 UJ                         | 380 UJ                         | 360 UJ                         | 370 UJ                         | 7400 UJ                       | 1800 UJ                        | 8800 U                         |
| Carbazole                         | UG/KG                             | 6800             | 57%       | 29       | 51         | 2.43E+04             |             |          |             | 360 UJ                         | 380 UJ                         | 120 J                          | 140 J                          | 3100 J                        | 6800                           | 1900                           |
| Chrysene                          | UG/KG                             | 32000            | 86%       | 44       | 51         | 6.21E+04             |             | 400      | 25          | 83 J                           | 120 J                          | 740 J                          | 740 J                          | 16000 J                       | 32000 J                        | 8500 J                         |
| Di-n-butylphthalate               | UG/KG                             | 45               | 2%        | 1        | 50         | 6.11E+06             |             | 8100     |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Di-n-octylphthalate               | UG/KG                             | $420^{4}$        | 2%        | 1        | 47         | 2.44E+06             |             | 50000    |             | 360 U                          | 380 U                          | 360 UJ                         | 370 UJ                         | 7400 UJ                       | 1800 UJ                        | 8800 U                         |
| Dibenz(a,h)anthracene             | UG/KG                             | 5000             | 34%       | 15       | 44         | 6.21E+01             | 15          | 14       | 15          | 360 U                          | 380 U                          | 360 R                          | 370 UJ                         | 4600 J                        | 2200 J                         | 710 J                          |
| Dibenzofuran                      | UG/KG                             | 2000             | 27%       | 14       | 51         | 1.45E+05             |             | 6200     |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 440 J                         | 2000                           | 700 J                          |
| Diethyl phthalate                 | UG/KG                             | 640 <sup>4</sup> | 2%        | 1        | 51         | 4.89E+07             |             | 7100     |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
|                                   | UG/KG                             | 0                | 0%        | 0        | 51         | 1.00E+08             |             | 2000     |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Dimethylphthalate<br>Fluoranthene | UG/KG<br>UG/KG                    | 62000            | 94%       | 48       | 51         | 2.29E+06             |             | 50000    | , [         | 170 J                          | 240 J                          | 1100                           | 1400                           | 35000 J                       | 62000                          | 13000                          |
| Fluorene                          | UG/KG<br>UG/KG                    | 4200             | 43%       | 22       | 51         | 2.29E+06<br>2.75E+06 |             | 50000    | 1           | 360 U                          | 380 U                          | 360 U                          | 55 J                           | 1100 J                        | 4200                           | 1000 J                         |
| Hexachlorobenzene                 | UG/KG<br>UG/KG                    | 0                | 45%<br>0% | 0        | 50         | 3.04E+02             |             | 410      |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Hexachlorobutadiene               | UG/KG                             | 0                | 0%        | 0        | 51         | 6.24E+02             |             | 1 410    |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Hexachlorocyclopentadiene         | UG/KG                             | 0                | 0%        | 0        | 51         | 3.65E+05             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| Hexachloroethane                  | UG/KG                             | 0                | 0%        | 0        | 51         | 3.47E+04             |             |          |             | 360 U                          | 380 U                          | 360 U                          | 370 U                          | 7400 UJ                       | 1800 U                         | 1800 U                         |
| TEXACHIOTOCHIAIC                  | UU/KU                             | U                | U70       | U        | JI         | J.+/E+04             |             |          |             | 300 0                          | 300 0                          | 300 0                          | 370 0                          | /400 UJ                       | 1000 0                         | 1000 0                         |

Page 10 of 32

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I Location ID SS121I-16 SS121I-17 SS121I-18 SS121I-19 SS121I-2 SS121I-20 SS121I-21 Matrix SOIL SOIL SOIL SOIL SOIL SOIL SOIL Sample ID 121I-1012 121I-1013 121I-1014 121I-1015 EB150 121I-1016 121I-1017 Sample Depth to Top of Sample 0 0 0 0 0 0 Sample Depth to Bottom of Sample 0.2 0.2 0.2 0.2 0.2 0.2 0.2 10/23/2002 10/23/2002 10/22/2002 10/22/2002 3/10/1998 10/22/2002 10/22/2002 Sample Date QC Code Region IX SA SA SA SA SA SA SA PID-RI Study ID Frequency Number Number PRG NYSDEC PID-RI PID-RI PID-RI EBS PID-RI PID-RI of Times of Criteria Criteria Maximum of Value 2 Value 3 Exceedances Parameter Units Detection Detected Analyses Exceedances Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Value (Q) Indeno(1,2,3-cd)pyrene UG/KG 12000 71% 35 49 6.21E+02 13 3200 360 UJ 61 J 170 J 390 J 8000 J 8100 J 2300 J UG/KG 315 4 51 5 12E+05 4400 360 II 380 U 360 II 370 II 7400 UJ 1800 U 1800 II Isophorone 2% N-Nitrosodiphenylamine UG/KG 0 0% 0 50 9.93E+04 360 U 380 U 360 U 370 U 7400 UJ 1800 U 1800 U N-Nitrosodipropylamine UG/KG 0 0% 0 51 6.95E+01 360 UJ 380 UJ 360 UJ 370 UJ 7400 UJ 1800 UJ 1800 UJ 630 51 13000 380 U 360 U 7400 UJ UG/KG 14% 7 5.59E+04 360 U 370 U 480 J 630 J Naphthalene Nitrobenzene UG/KG 315 <sup>4</sup> 2% 51 1.96E+04 200 360 U 380 U 360 U 370 U 7400 UJ 1800 U 1800 U Pentachlorophenol UG/KG 0 0% 0 50 2.98E+03 1000 890 II 950 U 900 U 920 U 18000 UJ 4600 U 4400 U Phenanthrene UG/KG 52000 94% 48 51 50000 140 J 170 J 650 15000 J 52000 14000 315 4 1.83E+07 380 U 360 U 370 U 1800 U 1800 U UG/KG 2% 1 51 30 360 II 7400 III Phenol 48 2.32E+06 50000 23000 Pyrene UG/KG 64000 94% 51 140 J 250 J 1600 2000 J 44000 J 13000 Pesticides/PCBs 4,4'-DDD UG/KG 0% 0 45 2.44E+03 2900 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 0 4,4'-DDE UG/KG 34 11% 5 45 1.72E+03 2100 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 26 J 4.4'-DDT UG/KG 39 2 44 1.72E+03 2100 1.8 III 19 III 19 II 19 III 39 I 5% 19 II Aldrin UG/KG 12 9% 4 45 2.86E+01 41 1.8 U 1.9 U 1.9 UJ 1.9 UJ 12 1.8 U Alpha-BHC UG/KG 0 0% 0 45 9.02E+01 110 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ Alpha-Chlordane UG/KG 0 0% 0 41 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ Beta-BHC UG/KG 0 0% 0 45 3.16E+02 200 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 1.8 U Chlordane UG/KG 0 0% 0 45 18 U 19 U 19 U 19 U 18 U 19 U Delta-BHC UG/KG 0 0% 0 45 1.8 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.9 UJ 1.8 UJ 300 3.04E+01 Dieldrin UG/KG 34 1 1.8 UJ 19 III 1.9 UJ 1.9 UJ 1.9 UJ 4% 2 45 44 34 I 24 41 Endosulfan I UG/KG 95 59% 900 1.8 U 1.9 U 18 13 95 J 20 J Endosulfan II UG/KG 0 0% 0 45 900 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 1.8 U Endosulfan sulfate UG/KG 0 0% 0 45 1000 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 1.8 U Endrin UG/KG 30 4% 2 45 1.83E+04 100 1.8 U 1.9 U 1.9 U 1.9 U 1.9 UJ 30 J 1.9 U UG/KG 0% 45 18 II 19 II 19 II 19 II 18 II Endrin aldehyde 0 0 Endrin ketone UG/KG 45 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 0% 1.8 U Gamma-BHC/Lindane UG/KG 0 0% 0 45 4.37E+02 60 1.8 U 1.9 U 1.9 U. 1.9 UJ 1.9 UJ 1.8 UJ 45 Gamma-Chlordane UG/KG 0 0% 0 540 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 1.8 U Heptachlor UG/KG 0 0% 0 45 1.08E+02 100 1.8 U 1.9 U 1.9 U 1.9 U 1.9 U 1.8 U UG/KG 55 21% 39 5.34E+01 1 1.8 U 1.9 U 1.9 U 55 J Heptachlor epoxide 20 13 6.5 UG/KG 45 3.06E+05 1.8 UJ 1.9 UJ 1.9 U 1.9 U 1.9 U 1.8 U Methoxychlor 0% Toxaphene UG/KG 0 0% 0 45 4.42E+02 18 U 19 U 19 U 19 U 19 U 18 U Aroclor-1016 UG/KG 0 0% 0 45 3.93E+03 18 UJ 19 UJ 18 U 19 U 19 U 18 UJ Aroclor-1221 UG/KG 0 0% 0 45 18 UJ 19 III 18 U 19 U 19 U 18 U Aroclor-1232 UG/KG 0 0% 0 45 18 UJ 19 UJ 18 U 19 U 19 U 18 UJ Aroclor-1242 UG/KG 0% 45 18 UJ 19 UJ 18 U 19 U 19 U 18 UJ Aroclor-1248 UG/KG 0 0% 0 45 18 III 19 III 18 II 19 II 19 II 18 II 10000 19 UJ Aroclor-1254 UG/KG 67 4% 2 45 2.22E+02 18 UJ 19 UJ 18 UJ 19 UJ 18 U Aroclor-1260 UG/KG 46 7% 3 45 10000 18 UJ 19 UJ 18 UJ 19 UJ 19 UJ 18 U Metals and Cyanide Aluminum MG/KG 13200 100% 45 45 7.61E+04 19300 10900 10300 5810 7410 7590 2870 MG/KG 7.5 31% 14 45 3.13E+01 0.96 U 1 II 6.7 U 6.6 U 0.99 Antimony 5.9 6.5 U 104 100% 34 34 3.90E-01 34 8.2 4.5 7.3 Arsenic MG/KG 6 R 10.4 R 5.9 8.9 Barium MG/KG 207 100% 45 45 5.37E+03 300 61.8 J 75 J 74.4 92 111 168 Beryllium MG/KG 0.68 98% 44 45 1.54E+02 0.55 0.54 0.35 0.46 J 0.56 0.28 J

## SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                              | Facility       |                    |           |          |            |           |             |          |             | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I | SEAD-121I  | SEAD-121I  |
|------------------------------|----------------|--------------------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|------------|------------|-----------|------------|------------|
|                              | Location ID    |                    |           |          |            |           |             |          |             | SS121I-16  | SS121I-17  | SS121I-18  | SS121I-19  | SS121I-2  | SS121I-20  | SS121I-21  |
|                              | Matrix         |                    |           |          |            |           |             |          |             | SOIL       | SOIL       | SOIL       | SOIL       | SOIL      | SOIL       | SOIL       |
|                              | Sample ID      |                    |           |          |            |           |             |          |             | 121I-1012  | 121I-1013  | 121I-1014  | 121I-1015  | EB150     | 121I-1016  | 121I-1017  |
| Sample Depth to              | Top of Sample  |                    |           |          |            |           |             |          |             | 0          | 0          | 0          | 0          | 0         | 0          | 0          |
| Sample Depth to Bot          | ttom of Sample |                    |           |          |            |           |             |          |             | 0.2        | 0.2        | 0.2        | 0.2        | 0.2       | 0.2        | 0.2        |
|                              | Sample Date    |                    |           |          |            |           |             |          |             | 10/23/2002 | 10/23/2002 | 10/22/2002 | 10/22/2002 | 3/10/1998 | 10/22/2002 | 10/22/2002 |
|                              | QC Code        |                    |           |          |            | Region IX |             |          |             | SA         | SA         | SA         | SA         | SA        | SA         | SA         |
|                              | Study ID       |                    | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | PID-RI     | PID-RI     | EBS       | PID-RI     | PID-RI     |
|                              |                | Maximum            | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |            |            |           |            |            |
| Parameter                    | Units          | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances |          | Exceedances | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q) | Value (Q)  | Value (Q)  |
| Cadmium                      | MG/KG          | 6.6                | 31%       | 14       | 45         | 3.70E+01  |             | 2.3      | 3           | 0.13 U     | 0.14 U     | 0.54 U     | 0.56 U     |           | 0.55 U     | 1.4        |
| Calcium                      | MG/KG          | 298000             | 100%      | 45       | 45         |           |             | 121000   | 18          | 5370 J     | 15800 J    | 143000     | 132000     |           | 67500      | 202000     |
| Chromium                     | MG/KG          | 439 4              | 100%      | 45       | 45         |           |             | 29.6     | 6           | 19.6       | 17.9       | 10.7       | 11.9       |           | 16.4       | 12.4       |
| Cobalt                       | MG/KG          | 206 4              | 100%      | 45       | 45         | 9.03E+02  |             | 30       | 4           | 11.2 J     | 14.1 J     | 6.1        | 9.9        |           | 12.3       | 8          |
| Copper                       | MG/KG          | 209 4              | 100%      | 40       | 40         | 3.13E+03  |             | 33       | 10          | 17.6       | 32.2       | 12.8 J     | 14.3 J     |           | 44.1 J     | 29.6 J     |
| Cyanide, Amenable            | MG/KG          | 0                  | 0%        | 0        | 45         |           |             |          |             | 0.54 U     | 0.58 U     | 0.55 UJ    | 0.56 UJ    |           | 0.56 UJ    | 0.54 UJ    |
| Cyanide, Total               | MG/KG          | 2.00 4             | 7%        | 3        | 45         |           |             |          |             | 0.543 U    | 0.578 U    | 1.1 J      | 0.565 UJ   |           | 0.558 UJ   | 0.536 UJ   |
| Iron                         | MG/KG          | 58400 <sup>4</sup> | 100%      | 45       | 45         | 2.35E+04  | 12          | 36500    | 2           | 24400      | 23900      | 14000      | 16900      |           | 19400      | 14100      |
| Lead                         | MG/KG          | 122                | 100%      | 45       | 45         | 4.00E+02  |             | 24.8     | 22          | 8.6 J      | 15.3 J     | 21.5       | 14.8       |           | 48.8       | 90.9       |
| Magnesium                    | MG/KG          | 22300              | 100%      | 45       | 45         |           |             | 21500    | 1           | 4630 J     | 6270 J     | 7180       | 5810       |           | 6470       | 10900      |
| Manganese                    | MG/KG          | 310500 4           | 100%      | 45       | 45         | 1.76E+03  | 11          | 1060     | 15          | 442        | 6560       | 648        | 854        |           | 779        | 909        |
| Mercury                      | MG/KG          | 0.18               | 98%       | 44       | 45         | 2.35E+01  |             | 0.1      | 1           | 0.03       | 0.04       | 0.02       | 0.03       |           | 0.03       | 0.04       |
| Nickel                       | MG/KG          | 342 4              | 100%      | 45       | 45         | 1.56E+03  |             | 49       | 7           | 29.9 J     | 31.8 J     | 16.4       | 21         |           | 30.7       | 17.1       |
| Potassium                    | MG/KG          | 1450               | 100%      | 45       | 45         |           |             | 2380     |             | 807        | 965        | 882        | 960        |           | 830        | 767        |
| Selenium                     | MG/KG          | 146 4              | 47%       | 21       | 45         | 3.91E+02  |             | 2        | 5           | 1.3 J      | 1.5 J      | 0.54 U     | 0.56 U     |           | 0.7        | 0.48 J     |
| Silver                       | MG/KG          | 10.5               | 18%       | 6        | 34         | 3.91E+02  |             | 0.75     | 4           | 0.29 R     | 0.38 R     | 1.1 U      | 1.1 U      |           | 1.1 U      | 1.1 U      |
| Sodium                       | MG/KG          | 372                | 82%       | 37       | 45         |           |             | 172      | 24          | 106 U      | 122        | 209        | 154        |           | 161        | 286        |
| Thallium                     | MG/KG          | 163 4              | 20%       | 9        | 45         | 5.16E+00  | 5           | 0.7      | 5           | 0.33 UJ    | 0.35 UJ    | 1.1 U      | 1.1 U      |           | 1.1 U      | 1.1 U      |
| Vanadium                     | MG/KG          | 182 4              | 100%      | 45       | 45         | 7.82E+01  | 1           | 150      | 1           | 17.4 J     | 20.4 J     | 10.5       | 13.2       |           | 17.1       | 14.6       |
| Zinc                         | MG/KG          | 532                | 100%      | 45       | 45         | 2.35E+04  |             | 110      | 14          | 70.8 J     | 75.4 J     | 53.5 J     | 55.1 J     |           | 145 J      | 157 J      |
| Other                        |                |                    |           |          |            |           |             |          |             |            |            |            |            |           |            |            |
| Total Organic Carbon         | MG/KG          | 8900               | 100%      | 45       | 45         |           |             |          |             | 6000       | 8100       | 3300       | 5700       |           | 6200       | 3000       |
| Total Petroleum Hydrocarbons | MG/KG          | 2200               | 33%       | 15       | 45         | l         |             | I        |             | 43 U       | 46 U       | 100 J      | 45 UJ      |           | 810 J      | 850 J      |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| :  | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |                      |             |                    |             | SEAD-121I<br>SS121I-22<br>SOIL<br>121I-1018 | SEAD-121I<br>SS121I-23<br>SOIL<br>121I-1019 | SEAD-121I<br>SS121I-24<br>SOIL<br>121I-1020 | SEAD-121I<br>SS121I-25<br>SOIL<br>121I-1021 | SEAD-121I<br>SS121I-26<br>SOIL<br>121I-1022 | SEAD-121I<br>SS121I-27<br>SOIL<br>121I-1023 | SEAD-121I<br>SS121I-28<br>SOIL<br>121I-1024 |
|--|--|---------|-----------|----------|------------|----------------------|-------------|--------------------|-------------|---|---|---|---|---|---|---|
| Sample Depth to To                                 |  |         |           |          |            |                      |             |                    |             | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Sample Depth to Botton                             |  |         |           |          |            |                      |             |                    |             | 0.2   | 0.2   | 0.2   | 0.2   | 0.2   | 0.2   | 0.2   |
| S  | ample Date                                     |         |           |          |            |                      |             |                    |             | 10/23/2002                                  | 10/22/2002                                  | 10/22/2002                                  | 10/22/2002                                  | 10/23/2002                                  | 10/23/2002                                  | 10/22/2002                                  |
|  | QC Code  |         | -         |          |            | Region IX            |             | NEGDER             |             | SA  |
|  | Study ID                                       | Maximun | Frequency | of Times | Number     | PRG                  |             | NYSDEC<br>Criteria |             | PID-RI                                      |
|  |  |         |           |          | of         | Criteria             |             |                    |             | ***   | *** /**                                     | ** * **                                     | ** * **                                     | ***   |   | ** * **                                     |
| Parameter Volatile Organic Compounds               | Units  | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   |
|  | UG/KG  | 0       | 0%        | 0        | 45         | 1.20E+06             |             | 800                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| 1,1,1-Trichloroethane<br>1,1,2,2-Tetrachloroethane | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         | 4.08E+00             |             | 600                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| 1,1,2-Trichloroethane                              | UG/KG  | 0       | 0%        | 0        | 45         | 7.29E+02             |             | 000                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| 1,1-Dichloroethane                                 | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         | 7.29E+02<br>5.06E+05 |             | 200                |             |   |   | 2.3 U                                       |   |   | 2.9 UJ                                      | 2.7 U                                       |
|  |  | 0       | 0%        | 0        | 45         | 1.24E+05             |             | 400                |             | 2.7 U<br>2.7 U                              | 2.5 UJ                                      | 2.3 U<br>2.3 U                              | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ<br>2.9 UJ                            | 2.7 U                                       |
| 1,1-Dichloroethene                                 | UG/KG  | 0       |           | 0        | 45         | 2.78E+02             |             |                    |             | 2.7 UJ                                      | 2.5 UJ<br>2.5 UJ                            | 2.3 UJ                                      | 2.6 U<br>2.6 UJ                             | 2.7 UJ<br>2.7 UJ                            | 2.9 UJ                                      | 2.7 UJ                                      |
| 1,2-Dichloroethane                                 | UG/KG  | 0       | 0%<br>0%  | 0        | 45<br>45   | 2.78E+02<br>3.42E+02 |             | 100                |             | 2.7 U<br>2.7 U                              | 2.5 UJ<br>2.5 UJ                            | 2.3 U                                       | 2.6 U                                       | 2.7 UJ<br>2.7 UJ                            | 2.9 UJ<br>2.9 UJ                            | 2.7 UJ<br>2.7 U                             |
| 1,2-Dichloropropane                                | UG/KG  | 150     | 80%       | -        | 45         |                      |             | 200                |             |   |   |   |   |   |   | II.   |
| Acetone  | UG/KG  |         |           | 36       |            | 1.41E+07             |             | 200                |             | 4.4   | 3.8 UJ                                      | 2.2 J                                       | 5.1 J                                       | 5.6 J                                       | 45 UJ                                       | 16 J  |
| Benzene  | UG/KG  | 41 4    | 20%       | 9        | 45         | 6.43E+02             |             | 60                 |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 4.6 J                                       | 2.7 U                                       |
| Bromodichloromethane                               | UG/KG  | 0       | 0%        | 0        | 45         | 8.24E+02             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Bromoform  | UG/KG  | 0       | 0%        | 0        | 45         | 6.16E+04             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Carbon disulfide                                   | UG/KG  | 0       | 0%        | 0        | 45         | 3.55E+05             |             | 2700               |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Carbon tetrachloride                               | UG/KG  | 0       | 0%        | 0        | 45         | 2.51E+02             |             | 600                |             | 2.7 UJ                                      | 2.5 UJ                                      | 2.3 UJ                                      | 2.6 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 UJ                                      |
| Chlorobenzene                                      | UG/KG  | 0       | 0%        | 0        | 45         | 1.51E+05             |             | 1700               |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Chlorodibromomethane                               | UG/KG  | 0       | 0%        | 0        | 45         | 1.11E+03             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Chloroethane                                       | UG/KG  | 0       | 0%        | 0        | 45         | 3.03E+03             |             | 1900               |             | 2.7 UJ                                      | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Chloroform   | UG/KG  | 0       | 0%        | 0        | 45         | 2.21E+02             |             | 300                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Cis-1,2-Dichloroethene                             | UG/KG  | 0       | 0%        | 0        | 45         | 4.29E+04             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Cis-1,3-Dichloropropene                            | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Ethyl benzene                                      | UG/KG  | 7.8     | 13%       | 6        | 45         | 3.95E+05             |             | 5500               |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Meta/Para Xylene                                   | UG/KG  | 6.3 4   | 13%       | 6        | 45         |                      |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Methyl bromide                                     | UG/KG  | 0       | 0%        | 0        | 45         | 3.90E+03             |             |                    |             | 2.7 UJ                                      | 2.5 UJ                                      | 2.3 UJ                                      | 2.6 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 UJ                                      |
| Methyl butyl ketone                                | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |                    |             | 2.7 UJ                                      | 2.5 UJ                                      | 2.3 UJ                                      | 2.6 UJ                                      | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 UJ                                      |
| Methyl chloride                                    | UG/KG  | 0       | 0%        | 0        | 45         | 4.69E+04             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Methyl ethyl ketone                                | UG/KG  | 78      | 24%       | 11       | 45         | 2.23E+07             |             | 300                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 28 J  | 2.7 U                                       |
| Methyl isobutyl ketone                             | UG/KG  | 0       | 0%        | 0        | 45         | 5.28E+06             |             | 1000               |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Methylene chloride                                 | UG/KG  | 2.8     | 20%       | 9        | 45         | 9.11E+03             |             | 100                |             | 2 J   | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Ortho Xylene                                       | UG/KG  | 3.6 4   | 13%       | 6        | 45         |                      |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Styrene  | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         | 1.70E+06             |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Tetrachloroethene                                  | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 45         | 4.84E+02             |             | 1400               |             | 2.7 UJ                                      | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
|  |  |         |           | -        |            |                      |             | l .                |             |   |   |   |   |   |   |   |
| Toluene  | UG/KG  | 31 4    | 18%       | 8        | 45         | 5.20E+05             |             | 1500               |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.8 J                                       | 2.7 U                                       |
| Trans-1,2-Dichloroethene                           | UG/KG  | 0       | 0%        | 0        | 45         | 6.95E+04             |             | 300                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Trans-1,3-Dichloropropene                          | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |                    |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Trichloroethene                                    | UG/KG  | 0       | 0%        | 0        | 45         | 5.30E+01             |             | 700                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| Vinyl chloride<br>Semivolatile Organic Compound    | UG/KG  | 0       | 0%        | 0        | 45         | 7.91E+01             |             | 200                |             | 2.7 U                                       | 2.5 UJ                                      | 2.3 U                                       | 2.6 U                                       | 2.7 UJ                                      | 2.9 UJ                                      | 2.7 U                                       |
| 1,2,4-Trichlorobenzene                             | UG/KG  | 0       | 0%        | 0        | 51         | 6.22E+04             |             | 3400               |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| 1,2-Dichlorobenzene                                | UG/KG<br>UG/KG                                 | 0       | 0%        | 0        | 51         | 6.22E+04<br>6.00E+05 |             | 7900               |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
|  |  | 0       | 0%        | 0        | 51         |                      |             | II .               |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | II.   |
| 1,3-Dichlorobenzene                                | UG/KG  | 0       | 0%        | 0        | 51         | 5.31E+05<br>3.45E+03 |             | 1600               |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U<br>350 U                              | 370 U                                       | 390 U                                       | 360 U<br>360 U                              |
| 1,4-Dichlorobenzene                                | UG/KG  | 0       | 0%        | 0        |            | I                    |             | 8500               |             | 910 U                                       |   | 880 U                                       | 350 U<br>890 U                              | 940 U                                       |   | II.   |
| 2,4,5-Trichlorophenol                              | UG/KG  | 0       |           | 0        | 51         | 6.11E+06             |             | 100                |             |   | 870 U                                       |   |   |   | 970 UJ<br>390 UJ                            | 890 U<br>360 U                              |
| 2,4,6-Trichlorophenol                              | UG/KG  | -       | 0%        | -        | 51         | 6.11E+03             |             | 400                |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       |   |   |
| 2,4-Dichlorophenol                                 | UG/KG  | 0       | 0%        | 0        | 51         | 1.83E+05             |             | 400                |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| 2,4-Dimethylphenol                                 | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+06             |             | 200                |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| 2,4-Dinitrophenol                                  | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+05             |             | 200                |             | 910 UJ                                      | 870 UJ                                      | 880 UJ                                      | 890 U                                       | 940 U                                       | 970 UJ                                      | 890 U                                       |

Page 13 of 32 4/27/2006

## SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| Part   |                             | Facility<br>Location ID |           |     |          |    |          |             |         |             | SEAD-121I<br>SS121I-22 | SEAD-121I<br>SS121I-23 | SEAD-121I<br>SS121I-24 | SEAD-121I<br>SS121I-25 | SEAD-121I<br>SS121I-26 | SEAD-121I<br>SS121I-27 | SEAD-121I<br>SS121I-28 |
|--|-----------------------------|-------------------------|-----------|-----|----------|----|----------|-------------|---------|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Sample Paper Sarger Sample Sample Sample Paper Sample Pap |                             |                         |           |     |          |    |          |             |         |             | SOIL                   | SOIL                   |                        |                        | SOIL                   | SOIL                   | SOIL                   |
| Semigric Deputies Semigric D   |                             |                         |           |     |          |    |          |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Part   |                             |                         |           |     |          |    |          |             |         |             | *                      |                        |                        |                        | -                      |                        | -                      |
| Part   |                             |                         |           |     |          |    |          |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Part   |                             |                         |           |     |          |    |          |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Permeter   Visit   |                             |                         |           | T   | V        | N  |          |             | MACDEC  |             |                        |                        |                        |                        |                        |                        |                        |
| Parameter   Unite   Value      |                             |                         | Marimum   |     |          |    |          |             |         |             | PID-KI                 | PID-KI                 | PID-RI                 | PID-KI                 | PID-KI                 | PID-KI                 | PID-KI                 |
| 2.4 Enternolamense UGRG 0  | Powerston                   |                         |           |     |          |    |          | F1          |         | F           | V.1. (0)               | V.1 (0)                | V.1 (0)                | V.1 (0)                | V.1 (0)                | V.1 (0)                | V.1 (0)                |
| 2.5-Dissincebases   CGRG   0   |                             |                         |           |     | Detected |    |          | Exceedances | value   | Exceedances |                        |                        |                        |                        |                        |                        |                        |
| Chebroghmarker   UGKC   O   OS   O   S1   4.944-06   S80     |                             |                         |           |     | 0        |    |          |             | 1000    |             |                        |                        |                        |                        |                        |                        | II.                    |
| Cabeloge-based   Circ Cor   200   0%   0   51   6.344-04   380   360   360   360   380   350   350   370   300   360   10   360      | **                          |                         | -         |     | -        |    | l        |             | 1000    |             |                        |                        |                        |                        |                        |                        |                        |
| Satelyphendal   COKG    |                             |                         |           |     | -        | -  | l        |             | 800     |             |                        |                        |                        |                        |                        |                        |                        |
| Sate-legisphese    CUCKG   0   |                             |                         | -         |     | -        |    | 0.542104 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| 2-Nice-milling   CoKG   O   O   O   O   O   O   O   O   O  |                             |                         |           |     | -        |    | 3.06E±06 |             |         |             |                        |                        |                        |                        |                        |                        | II.                    |
| 2-Nicephend   UCKG   O   0%   O   51   Silver    |                             |                         |           |     | -        |    | l        |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| 3 of -Methyphened   UGKG   0   0   45   1.08E+05   560 U   360 U   350 U   370 U   390 U   560 U   560 U   350 U   370 U   390 U   560 U   350 U   370 U   390 U   560 U   450 |                             |                         | -         |     | -        |    | 1.052.05 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| 1.5.Decknordexerdaine   UG-KC   13.6   2.8   1   47   1.08E-03   50.0   50.0   1.08E-03   50.0   5   | _                           |                         |           |     | -        |    |          |             | 550     |             |                        |                        |                        |                        |                        |                        | II.                    |
| Salimaniline   G/G/G   0   05   0   51   1.83E-04   500   910 U   870 U   880 U   890 U   940 U   970 U   890 U   4.870 morphylerhor   G/G/G   0   05   0   50   51   4.870 morphylerhor   G/G/G   0   05   0   51   4.870 morphylerhor   G/G/G   0   05   0   51   4.870 morphylerhor   G/G/G   0   05   0   51   4.880 U   360 U   340 U   350 U   350 U   370 U   390 U   360 U   4.610 morphylerhor   G/G/G   0   05   0   51   2.44E-05   220   360 U   340 U   350 U   350 U   370 U   390 U   360 U   4.610 morphylerhor   G/G/G   0   05   0   51   2.48E-05   220   360 U   340 U   350 U   350 U   370 U   390 U   360 U   4.800 U   4   | * *                         |                         |           |     | 1        |    | 1.08E±03 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| 4.6-Dimrore-methylphenol   |                             |                         |           |     | •        |    |          |             | 500     |             |                        |                        |                        |                        |                        |                        |                        |
| ABROMORPHY phenyl ethory   UGNG   0   0%   0   50  |                             |                         |           |     | -        | -  | l        |             | 300     |             |                        |                        |                        |                        |                        |                        |                        |
| Achloro-3-methylphenol   UG/KG   O   O%   O%   O   S1   C   C   Achloro-3-methylphenol   UG/KG   O   O%   O   S1   C   C   C   C   C   C   C   C   C   |                             |                         | -         |     |          |    | 0.11L+03 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Alchiorophary phenyl p  |                             |                         |           |     | -        |    |          |             | 240     |             |                        |                        |                        |                        |                        |                        |                        |
| Achlorophenyl phenyl ether   UG/KG   0   0%   0   6   1   300E-05   990  |                             |                         |           |     | -        |    | 2 44E+05 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Absolute    |                             |                         |           |     | -        |    | 2.442103 |             | 220     |             |                        |                        |                        |                        |                        |                        | II.                    |
| A-Nirrophano    UGKG   0   0%   0   51   2,32E+04     910 UJ   870 UJ   880 U   890 U   940 U   970 UJ   880 U   A-Nirrophano    UGKG   6   06   0   51   2,32E+04   100   970 UJ   870 UJ   880 U   890 U   940 U   970 UJ   880 U   A-Nirrophano    UGKG   6   6   51   3,88E+06   50000   230 J   1300   84 J   760   66 J   390 UJ   360 U   340 U   350 U   370 U   390 UJ   360 U   340 U   340 U   350 U   370 U   390 U   340 U   340 U   340 U   350 U   370 U   390 U   34   |                             |                         | -         |     | -        |    | 3.06E±05 |             | 900     |             | 300 0                  | 540 0                  | 330 0                  | 330 0                  | 370 0                  | 370 03                 | 300 6                  |
| Astrophenel   UG/KG   Co   O%   O   St   O%   O   O%   O   O%   O   O%   O   O  |                             |                         |           |     | -        |    | l        |             | , , , , |             | 910 III                | 870 III                | 880 II                 | 890 II                 | 940 H                  | 970 III                | 890 II                 |
| Accomphishme   |                             |                         | -         |     | -        |    | 2.522.01 |             | 100     |             |                        |                        |                        |                        |                        |                        |                        |
| Acemaphtylene   UG/KG   500   12%   6   51     4100   360 U   340 U   350 U   370 U   390 U   360 U   340 Ambracers   UG/KG   1200   580 K   29   50   2.19E-07   50000   400 I   210 I   20 I   360 U   340 U   20 I   350 U   370 U   390 U   360 U   360 U   340 U   20 I   360 U   340 U   350 U   370 U   390 U   360 U   |                             |                         |           |     |          |    | 3.68E+06 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Anthracene   |                             |                         |           |     |          |    |          |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Benzo(a)purple   UG/KG   28000   90%   46   51   6.21E+02   18   224   28   1300   900 J   910 J   5500   660 J   120 J   55 J   |                             |                         |           |     | 29       |    | 2.19E+07 |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Bezzo(h)Tuoranthene   UG/KG   29000   94%   48   51   6.21E+02   21   1100   14   1300   6300   970   7000   820   140   72   140   72   1500   1500   820   140   72   140   72   1500   1500   820   140   72   140   72   1500   150   |                             |                         | 28000     | 90% | 46       |    | l        | 18          | 224     | 28          |                        |                        |                        | 5500                   |                        |                        | II.                    |
| Berzo(philoranthene   UG/KG   29000   94%   48   51   6.21E+02   21   1100   14   1300   6300   970   7000   820   140   72   1800   70   1800   820   140   72   1800   70   1800   820   140   72   1800   140   140   140   1500      | Benzo(a)pyrene              | UG/KG                   | 23000     | 88% | 45       | 51 | 6.21E+01 | 44          | 61      | 44          | 1400 J                 | 5600 J                 | 880 J                  | 5500                   | 740 J                  | 240 J                  | 86 J                   |
| Berazo (Piloranthene   UG/KG   23000   74%   37   50   6.21E+03   4   1100   14   1600   1   650   4500   820   260   360   R  |                             |                         | 29000     |     |          |    |          | 21          |         | 14          |                        |                        | 970 J                  |                        |                        |                        |                        |
| Berozofilitoranthene   UG/KG   23000   74%   37   50   6.21E+03   4   1100   14   1600 J   650 J   4500   820 J   260 J   360 R   Bis(2-Chloroethyy)methane   UG/KG   0   0%   0   51   2.18E+02   360 U   340 U   350 U   350 U   370 U   390 U   360 U   3   | Benzo(ghi)perylene          | UG/KG                   | 29000     | 82% | 42       | 51 |          |             | 50000   |             | 1500 J                 | 8300 J                 | 900 J                  | 5000                   | 470 J                  | 65 J                   | 70 J                   |
| Bis(2-Chlorosethyl)ether UG/KG 0 0% 0 51 2.18E+02 360 U 340 U 350 U 350 U 370 U 390 U 360 U 360 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 350 U 370 U 390 U 360 U 340 U 350 U 370 U 390 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360 U 360 U 340 U 350 U 370 U 390 U 360  |                             | UG/KG                   | 23000     | 74% | 37       | 50 | 6.21E+03 | 4           | 1100    | 14          | 1600 J                 | 6100 J                 | 650 J                  | 4500                   | 820 J                  | 260 J                  | 360 R                  |
| Bis(2-Chloroisopropyl)ether UG/KG 1600 33% 17 51 2.88E+03 3.47E+04 50000 130 UJ 63 J 39 J 350 UJ 74 J 110 J 66 J Bis(2-Ethylhexyl)phthalate UG/KG 420 6% 3 48 1.22E+07 50000 360 R 340 R 350 UJ 550 UJ 74 J 110 J 66 J Carbazole UG/KG 6800 57% 29 51 2.43E+04 310 J 830 J 89 J 1000 110 J 390 UJ 550 UJ 74 J 61 D 750 D | Bis(2-Chloroethoxy)methane  | UG/KG                   | 0         | 0%  | 0        | 51 |          |             |         |             | 360 U                  | 340 U                  | 350 U                  | 350 U                  | 370 U                  | 390 U                  | 360 U                  |
| Bis(2-Ethylhexyl)phthalate UG/KG 1600 33% 17 51 3.47E+04 50000 130 UJ 63 J 39 J 350 UJ 74 J 110 J 66 J Butylbenzylphthalate UG/KG 420 4 6% 3 48 1.22E+07 50000 360 R 340 R 350 UJ 350 UJ 350 UJ 370 UJ 390 UJ 55 J Carbazole UG/KG 6300 57% 29 51 2.43E+04 400 25 1700 J 14000 J 1200 J 6300 1100 J 220 J 100 J Di-n-butylphthalate UG/KG 45 2% 1 50 6.11E+06 8100 360 UJ 340 UJ 350 U 350 UJ 370 U 390 R 360 R 360 U J 370 UJ 390 UJ 360 R 360 U J 370 UJ 390 UJ 360 R 360 U J 370 UJ 390 UJ 360 R 360 R 360 UJ 370 UJ 390 UJ 390 R 360 R 360 R 360 UJ 370 UJ 390 UJ 390 R 360 R 360 R 360 UJ 370 UJ 390 UJ 360 R 360 R 360 UJ 370 UJ 390 UJ 360 R 360 R 360 UJ 370 UJ 390 UJ 360 R 360 R 360 UJ 370 UJ 390 UJ 360 R 360 R 360 UJ 370 UJ 390 UJ 360 R 360 UJ 370 UJ 390 UJ 360 R 360 UJ 370 UJ 390 UJ 360 UJ 370  | Bis(2-Chloroethyl)ether     | UG/KG                   | 0         | 0%  | 0        | 51 | 2.18E+02 |             |         |             | 360 U                  | 340 U                  | 350 U                  | 350 U                  | 370 U                  | 390 U                  | 360 U                  |
| Butylbenzylpithalate UG/KG 420 4 6% 3 48 1.22E+07 50000 Ghrysene UG/KG 32000 86% 44 51 6.21E+04 400 25 1700 J 14000 J 1200 J 6300 1100 J 220 J 100 J Di-n-butylphthalate UG/KG 45 2% 1 50 6.11E+06 8100 Di-n-butylphthalate UG/KG 420 4 29% 1 47 2.44E+06 50000 Di-n-butylphthalate UG/KG 5000 34% 15 44 6.21E+01 15 14 15 160 J 660 J 72 J 300 J 370 UJ 390 UJ 360 R Dibenz(a,h)anthracene UG/KG 2000 27% 14 51 1.45E+05 6200 Diethylphthalate UG/KG 640 4 2% 1 51 4.89E+07 7100 Diethylphthalate UG/KG 6200 94% 48 51 2.29E+06 50000 J 2600 J 27000 J 1500 J 1000 J 1000 J 100 Bis(2-Chloroisopropyl)ether | UG/KG                   | 0         | 0%  | 0        | 51 | 2.88E+03 |             |         |             | 360 U                  | 340 U                  | 350 U                  | 350 U                  | 370 U                  | 390 U                  | 360 U                  |
| Carbazole UG/KG 6800 57% 29 51 2.43E+04 310 J 830 J 89 J 1000 110 J 390 UJ 360 U Chrysene UG/KG 32000 86% 44 51 6.21E+04 400 25 1700 J 14000 J 1200 J 6300 1100 J 220 J 100 J 050 Di-n-butylphthalate UG/KG 45 2% 1 50 6.11E+06 8100 360 UJ 340 UJ 350 U 350 UJ 370 U 390 R 360 R Di-n-octylphthalate UG/KG 420 2% 1 47 2.44E+06 50000 360 R 360 R 340 R 350 UJ 370 UJ 390 UJ 360 R Di-n-octylphthalate UG/KG 5000 34% 15 44 6.21E+01 15 14 15 160 J 660 J 72 J 300 J 370 UJ 390 UJ 360 R Di-n-octylphthalate UG/KG 2000 27% 14 51 1.45E+05 6200 92 J 220 J 350 U 120 J 370 U 390 UJ 360 U Di-n-ottylphthalate UG/KG 640 4 2% 1 51 4.89E+07 7100 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U Di-n-ottylphthalate UG/KG 6000 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 U 360 U Di-n-ottylphthalate UG/KG 4200 43% 22 51 2.75E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 U 360 U Hexachlorobenzene UG/KG 0 0% 0 51 6.24E+03 UG/KG 0 0% 0 51 6.24E+03 UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U UG/KG 0 0% 0 51 3.65E+05 UG/KG 0 360 U 340 U 350 U 350 U 350 U 370 U 390  | Bis(2-Ethylhexyl)phthalate  | UG/KG                   | 1600      | 33% | 17       | 51 | 3.47E+04 |             | 50000   |             | 130 UJ                 | 63 J                   | 39 J                   | 350 UJ                 | 74 J                   | 110 J                  | 66 J                   |
| Carbazole UG/KG 6800 57% 29 51 2.43E+04  | Butylbenzylphthalate        | UG/KG                   | $420^{4}$ | 6%  | 3        | 48 | 1.22E+07 |             | 50000   |             | 360 R                  | 340 R                  | 350 UJ                 | 350 UJ                 | 370 UJ                 | 390 UJ                 | 55 J                   |
| Di-n-butylphthalate UG/KG 45 2% 1 50 6.11E+06 8100 360 UJ 340 UJ 350 UJ 350 UJ 370 UJ 390 R 360 U Di-n-octylphthalate UG/KG 420 2% 1 47 2.44E+06 50000 360 R 360 R 340 R 350 UJ 350 UJ 370 UJ 390 UJ 360 R Dibenz(a,h)anthracene UG/KG 5000 27% 14 51 1.45E+05 6200 92 J 220 J 350 U 120 J 370 UJ 390 UJ 360 R Dibenz(a,h)anthracene UG/KG 640 2% 1 51 4.89E+07 7100 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Dimethylphthalate UG/KG 640 4 2% 1 51 1.00E+08 2000 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Dimethylphthalate UG/KG 6200 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluoranthene UG/KG 640 4 370 U 390 UJ 360 U Dimethylphthalate UG/KG 640 4 2% 1 51 1.00E+08 2000 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Dimethylphthalate UG/KG 6200 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluoranthene UG/KG 640 4 370 U 390 UJ 360 U Dimethylphthalate UG/KG 640 4 370 U 390 UJ 360 U 3 |                             | UG/KG                   | 6800      | 57% | 29       | 51 | 2.43E+04 |             |         |             | 310 J                  | 830 J                  | 89 J                   | 1000                   | 110 J                  | 390 UJ                 | 360 U                  |
| Di-n-octylphthalate UG/KG 420 4 2% 1 47 2.44E+06 50000 360 R 350 UJ 350 UJ 370 UJ 390 UJ 360 R Dibenz(a,h)anthracene UG/KG 5000 34% 15 44 6.21E+01 15 14 15 160 J 660 J 72 J 300 J 370 UJ 390 R 360 R Dibenzofuran UG/KG 2000 27% 14 51 1.45E+05 6200 92 J 220 J 350 U 120 J 370 U 390 UJ 360 U Diethyl phthalate UG/KG 640 4 2% 1 51 1.45E+05 7100 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Dimethylphthalate UG/KG 600 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 6200 43% 22 51 2.75E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 0 0 0% 0 50 3.04E+02 410 360 UJ 360 UJ 360 UJ 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorobutadiene UG/KG 0 0 0% 0 51 3.65E+05 410 360 UJ 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene  | Chrysene                    | UG/KG                   | 32000     | 86% | 44       | 51 | 6.21E+04 |             | 400     | 25          | 1700 J                 | 14000 J                | 1200 J                 | 6300                   | 1100 J                 | 220 J                  | 100 J                  |
| Di-n-octylphthalate UG/KG 420 4 2% 1 47 2.44E+06 50000 360 R 340 R 350 UJ 350 UJ 370 UJ 390 UJ 360 R Dibenz(a,h)anthracene UG/KG 5000 34% 15 44 6.21E+01 15 14 15 160 J 660 J 72 J 300 J 370 UJ 390 R 360 R Dibenzofuran UG/KG 2000 27% 14 51 1.45E+05 6200 92 J 220 J 350 U 120 J 370 U 390 UJ 360 U Diethyl phthalate UG/KG 640 4 2% 1 51 1.00E+08 2000 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Dimethylphthalate UG/KG 6200 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 6200 43% 22 51 2.75E+06 50000 1 60 J 520 350 U 350 U 370 U 390 UJ 360 U Hexachlorobetanee UG/KG 0 0% 0 51 3.65E+05 410 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentatiene UG/KG 0 0% 0 51 3.65E+05   | Di-n-butylphthalate         | UG/KG                   | 45        | 2%  | 1        | 50 | 6.11E+06 |             | 8100    |             | 360 UJ                 | 340 UJ                 | 350 U                  | 350 UJ                 | 370 U                  | 390 R                  | 360 U                  |
| Dibenz(a,h)anthracene   UG/KG   5000   34%   15   44   6.21E+01   15   14   15   160 J   660 J   72 J   300 J   370 UJ   390 R   360 R     Dibenzofuran   UG/KG   2000   27%   14   51   1.45E+05   6200   92 J   220 J   350 U   120 J   370 U   390 UJ   360 U     Diethyl phthalate   UG/KG   640   4   2%   1   51   4.89E+07   7100   360 U   340 U   350 U   350 U   350 U   370 U   390 UJ   360 U     Diethyl phthalate   UG/KG   6200   94%   48   51   2.29E+06   50000   1   2600 J   27000 J   1500   11000   1500   130 J   86 J     Fluorene   UG/KG   6200   43%   22   51   2.75E+06   50000   1   2600 J   27000 J   1500   11000   1500   130 J   360 U     Hexachlorobetarene   UG/KG   0   0%   0   50   3.04E+02   410   360 U   340 U   350 U   350 U   350 U   370 U   390 R   360 U     Hexachlorocyclopentatiene   UG/KG   0   0%   0   51   3.65E+05   410   360 U   340 U   350 U   350 U   350 U   370 U   390 U   360 U     Hexachlorocyclopentatiene   UG/KG   0   0%   0   51   3.65E+05   410   360 U   340 U   350 U   350 U   350 U   370 U   390 U   360 U     Hexachlorocyclopentatiene   UG/KG   0   0%   0   51   3.65E+05   360 U   340 U   350 U   350 U   350 U   370 U   390 UJ   360 U     Hexachlorocyclopentatiene   UG/KG   0   0%   0   51   3.65E+05   360 U   340 U   350 U   350 U   350 U   370 U   390 UJ   360 U     Hexachlorocyclopentatiene   UG/KG   0   0%   0   51   3.65E+05   360 U   340 U   350 U   350 U   350 U   370 U   390 UJ   360 U  | Di-n-octylphthalate         | UG/KG                   | $420^{4}$ | 2%  | 1        | 47 | 2.44E+06 |             | 50000   |             | 360 R                  | 340 R                  | 350 UJ                 | 350 UJ                 | 370 UJ                 | 390 UJ                 | 360 R                  |
| Dibenzofuran   UG/KG   2000   27%   14   51   1.45E+05   6200   92 J   220 J   350 U   120 J   370 U   390 UJ   360 U  |                             |                         | 5000      |     | 15       |    | l        | 15          |         | 15          |                        |                        |                        |                        |                        |                        |                        |
| Dimethylphthalate UG/KG 0 0% 0 51 1.00E+08 2000 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U Fluoranthene UG/KG 62000 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 4200 43% 22 51 2.75E+06 50000 160 J 520 350 U 310 J 370 U 390 UJ 360 U Hexachlorobutadiene UG/KG 0 0% 0 50 3.04E+02 410 360 UJ 340 U 350 U 350 U 350 U 370 U 390 R 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U   |                             |                         |           | 27% |          |    |          |             |         |             |                        |                        |                        |                        |                        |                        |                        |
| Dimethylphthalate UG/KG 0 0% 0 51 1.00E+08 2000 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U Fluoranthene UG/KG 62000 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 4200 43% 22 51 2.75E+06 50000 160 J 520 350 U 310 J 370 U 390 UJ 360 U Hexachlorobutadiene UG/KG 0 0% 0 50 3.04E+02 410 360 UJ 340 U 350 U 350 U 350 U 370 U 390 R 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U   | Diethyl phthalate           | UG/KG                   | 640 4     | 2%  | 1        | 51 | 4.89F±07 |             | 7100    |             | 360 II                 | 340 H                  | 350 II                 | 350 II                 | 370 II                 | 390 111                | 360 II                 |
| Fluoranthene UG/KG 62000 94% 48 51 2.29E+06 50000 1 2600 J 27000 J 1500 11000 1500 130 J 86 J Fluorene UG/KG 4200 43% 22 51 2.75E+06 50000 160 J 520 350 U 310 J 370 U 390 UJ 360 U Hexachlorobetarene UG/KG 0 0% 0 50 3.04E+02 410 360 UJ 340 UJ 350 U 350 UJ 370 U 390 R 360 U Hexachlorobetarene UG/KG 0 0% 0 51 6.24E+03 360 U 340 U 350 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 UJ 340 UJ 350 UJ 350 UJ 370 UJ 390 UJ 360 U |                             |                         |           |     | •        | -  |          |             |         |             |                        |                        |                        |                        |                        |                        | II.                    |
| Fluorene UG/KG 4200 43% 22 51 2.75E+06 50000 160 J 520 350 U 310 J 370 U 390 UJ 360 U Hexachlorobenzene UG/KG 0 0% 0 50 3.04E+02 410 360 UJ 340 UJ 350 U 350 UJ 370 U 390 R 360 U Hexachlorobutadiene UG/KG 0 0% 0 51 6.24E+03 360 U 360 U 360 U 350 U 350 U 370 U 390 UJ 360 U Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U  |                             |                         |           |     | -        |    | l        | l           |         | 1           |                        |                        |                        |                        |                        |                        |                        |
| Hexachlorobenzene       UG/KG       0       0%       0       50       3.04E+02       410       360 UJ       340 UJ       350 UJ       350 UJ       370 U       390 R       360 U         Hexachlorobutadiene       UG/KG       0       0%       0       51       6.24E+03       360 U       340 U       350 U       350 U       370 U       390 U       360 U         Hexachlorocyclopentadiene       UG/KG       0       0%       0       51       3.65E+05       360 U       340 U       350 U       350 U       370 U       390 UJ       360 U  |                             |                         |           |     |          |    | l        | l           |         |             |                        |                        |                        |                        |                        |                        | II.                    |
| Hexachlorobutadiene       UG/KG       0       0%       0       51       6.24E+03       360 U       340 U       350 U       350 U       370 U       390 U       360 U         Hexachlorocyclopentadiene       UG/KG       0       0%       0       51       3.65E+05       360 U       340 U       350 U       350 U       370 U       390 UJ       360 U   |                             |                         |           |     |          |    |          | l           |         |             |                        |                        |                        |                        |                        |                        |                        |
| Hexachlorocyclopentadiene UG/KG 0 0% 0 51 3.65E+05 360 U 340 U 350 U 350 U 370 U 390 UJ 360 U  |                             |                         |           |     | -        |    | l        | l           |         |             |                        |                        |                        |                        |                        |                        |                        |
|  |                             |                         |           |     | -        |    |          | I           | 1       |             |                        |                        |                        |                        |                        |                        |                        |
| inexacinologinane queko u u% u 31 ii 5,47±+04 ii ii 360 U 340 U 350 U 350 U 370 U 370 U 390 U 360 U I  | Hexachloroethane            | UG/KG                   | 0         | 0%  | 0        | 51 | 3.47E+04 | l           |         |             | 360 U                  | 340 U                  | 350 U                  | 350 U                  | 370 U                  | 390 U                  | 360 U                  |

Page 14 of 32 4/27/2006

## SEAD-121C and SEAD-121I RI REPORT

|                              | Facility<br>Location ID<br>Matrix<br>Sample ID |             |             |          |            |                      |             |             |             | SEAD-121I<br>SS121I-22<br>SOIL<br>121I-1018 | SEAD-121I<br>SS121I-23<br>SOIL<br>121I-1019 | SEAD-121I<br>SS121I-24<br>SOIL<br>121I-1020 | SEAD-121I<br>SS121I-25<br>SOIL<br>121I-1021 | SEAD-121I<br>SS121I-26<br>SOIL<br>121I-1022 | SEAD-121I<br>SS121I-27<br>SOIL<br>121I-1023 | SEAD-121I<br>SS121I-28<br>SOIL<br>121I-1024 |
|------------------------------|--|-------------|-------------|----------|------------|----------------------|-------------|-------------|-------------|---|---|---|---|---|---|---|
| Sample Depth to              |  |             |             |          |            |                      |             |             |             | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Sample Depth to Bo           | tom of Sample<br>Sample Date                   |             |             |          |            |                      |             |             |             | 0.2<br>10/23/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/23/2002                           | 0.2<br>10/23/2002                           | 0.2<br>10/22/2002                           |
|                              | QC Code  |             |             |          |            | Region IX            |             |             |             | 10/25/2002<br>SA                            | 10/22/2002<br>SA                            | 10/22/2002<br>SA                            | 10/22/2002<br>SA                            | 10/23/2002<br>SA                            | 10/23/2002<br>SA                            | 10/22/2002<br>SA                            |
|                              | Study ID                                       |             | Frequency   | Number   | Number     | PRG                  |             | NYSDEC      |             | PID-RI                                      |
|                              |  | Maximum     |             | of Times | of         | Criteria             |             | Criteria    |             |   | 115 10                                      | 115 14                                      | 115 10                                      | 115 10                                      | 115 14                                      | 115 10                                      |
| Parameter                    | Units  | Value       | Detection   |          | Analyses 1 | Value 2              | Exceedances |             | Exceedances | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   |
| Indeno(1,2,3-cd)pyrene       | UG/KG  | 12000       | 71%         | 35       | 49         | 6.21E+02             | 13          | 3200        | 3           | 520 J                                       | 2200 J                                      | 890 J                                       | 1400 J                                      | 470 J                                       | 390 UJ                                      | 360 R                                       |
| Isophorone                   | UG/KG  | 315 4       | 2%          | 1        | 51         | 5.12E+05             |             | 4400        |             | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| N-Nitrosodiphenylamine       | UG/KG  | 0           | 0%          | 0        | 50         | 9.93E+04             |             |             |             | 360 UJ                                      | 340 UJ                                      | 350 U                                       | 350 UJ                                      | 370 U                                       | 390 R                                       | 360 U                                       |
| N-Nitrosodipropylamine       | UG/KG  | 0           | 0%          | 0        | 51         | 6.95E+01             |             |             |             | 360 UJ                                      | 340 UJ                                      | 350 UJ                                      | 350 UJ                                      | 370 UJ                                      | 390 UJ                                      | 360 UJ                                      |
| Naphthalene                  | UG/KG  | 630         | 14%         | 7        | 51         | 5.59E+04             |             | 13000       |             | 67 J  | 120 J                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| Nitrobenzene                 | UG/KG  | 315 4       | 2%          | 1        | 51         | 1.96E+04             |             | 200         | 1           | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 UJ                                      |
| Pentachlorophenol            | UG/KG  | 0           | 0%          | 0        | 50         | 2.98E+03             |             | 1000        | -           | 910 UJ                                      | 870 UJ                                      | 880 U                                       | 890 UJ                                      | 940 U                                       | 970 R                                       | 890 U                                       |
| Phenanthrene                 | UG/KG  | 52000       | 94%         | 48       | 51         |                      |             | 50000       | 1           | 2400 J                                      | 12000 J                                     | 520   | 5200  | 640   | 150 J                                       | 74 J  |
| Phenol                       | UG/KG  | 315 4       | 2%          | 1        | 51         | 1.83E+07             |             | 30          | 1           | 360 U                                       | 340 U                                       | 350 U                                       | 350 U                                       | 370 U                                       | 390 U                                       | 360 U                                       |
| Pyrene                       | UG/KG  | 64000       | 94%         | 48       | 51         | 2.32E+06             |             | 50000       | 1           | 6300 J                                      | 64000 J                                     | 2500 J                                      | 13000                                       | 2500 J                                      | 500 J                                       | 120 J                                       |
| Pesticides/PCBs              | 00/110   | 0.1000      | , , , ,     |          | 5.         | 2.522.100            |             | 20000       | •           | 0300 \$                                     | 0.0000                                      | 2500 5                                      | 15000                                       | 2500 5                                      | 200 5                                       | 1200  |
| 4,4'-DDD                     | UG/KG  | 0           | 0%          | 0        | 45         | 2.44E+03             |             | 2900        |             | 1.9 U                                       | 1.8 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| 4,4'-DDE                     | UG/KG  | 34          | 11%         | 5        | 45         | 1.72E+03             |             | 2100        |             | 11 NJ                                       | 34 NJ                                       | 1.8 U                                       | 1.8 U                                       | 24  | 2 U   | 1.8 U                                       |
| 4,4'-DDT                     | UG/KG  | 39          | 5%          | 2        | 44         | 1.72E+03             |             | 2100        |             | 6.3 R                                       | 24 NJ                                       | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| Aldrin                       | UG/KG  | 12          | 9%          | 4        | 45         | 2.86E+01             |             | 41          |             | 4.5 UJ                                      | 10 J  | 1.8 U                                       | 12 J  | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Alpha-BHC                    | UG/KG  | 0           | 0%          | 0        | 45         | 9.02E+01             |             | 110         |             | 1.9 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| Alpha-Chlordane              | UG/KG  | 0           | 0%          | 0        | 41         |                      |             |             |             | 1.9 U                                       | 1.8 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| Beta-BHC                     | UG/KG  | 0           | 0%          | 0        | 45         | 3.16E+02             |             | 200         |             | 1.9 U                                       | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Chlordane                    | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 19 U  | 18 U  | 18 U  | 18 U  | 19 U  | 20 U  | 18 U  |
| Delta-BHC                    | UG/KG  | 0           | 0%          | 0        | 45         |                      |             | 300         |             | 1.9 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| Dieldrin                     | UG/KG  | 34          | 4%          | 2        | 45         | 3.04E+01             | 1           | 44          |             | 1.9 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 UJ                                      | 2 UJ  | 1.8 UJ                                      |
| Endosulfan I                 | UG/KG  | 95          | 59%         | 24       | 41         |                      |             | 900         |             | 28  | 63 J  | 24  | 47 J  | 20  | 2 U   | 1.8 U                                       |
| Endosulfan II                | UG/KG  | 0           | 0%          | 0        | 45         |                      |             | 900         |             | 1.9 U                                       | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Endosulfan sulfate<br>Endrin | UG/KG<br>UG/KG                                 | 0<br>30     | 0%<br>4%    | 2        | 45<br>45   | 1.83E+04             |             | 1000<br>100 |             | 1.9 U<br>1.9 U                              | 1.8 U<br>1.8 U                              | 1.8 U<br>1.8 UJ                             | 1.8 U<br>6.5 J                              | 1.9 U<br>1.9 U                              | 2 U<br>2 U                                  | 1.8 U<br>1.8 UJ                             |
| Endrin<br>Endrin aldehyde    | UG/KG<br>UG/KG                                 | 0           | 4%<br>0%    | 0        | 45<br>45   | 1.83E+04             |             | 100         |             | 1.9 U<br>1.9 U                              | 1.8 U                                       | 1.8 U                                       | 6.5 J<br>1.8 U                              | 1.9 U                                       | 2 U   | 1.8 UJ<br>1.8 U                             |
| Endrin ketone                | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 1.9 U                                       | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Gamma-BHC/Lindane            | UG/KG  | 0           | 0%          | 0        | 45         | 4.37E+02             |             | 60          |             | 1.9 U                                       | 1.8 U                                       | 1.8 UJ                                      | 1.8 UJ                                      | 1.9 U                                       | 2 U   | 1.8 UJ                                      |
| Gamma-Chlordane              | UG/KG  | 0           | 0%          | 0        | 45         | 4.572102             |             | 540         |             | 1.9 U                                       | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Heptachlor                   | UG/KG  | 0           | 0%          | 0        | 45         | 1.08E+02             |             | 100         |             | 1.9 U                                       | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 1.9 U                                       | 2 U   | 1.8 U                                       |
| Heptachlor epoxide           | UG/KG  | 55          | 21%         | 8        | 39         | 5.34E+01             | 1           | 20          | 3           | 21  | 1.8 U                                       | 1.8 U                                       | 1.8 U                                       | 11 R  | 2 U   | 1.8 U                                       |
| Methoxychlor                 | UG/KG  | 0           | 0%          | 0        | 45         | 3.06E+05             |             |             |             | 1.9 UJ                                      | 1.8 UJ                                      | 1.8 U                                       | 1.8 U                                       | 1.9 UJ                                      | 2 UJ  | 1.8 U                                       |
| Toxaphene                    | UG/KG  | 0           | 0%          | 0        | 45         | 4.42E+02             |             |             |             | 19 U  | 18 U  | 18 U  | 18 U  | 19 U  | 20 U  | 18 U  |
| Aroclor-1016                 | UG/KG  | 0           | 0%          | 0        | 45         | 3.93E+03             |             |             |             | 19 UJ                                       | 18 UJ                                       | 18 UJ                                       | 18 UJ                                       | 19 UJ                                       | 20 UJ                                       | 18 UJ                                       |
| Aroclor-1221                 | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 19 UJ                                       | 18 UJ                                       | 18 U  | 18 U  | 19 UJ                                       | 20 UJ                                       | 18 U  |
| Aroclor-1232                 | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 19 UJ                                       | 18 UJ                                       | 18 UJ                                       | 18 UJ                                       | 19 UJ                                       | 20 UJ                                       | 18 UJ                                       |
| Aroclor-1242                 | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 19 UJ                                       | 18 UJ                                       | 18 UJ                                       | 18 UJ                                       | 19 UJ                                       | 20 UJ                                       | 18 UJ                                       |
| Aroclor-1248                 | UG/KG  | 0           | 0%          | 0        | 45         |                      |             |             |             | 19 UJ                                       | 18 UJ                                       | 18 U  | 18 U  | 19 UJ                                       | 20 UJ                                       | 18 U  |
| Aroclor-1254                 | UG/KG  | 67          | 4%          | 2        | 45         | 2.22E+02             |             | 10000       |             | 30 J  | 18 UJ                                       | 18 U  | 18 U  | 19 UJ                                       | 20 UJ                                       | 18 U  |
| Aroclor-1260                 | UG/KG  | 46          | 7%          | 3        | 45         |                      |             | 10000       |             | 19 UJ                                       | 18 UJ                                       | 18 U  | 18 U  | 19 UJ                                       | 20 UJ                                       | 18 U  |
| Metals and Cyanide           |  |             |             |          |            |                      |             |             |             |   |   |   |   |   |   |   |
| Aluminum                     | MG/KG  | 13200       | 100%        | 45       | 45         | 7.61E+04             |             | 19300       | ,           | 4430  | 1530  | 1510  | 1560  | 1950  | 4110  | 2310  |
| Antimony                     | MG/KG  | 7.5         | 31%         | 14<br>34 | 45<br>34   | 3.13E+01             | 34          | 5.9         | 8           | 0.98 U                                      | 1.7   | 1.3   | 6.3 U                                       | 1 U   | 1.1 U                                       | 7.5   |
| Arsenic                      | MG/KG  | 104         | 100%        |          | 34<br>45   | 3.90E-01             | 34          | 8.2         | 8           | 7.7 R                                       | 4.4 R                                       | 5.7   | 3.5   | 5.8 R                                       | 9.1 R                                       | 3.9   |
| Barium<br>Beryllium          | MG/KG<br>MG/KG                                 | 207<br>0.68 | 100%<br>98% | 45<br>44 | 45<br>45   | 5.37E+03<br>1.54E+02 |             | 300<br>1.1  |             | 71 J<br>0.32                                | 73.5 J<br>0.2                               | 88.7<br>0.19 J                              | 74.8<br>0.16                                | 207<br>0.25                                 | 97.4 J<br>0.32                              | 112<br>0.19 J                               |
| Berymuni                     | MQ/KG  | 0.08        | 98%         | 44       | 43         | 1.34E+02             |             | 1.1         |             | 0.32  | 0.2   | U.19 J                                      | 0.10  | 0.23  | 0.52  | U.19 J                                      |

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| Sample Depth to T<br>Sample Depth to Bott | om of Sample<br>Sample Date<br>QC Code<br>Study ID | Maximum            | Frequency<br>of | Number of Times | Number<br>of | Region IX<br>PRG<br>Criteria |             | NYSDEC<br>Criteria |             | SEAD-1211<br>SS121I-22<br>SOIL<br>121I-1018<br>0<br>0.2<br>10/23/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-23<br>SOIL.<br>121I-1019<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-24<br>SOIL<br>121I-1020<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-1211<br>SS121I-25<br>SOIL.<br>121I-1021<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-26<br>SOIL<br>121I-1022<br>0<br>0.2<br>10/23/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-27<br>SOIL<br>121I-1023<br>0<br>0.2<br>10/23/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-28<br>SOIL<br>121I-1024<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI |
|---|--|--------------------|-----------------|-----------------|--------------|------------------------------|-------------|--------------------|-------------|---|--|---|--|---|---|---|
| Parameter                                 | Units  | Value              | Detection       | Detected        | Analyses 1   | Value <sup>2</sup>           | Exceedances |                    | Exceedances | Value (Q)   | Value (Q)  | Value (Q)   | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)   |
| Cadmium                                   | MG/KG  | 6.6                | 31%             | 14              | 45           | 3.70E+01                     |             | 2.3                | 3           | 0.27  | 0.33   | 0.19 J  | 0.52 U   | 0.13 U  | 0.14 U  | 3.4   |
| Calcium                                   | MG/KG  | 298000             | 100%            | 45              | 45           |                              |             | 121000             | 18          | 177000 J  | 269000 J   | 225000  | 232000   | 298000 Ј  | 180000 J  | 230000  |
| Chromium                                  | MG/KG  | 439 4              | 100%            | 45              | 45           |                              |             | 29.6               | 6           | 10.7  | 6.1  | 4.1   | 3.9  | 4.6   | 10.7  | 10.3  |
| Cobalt                                    | MG/KG  | 206 4              | 100%            | 45              | 45           | 9.03E+02                     |             | 30                 | 4           | 7.3   | 4.6  | 6.3   | 5  | 5.3   | 10.8 J  | 5.5   |
| Copper                                    | MG/KG  | 209 4              | 100%            | 40              | 40           | 3.13E+03                     |             | 33                 | 10          | 31.9  | 13   | 15 J  | 10.4 J   | 14.9  | 17.9  | 19.1 J  |
| Cyanide, Amenable                         | MG/KG  | 0                  | 0%              | 0               | 45           |                              |             |                    |             | 0.56 U  | 0.53 U   | 0.53 UJ   | 0.54 UJ  | 0.57 U  | 0.59 U  | 0.55 UJ   |
| Cyanide, Total                            | MG/KG  | 2.00 4             | 7%              | 3               | 45           |                              |             |                    |             | 0.557 U   | 0.526 U  | 0.534 UJ  | 0.538 UJ   | 0.569 U   | 0.588 U   | 0.546 UJ  |
| Iron                                      | MG/KG  | 58400 <sup>4</sup> | 100%            | 45              | 45           | 2.35E+04                     | 12          | 36500              | 2           | 11800   | 6130   | 6100  | 5720   | 8350  | 15400   | 8250  |
| Lead                                      | MG/KG  | 122                | 100%            | 45              | 45           | 4.00E+02                     |             | 24.8               | 22          | 34 J  | 31 J   | 19.1  | 122  | 16.3 J  | 11.1 J  | 32.8  |
| Magnesium                                 | MG/KG  | 22300              | 100%            | 45              | 45           |                              |             | 21500              | 1           | 12500 J   | 12600 J  | 15100   | 16800  | 5470 J  | 22300 J   | 12900   |
| Manganese                                 | MG/KG  | 310500 4           | 100%            | 45              | 45           | 1.76E+03                     | 11          | 1060               | 15          | 557   | 594  | 406   | 593  | 1230  | 9720  | 699   |
| Mercury                                   | MG/KG  | 0.18               | 98%             | 44              | 45           | 2.35E+01                     |             | 0.1                | 1           | 0.01  | 0.02   | 0.02  | 0.02   | 0.01  | 0.04  | 0.02  |
| Nickel                                    | MG/KG  | 342 4              | 100%            | 45              | 45           | 1.56E+03                     |             | 49                 | 7           | 19 J  | 11.9 J   | 17.2  | 11.1   | 12.8 J  | 25.5 J  | 14.3  |
| Potassium                                 | MG/KG  | 1450               | 100%            | 45              | 45           |                              |             | 2380               |             | 941   | 871  | 1100  | 846  | 747   | 903   | 861   |
| Selenium                                  | MG/KG  | 146 4              | 47%             | 21              | 45           | 3.91E+02                     |             | 2                  | 5           | 0.66 J  | 0.43 UJ  | 0.53 U  | 0.52 U   | 0.47 UJ   | 0.86 J  | 0.54 U  |
| Silver                                    | MG/KG  | 10.5               | 18%             | 6               | 34           | 3.91E+02                     |             | 0.75               | 4           | 0.29 R  | 0.28 R   | 1.1 U   | 1 U  | 0.3 R   | 0.6 R   | 1.1 U   |
| Sodium                                    | MG/KG  | 372                | 82%             | 37              | 45           |                              |             | 172                | 24          | 302   | 324  | 256   | 232  | 365   | 240   | 284   |
| Thallium                                  | MG/KG  | 163 <sup>4</sup>   | 20%             | 9               | 45           | 5.16E+00                     | 5           | 0.7                | 5           | 0.34 UJ   | 0.32 UJ  | 1.1 U   | 1 U  | 0.35 UJ   | 0.36 UJ   | 1.1 U   |
| Vanadium                                  | MG/KG  | 182 4              | 100%            | 45              | 45           | 7.82E+01                     | 1           | 150                | 1           | 11.1 J  | 5.9  | 7.2   | 6.3  | 9.1   | 29 J  | 6.7   |
| Zinc                                      | MG/KG  | 532                | 100%            | 45              | 45           | 2.35E+04                     |             | 110                | 14          | 71.3 J  | 80.5 J   | 44.9 J  | 47.2 J   | 49.9 J  | 116   | 162 J   |
| Other                                     |  |                    |                 |                 |              |                              |             |                    |             |   |  |   |  |   |   |   |
| Total Organic Carbon                      | MG/KG  | 8900               | 100%            | 45              | 45           |                              |             |                    |             | 3600  | 5000   | 3900  | 3500   | 5600  | 4600  | 6900  |
| Total Petroleum Hydrocarbons              | MG/KG  | 2200               | 33%             | 15              | 45           |                              |             |                    |             | 370   | 470  | 43 UJ   | 43 UJ  | 46 U  | 2200  | 44 UJ   |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|  | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |          |                      |             |          |             | SEAD-121I<br>SS121I-29<br>SOIL<br>121I-1025 | SEAD-121I<br>SS121I-29<br>SOIL<br>121I-1030 | SEAD-121I<br>SS121I-3<br>SOIL<br>EB149 | SEAD-121I<br>SS121I-30<br>SOIL<br>121I-1026 | SEAD-121I<br>SS121I-31<br>SOIL<br>121I-1027 | SEAD-121I<br>SS121I-32<br>SOIL<br>121I-1028 | SEAD-121I<br>SS121I-33<br>SOIL<br>121I-1029 |
|--|--|---------|-----------|----------|----------|----------------------|-------------|----------|-------------|---|---|--|---|---|---|---|
| Sample Depth to Top                          |  |         |           |          |          |                      |             |          |             | 0   | 0   | 0                                      | 0   | 0   | 0   | 0<br>0.2                                    |
| Sample Depth to Botton                       | ample Date                                     |         |           |          |          |                      |             |          |             | 0.2<br>10/23/2002                           | 0.2<br>10/23/2002                           | 0.2<br>3/10/1998                       | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 0.2<br>10/22/2002                           | 10/22/2002                                  |
| 3.   | QC Code  |         |           |          |          | Region IX            |             |          |             | SA  | 10/23/2002<br>SA                            | SA                                     | 10/22/2002<br>SA                            | 10/22/2002<br>SA                            | 10/22/2002<br>SA                            | 10/22/2002<br>SA                            |
|  | Study ID                                       |         | Frequency | Number   | Number   | PRG                  |             | NYSDEC   |             | PID-RI                                      | PID-RI                                      | EBS                                    | PID-RI                                      | PID-RI                                      | PID-RI                                      | PID-RI                                      |
|  |  | Maximun |           | of Times | of       | Criteria             |             | Criteria |             | I ID-KI                                     | I ID-KI                                     | LDS                                    | TID-KI                                      | TID-KI                                      | I ID-KI                                     | TID-KI                                      |
| Parameter                                    | Units  | Value   |           | Detected |          | Value 2              | Exceedances |          | Exceedances | Value (Q)                                   | Value (Q)                                   | Value (Q)                              | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   | Value (Q)                                   |
| Volatile Organic Compounds                   | Cints  | vaiue   | Detection | Detected | Anaiyses | V alue               | Exceedances | V alue   | Exceedances | value (Q)                                   | value (Q)                                   | value (Q)                              | value (Q)                                   | value (Q)                                   | value (Q)                                   | value (Q)                                   |
| 1,1,1-Trichloroethane                        | UG/KG  | 0       | 0%        | 0        | 45       | 1.20E+06             |             | 800      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 UJ                                      | 2.7 U                                       | 2.7 UJ                                      |
| 1,1,2,2-Tetrachloroethane                    | UG/KG  | 0       | 0%        | 0        | 45       | 4.08E+02             |             | 600      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| 1,1,2-Trichloroethane                        | UG/KG  | 0       | 0%        | 0        | 45       | 7.29E+02             |             |          |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| 1,1-Dichloroethane                           | UG/KG  | 0       | 0%        | 0        | 45       | 5.06E+05             |             | 200      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| 1,1-Dichloroethene                           | UG/KG  | 0       | 0%        | 0        | 45       | 1.24E+05             |             | 400      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| 1,2-Dichloroethane                           | UG/KG  | 0       | 0%        | 0        | 45       | 2.78E+02             |             | 100      |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 UJ                                      | 3.4 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      |
| 1,2-Dichloropropane                          | UG/KG  | 0       | 0%        | 0        | 45       | 3.42E+02             |             | 100      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Acetone                                      | UG/KG  | 150     | 80%       | 36       | 45       | 1.41E+07             |             | 200      |             | 3.1 U                                       | 3.6 UJ                                      |  | 9.8   | 11  | 5.1   | 7.6 J                                       |
| Benzene                                      | UG/KG  | 41 4    | 20%       | 9        | 45       | 6.43E+02             |             | 60       |             | 24  | 57 J  |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Bromodichloromethane                         | UG/KG  | 0       | 0%        | 0        | 45       | 8.24E+02             |             | 00       |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 UJ                                      | 2.7 U                                       | 2.7 UJ                                      |
| Bromoform                                    | UG/KG  | 0       | 0%        | 0        | 45       | 6.16E+04             |             |          |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Carbon disulfide                             | UG/KG  | 0       | 0%        | 0        | 45       | 3.55E+05             |             | 2700     |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Carbon tetrachloride                         | UG/KG  | 0       | 0%        | 0        | 45       | 2.51E+02             |             | 600      |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 UJ                                      | 3.4 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      |
| Chlorobenzene                                | UG/KG  | 0       | 0%        | 0        | 45       | 1.51E+05             |             | 1700     |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Chlorodibromomethane                         | UG/KG  | 0       | 0%        | 0        | 45       | 1.11E+03             |             | 1700     |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 UJ                                      | 2.7 U                                       | 2.7 UJ                                      |
| Chloroethane                                 | UG/KG  | 0       | 0%        | 0        | 45       | 3.03E+03             |             | 1900     |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 UJ                                      | 2.7 U                                       | 2.7 UJ                                      |
| Chloroform                                   | UG/KG  | 0       | 0%        | 0        | 45       | 2.21E+02             |             | 300      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Cis-1,2-Dichloroethene                       | UG/KG  | 0       | 0%        | 0        | 45       | 4.29E+04             |             | 300      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Cis-1,3-Dichloropropene                      | UG/KG  | 0       | 0%        | 0        | 45       | 4.27E104             |             |          |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Ethyl benzene                                | UG/KG  | 7.8     | 13%       | 6        | 45       | 3.95E+05             |             | 5500     |             | 4.4   | 9.5 J                                       |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| •  |  | 6.3 4   |           | 6        | 45       | 3.75E103             |             | 3300     |             | 3.9   | 8.7 J                                       |  |   | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Meta/Para Xylene                             | UG/KG  | 0.5     | 13%       | 0        |          | 2.005.02             |             |          |             |   |   |  | 2.8 U                                       |   | 2.7 UJ                                      |   |
| Methyl bromide                               | UG/KG  |         | 0%<br>0%  | 0        | 45       | 3.90E+03             |             |          |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 UJ                                      | 3.4 UJ                                      |   | 2.7 UJ                                      |
| Methyl butyl ketone                          | UG/KG  | 0       |           | 0        | 45       | 4.605.04             |             |          |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 UJ                                      | 3.4 UJ                                      | 2.7 UJ                                      | 2.7 UJ                                      |
| Methyl chloride                              | UG/KG<br>UG/KG                                 | 0<br>78 | 0%<br>24% | 11       | 45<br>45 | 4.69E+04<br>2.23E+07 |             | 300      |             | 3.1 U<br>3.1 U                              | 3.6 UJ<br>67 J                              |  | 2.8 U<br>2.8 U                              | 3.4 U<br>3.4 U                              | 2.7 U<br>2.7 U                              | 2.7 UJ<br>2.7 UJ                            |
| Methyl ethyl ketone                          |  | 0       | 0%        | 0        | 45       | 5.28E+06             |             | 1000     |             |   |   |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Methyl isobutyl ketone<br>Methylene chloride | UG/KG<br>UG/KG                                 | 2.8     | 20%       | 9        | 45<br>45 | 9.11E+03             |             | 1000     |             | 3.1 U<br>3.1 U                              | 3.6 UJ<br>3.6 UJ                            |  | 2.8 U<br>2.8 U                              | 3.4 U<br>3.4 U                              | 2.7 U<br>2.7 U                              | 2.7 UJ<br>2.7 UJ                            |
| •  |  |         |           | -        |          | 9.11E+03             |             | 100      |             |   |   |  |   |   |   | I   |
| Ortho Xylene                                 | UG/KG  | 3.6 4   | 13%       | 6        | 45       |                      |             |          |             | 2.1 J                                       | 5.1 J                                       |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Styrene                                      | UG/KG  | 0       | 0%        | 0        | 45       | 1.70E+06             |             |          |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Tetrachloroethene                            | UG/KG  | 0       | 0%        | 0        | 45       | 4.84E+02             |             | 1400     |             | 3.1 UJ                                      | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Toluene                                      | UG/KG  | 31 4    | 18%       | 8        | 45       | 5.20E+05             |             | 1500     |             | 18  | 43 J  |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Trans-1,2-Dichloroethene                     | UG/KG  | 0       | 0%        | 0        | 45       | 6.95E+04             |             | 300      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Trans-1,3-Dichloropropene                    | UG/KG  | 0       | 0%        | 0        | 45       |                      |             |          |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Trichloroethene                              | UG/KG  | 0       | 0%        | 0        | 45       | 5.30E+01             |             | 700      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Vinyl chloride                               | UG/KG  | 0       | 0%        | 0        | 45       | 7.91E+01             |             | 200      |             | 3.1 U                                       | 3.6 UJ                                      |  | 2.8 U                                       | 3.4 U                                       | 2.7 U                                       | 2.7 UJ                                      |
| Semivolatile Organic Compounds               |  |         |           |          |          |                      |             |          |             |   |   |  |   |   |   |   |
| 1,2,4-Trichlorobenzene                       | UG/KG  | 0       | 0%        | 0        | 51       | 6.22E+04             |             | 3400     |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 1,2-Dichlorobenzene                          | UG/KG  | 0       | 0%        | 0        | 51       | 6.00E+05             |             | 7900     |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 1,3-Dichlorobenzene                          | UG/KG  | 0       | 0%        | 0        | 51       | 5.31E+05             |             | 1600     |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 1,4-Dichlorobenzene                          | UG/KG  | 0       | 0%        | 0        | 51       | 3.45E+03             |             | 8500     |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 2,4,5-Trichlorophenol                        | UG/KG  | 0       | 0%        | 0        | 51       | 6.11E+06             |             | 100      |             | 5200 U                                      | 5700 U                                      | 1900 U                                 | 920 U                                       | 890 U                                       | 940 U                                       | 900 U                                       |
| 2,4,6-Trichlorophenol                        | UG/KG  | 0       | 0%        | 0        | 51       | 6.11E+03             |             |          |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 2,4-Dichlorophenol                           | UG/KG  | 0       | 0%        | 0        | 51       | 1.83E+05             |             | 400      |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 2,4-Dimethylphenol                           | UG/KG  | 0       | 0%        | 0        | 51       | 1.22E+06             |             |          |             | 2100 U                                      | 2300 U                                      | 770 U                                  | 370 U                                       | 360 U                                       | 380 U                                       | 360 U                                       |
| 2,4-Dinitrophenol                            | UG/KG  | 0       | 0%        | 0        | 51       | 1.22E+05             |             | 200      |             | 5200 R                                      | 5700 UJ                                     | 1900 U                                 | 920 UJ                                      | 890 U                                       | 940 U                                       | 900 UJ                                      |

Page 17 of 32

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| Ţ                           | Facility<br>Location ID |         |           |          |            |           |             |          |             | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-29 | SEAD-121I<br>SS121I-3 | SEAD-121I<br>SS121I-30 | SEAD-121I<br>SS121I-31 | SEAD-121I<br>SS121I-32 | SEAD-121I<br>SS121I-33 |
|-----------------------------|-------------------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|------------------------|------------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
| E                           | Matrix                  |         |           |          |            |           |             |          |             | SOIL                   | SOIL                   | SOIL                  | SOIL                   | SOIL                   | SOIL                   | SOIL                   |
|                             | Sample ID               |         |           |          |            |           |             |          |             | 121I-1025              | 121I-1030              | EB149                 | 121I-1026              | 121I-1027              | 121I-1028              | 121I-1029              |
| Sample Depth to Top         |                         |         |           |          |            |           |             |          |             | 0                      | 0                      | 0                     | 0                      | 0                      | 0                      | 0                      |
| Sample Depth to Bottom      |                         |         |           |          |            |           |             |          |             | 0.2                    | 0.2                    | 0.2                   | 0.2                    | 0.2                    | 0.2                    | 0.2                    |
|                             | ample Date              |         |           |          |            |           |             |          |             | 10/23/2002             | 10/23/2002             | 3/10/1998             | 10/22/2002             | 10/22/2002             | 10/22/2002             | 10/22/2002             |
|                             | QC Code                 |         |           |          |            | Region IX |             |          |             | SA                     | SA                     | SA                    | SA                     | SA                     | SA                     | SA                     |
|                             | Study ID                |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI                 | PID-RI                 | EBS                   | PID-RI                 | PID-RI                 | PID-RI                 | PID-RI                 |
|                             |                         | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |                        |                        |                       |                        |                        |                        |                        |
| Parameter                   | Units                   | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)              | Value (Q)              | Value (Q)             | Value (Q)              | Value (Q)              | Value (Q)              | Value (Q)              |
| 2,4-Dinitrotoluene          | UG/KG                   | 0       | 0%        | 0        | 51         | 1.22E+05  |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2,6-Dinitrotoluene          | UG/KG                   | 0       | 0%        | 0        | 51         | 6.11E+04  |             | 1000     |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2-Chloronaphthalene         | UG/KG                   | 0       | 0%        | 0        | 51         | 4.94E+06  |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2-Chlorophenol              | UG/KG                   | 0       | 0%        | 0        | 51         | 6.34E+04  |             | 800      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2-Methylnaphthalene         | UG/KG                   | 260     | 10%       | 5        | 51         |           |             | 36400    |             | 2100 U                 | 2300 U                 | 54 J                  | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2-Methylphenol              | UG/KG                   | 0       | 0%        | 0        | 51         | 3.06E+06  |             | 100      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 2-Nitroaniline              | UG/KG                   | 0       | 0%        | 0        | 51         | 1.83E+05  |             | 430      |             | 5200 UJ                | 5700 UJ                | 1900 U                | 920 U                  | 890 U                  | 940 U                  | 900 UJ                 |
| 2-Nitrophenol               | UG/KG                   | 0       | 0%        | 0        | 51         |           |             | 330      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 3 or 4-Methylphenol         | UG/KG                   | 0       | 0%        | 0        | 45         |           |             |          |             | 2100 U                 | 2300 U                 |                       | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 3,3'-Dichlorobenzidine      | UG/KG                   | 315 4   | 2%        | 1        | 47         | 1.08E+03  |             |          |             | 2100 UJ                | 2300 R                 | 770 U                 | 370 UJ                 | 360 UJ                 | 380 UJ                 | 360 UJ                 |
| 3-Nitroaniline              | UG/KG                   | 0       | 0%        | 0        | 51         | 1.83E+04  |             | 500      |             | 5200 U                 | 5700 UJ                | 1900 U                | 920 U                  | 890 U                  | 940 U                  | 900 UJ                 |
| 4,6-Dinitro-2-methylphenol  | UG/KG                   | 0       | 0%        | 0        | 50         | 6.11E+03  |             |          |             | 5200 R                 | 5700 UJ                | 1900 U                | 920 UJ                 | 890 U                  | 940 U                  | 900 UJ                 |
| 4-Bromophenyl phenyl ether  | UG/KG                   | 0       | 0%        | 0        | 50         |           |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 4-Chloro-3-methylphenol     | UG/KG                   | 0       | 0%        | 0        | 51         |           |             | 240      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 4-Chloroaniline             | UG/KG                   | 0       | 0%        | 0        | 51         | 2.44E+05  |             | 220      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 UJ                 | 360 UJ                 | 380 UJ                 | 360 U                  |
| 4-Chlorophenyl phenyl ether | UG/KG                   | 0       | 0%        | 0        | 51         |           |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| 4-Methylphenol              | UG/KG                   | 0       | 0%        | 0        | 6          | 3.06E+05  |             | 900      |             |                        |                        | 770 U                 |                        |                        |                        |                        |
| 4-Nitroaniline              | UG/KG                   | 0       | 0%        | 0        | 51         | 2.32E+04  |             |          |             | 5200 U                 | 5700 UJ                | 1900 U                | 920 U                  | 890 U                  | 940 U                  | 900 UJ                 |
| 4-Nitrophenol               | UG/KG                   | 0       | 0%        | 0        | 51         |           |             | 100      |             | 5200 U                 | 5700 U                 | 1900 U                | 920 U                  | 890 U                  | 940 U                  | 900 U                  |
| Acenaphthene                | UG/KG                   | 6100    | 51%       | 26       | 51         | 3.68E+06  |             | 50000    |             | 2100 U                 | 2300 U                 | 140 J                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Acenaphthylene              | UG/KG                   | 560     | 12%       | 6        | 51         |           |             | 41000    |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 64 J                   | 360 U                  |
| Anthracene                  | UG/KG                   | 12000   | 58%       | 29       | 50         | 2.19E+07  |             | 50000    |             | 330 J                  | 2300 U                 | 220 J                 | 370 U                  | 360 U                  | 69 J                   | 360 U                  |
| Benzo(a)anthracene          | UG/KG                   | 28000   | 90%       | 46       | 51         | 6.21E+02  | 18          | 224      | 28          | 700 J                  | 260 J                  | 1600                  | 370 UJ                 | 43 J                   | 190 J                  | 80 J                   |
| Benzo(a)pyrene              | UG/KG                   | 23000   | 88%       | 45       | 51         | 6.21E+01  | 44          | 61       | 44          | 700 J                  | 2300 R                 | 1800                  | 370 U                  | 61 J                   | 290 J                  | 110 J                  |
| Benzo(b)fluoranthene        | UG/KG                   | 29000   | 94%       | 48       | 51         | 6.21E+02  | 21          | 1100     | 14          | 720 J                  | 2300 R                 | 2100                  | 370 U                  | 67 J                   | 360 J                  | 110 J                  |
| Benzo(ghi)perylene          | UG/KG                   | 29000   | 82%       | 42       | 51         |           |             | 50000    |             | 430 J                  | 2300 R                 | 1600                  | 370 UJ                 | 50 J                   | 320 J                  | 110 J                  |
| Benzo(k)fluoranthene        | UG/KG                   | 23000   | 74%       | 37       | 50         | 6.21E+03  | 4           | 1100     | 14          | 720 J                  | 2300 R                 | 2500                  | 370 U                  | 360 UJ                 | 340 J                  | 95 J                   |
| Bis(2-Chloroethoxy)methane  | UG/KG                   | 0       | 0%        | 0        | 51         |           |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Bis(2-Chloroethyl)ether     | UG/KG                   | 0       | 0%        | 0        | 51         | 2.18E+02  |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Bis(2-Chloroisopropyl)ether | UG/KG                   | 0       | 0%        | 0        | 51         | 2.88E+03  |             |          |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Bis(2-Ethylhexyl)phthalate  | UG/KG                   | 1600    | 33%       | 17       | 51         | 3.47E+04  |             | 50000    |             | 2100 U                 | 260 J                  | 230 J                 | 370 UJ                 | 1600                   | 380 UJ                 | 360 UJ                 |
| Butylbenzylphthalate        | UG/KG                   | 420 4   | 6%        | 3        | 48         | 1.22E+07  |             | 50000    |             | 2100 U                 | 2300 R                 | 770 U                 | 370 UJ                 | 360 UJ                 | 380 UJ                 | 360 UJ                 |
| Carbazole                   | UG/KG                   | 6800    | 57%       | 29       | 51         | 2.43E+04  |             |          |             | 340 J                  | 2300 UJ                | 320 J                 | 370 U                  | 360 U                  | 60 J                   | 360 UJ                 |
| Chrysene                    | UG/KG                   | 32000   | 86%       | 44       | 51         | 6.21E+04  |             | 400      | 25          | 790 J                  | 2300 R                 | 2000                  | 370 UJ                 | 68 J                   | 350 J                  | 130 J                  |
| Di-n-butylphthalate         | UG/KG                   | 45      | 2%        | 1        | 50         | 6.11E+06  |             | 8100     |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Di-n-octylphthalate         | UG/KG                   | 420 4   | 2%        | 1        | 47         | 2.44E+06  |             | 50000    |             | 2100 U                 | 2300 R                 | 770 U                 | 370 UJ                 | 360 UJ                 | 380 UJ                 | 360 UJ                 |
| Dibenz(a,h)anthracene       | UG/KG                   | 5000    | 34%       | 15       | 44         | 6.21E+01  | 15          | 14       | 15          | 2100 UJ                | 2300 R                 | 720 J                 | 370 U                  | 360 UJ                 | 380 UJ                 | 360 UJ                 |
| Dibenzofuran                | UG/KG                   | 2000    | 27%       | 14       | 51         | 1.45E+05  |             | 6200     |             | 2100 U                 | 2300 U                 | 42 J                  | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Diethyl phthalate           | UG/KG                   | 640 4   | 2%        | 1        | 51         | 4.89E+07  |             | 7100     |             | 2100 U                 | 230 Ј                  | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Dimethylphthalate           | UG/KG                   | 0       | 0%        | 0        | 51         | 1.00E+08  |             | 2000     |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Fluoranthene                | UG/KG                   | 62000   | 94%       | 48       | 51         | 2.29E+06  |             | 50000    | 1           | 2500                   | 490 J                  | 4000                  | 370 U                  | 80 J                   | 500                    | 120 J                  |
| Fluorene                    | UG/KG                   | 4200    | 43%       | 22       | 51         | 2.75E+06  | l           | 50000    |             | 2100 U                 | 2300 U                 | 98 J                  | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Hexachlorobenzene           | UG/KG                   | 0       | 0%        | 0        | 50         | 3.04E+02  | l           | 410      |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Hexachlorobutadiene         | UG/KG                   | 0       | 0%        | 0        | 51         | 6.24E+03  | l           | 1        |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Hexachlorocyclopentadiene   | UG/KG                   | 0       | 0%        | 0        | 51         | 3.65E+05  | l           |          |             | 2100 UJ                | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |
| Hexachloroethane            | UG/KG                   | 0       | 0%        | 0        | 51         | 3.47E+04  |             | L        |             | 2100 U                 | 2300 U                 | 770 U                 | 370 U                  | 360 U                  | 380 U                  | 360 U                  |

Page 18 of 32

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                        | Facility<br>Location ID<br>Matrix |         |             |          |          |                      |             |            |             | SEAD-121I<br>SS121I-29<br>SOIL | SEAD-121I<br>SS121I-29<br>SOIL | SEAD-121I<br>SS121I-3<br>SOIL | SEAD-121I<br>SS121I-30<br>SOIL | SEAD-121I<br>SS121I-31<br>SOIL | SEAD-121I<br>SS121I-32<br>SOIL | SEAD-121I<br>SS121I-33<br>SOIL |
|------------------------|-----------------------------------|---------|-------------|----------|----------|----------------------|-------------|------------|-------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                        | Sample ID                         |         |             |          |          |                      |             |            |             | 121I-1025                      | 121I-1030                      | EB149                         | 121I-1026                      | 121I-1027                      | 121I-1028                      | 121I-1029                      |
| Sample Depth to        |                                   |         |             |          |          |                      |             |            |             | 0                              | 0                              | 0                             | 0                              | 0                              | 0                              | 0                              |
| Sample Depth to Bo     | Sample Date                       |         |             |          |          |                      |             |            |             | 0.2<br>10/23/2002              | 0.2<br>10/23/2002              | 0.2<br>3/10/1998              | 0.2<br>10/22/2002              | 0.2<br>10/22/2002              | 0.2<br>10/22/2002              | 0.2<br>10/22/2002              |
|                        | QC Code                           |         |             |          |          | Region IX            |             |            |             | SA                             | SA                             | SA                            | SA                             | SA                             | SA                             | SA                             |
|                        | Study ID                          |         | Frequency   | Number   | Number   | PRG                  |             | NYSDEC     |             | PID-RI                         | PID-RI                         | EBS                           | PID-RI                         | PID-RI                         | PID-RI                         | PID-RI                         |
|                        |                                   | Maximum |             | of Times | of       | Criteria             |             | Criteria   |             |                                |                                |                               |                                |                                |                                |                                |
| Parameter              | Units                             | Value   | Detection   | Detected |          | Value 2              | Exceedances |            | Exceedances | Value (Q)                      | Value (Q)                      | Value (Q)                     | Value (Q)                      | Value (Q)                      | Value (Q)                      | Value (Q)                      |
| Indeno(1,2,3-cd)pyrene | UG/KG                             | 12000   | 71%         | 35       | 49       | 6.21E+02             | 13          | 3200       | 3           | 2100 UJ                        | 2300 R                         | 1600                          | 370 UJ                         | 360 UJ                         | 220 J                          | 76 J                           |
| Isophorone             | UG/KG                             | 315 4   | 2%          | 1        | 51       | 5.12E+05             |             | 4400       |             | 2100 U                         | 2300 U                         | 770 U                         | 370 U                          | 360 U                          | 380 U                          | 360 U                          |
| N-Nitrosodiphenylamine | UG/KG                             | 0       | 0%          | 0        | 50       | 9.93E+04             |             | 1100       |             | 2100 U                         | 2300 U                         | 770 U                         | 370 U                          | 360 U                          | 380 U                          | 360 U                          |
| N-Nitrosodipropylamine | UG/KG                             | 0       | 0%          | 0        | 51       | 6.95E+01             |             |            |             | 2100 U                         | 2300 UJ                        | 770 U                         | 370 U                          | 360 UJ                         | 380 UJ                         | 360 UJ                         |
| Naphthalene            | UG/KG                             | 630     | 14%         | 7        | 51       | 5.59E+04             |             | 13000      |             | 2100 U                         | 2300 U                         | 770 U                         | 370 U                          | 360 U                          | 380 U                          | 360 U                          |
| Nitrobenzene           | UG/KG                             | 315 4   | 2%          | 1        | 51       | 1.96E+04             |             | 200        | 1           | 2100 U                         | 2300 U                         | 770 U                         | 370 U                          | 360 U                          | 380 U                          | 360 U                          |
| Pentachlorophenol      | UG/KG                             | 0       | 0%          | 0        | 50       | 2.98E+03             |             | 1000       | 1           | 5200 UJ                        | 5700 U                         | 1900 U                        | 920 U                          | 890 U                          | 940 U                          | 900 U                          |
| Phenanthrene           | UG/KG                             | 52000   | 94%         | 48       | 51       | 2.702.103            |             | 50000      | 1           | 2200                           | 530 J                          | 1400                          | 370 U                          | 52 J                           | 290 J                          | 95 J                           |
| Phenol                 | UG/KG                             | 315 4   | 2%          | 1        | 51       | 1.83E+07             |             | 30         | 1           | 2100 U                         | 2300 U                         | 770 U                         | 370 U                          | 360 U                          | 380 U                          | 360 U                          |
|                        | UG/KG<br>UG/KG                    | 64000   | 2%<br>94%   | 48       | 51       | 2.32E+06             |             | 50000      | 1           | 2300                           | 2300 U<br>1600 J               | 3000                          | 370 U<br>370 UJ                |                                | 640 J                          | 300 J                          |
| Pyrene Pesticides/PCBs | UG/KG                             | 64000   | 94%         | 48       | 51       | 2.32E+06             |             | 50000      | 1           | 2300                           | 1600 J                         | 3000                          | 3/0 UJ                         | 110 J                          | 640 J                          | 300 J                          |
| 4,4'-DDD               | UG/KG                             | 0       | 0%          | 0        | 45       | 2.44E+03             |             | 2900       |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 UJ                         |
| 4,4'-DDE               | UG/KG                             | 34      | 11%         | 5        | 45       | 1.72E+03             |             | 2100       |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| 4,4'-DDT               | UG/KG                             | 39      | 5%          | 2        | 44       | 1.72E+03<br>1.72E+03 |             | 2100       |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 UJ                         |
| Aldrin                 | UG/KG                             | 12      | 9%          | 4        | 45       | 2.86E+01             |             | 41         |             | 2.2 U                          | 2.3 U                          |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 U                          |
| Alpha-BHC              | UG/KG                             | 0       | 0%          | 0        | 45       | 9.02E+01             |             | 110        |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 UJ                         |
| Alpha-Chlordane        | UG/KG                             | 0       | 0%          | 0        | 41       | ).02E101             |             | 110        |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 UJ                         |
| Beta-BHC               | UG/KG                             | 0       | 0%          | 0        | 45       | 3.16E+02             |             | 200        |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Chlordane              | UG/KG                             | 0       | 0%          | 0        | 45       | 3.102.102            |             | 200        |             | 22 U                           | 23 U                           |                               | 19 U                           | 18 U                           | 20 U                           | 18 U                           |
| Delta-BHC              | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             | 300        |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 UJ                         |
| Dieldrin               | UG/KG                             | 34      | 4%          | 2        | 45       | 3.04E+01             | 1           | 44         |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 UJ                         | 1.8 UJ                         | 2 U                            | 1.8 UJ                         |
| Endosulfan I           | UG/KG                             | 95      | 59%         | 24       | 41       |                      |             | 900        |             | 23                             | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 15                             | 7.2 J                          |
| Endosulfan II          | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             | 900        |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Endosulfan sulfate     | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             | 1000       |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Endrin                 | UG/KG                             | 30      | 4%          | 2        | 45       | 1.83E+04             |             | 100        |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Endrin aldehyde        | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             |            |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Endrin ketone          | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             |            |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Gamma-BHC/Lindane      | UG/KG                             | 0       | 0%          | 0        | 45       | 4.37E+02             |             | 60         |             | 2.2 U                          | 2.3 U                          |                               | 1.9 UJ                         | 1.8 UJ                         | 2 UJ                           | 1.8 U                          |
| Gamma-Chlordane        | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             | 540        |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Heptachlor             | UG/KG                             | 0       | 0%          | 0        | 45       | 1.08E+02             |             | 100        |             | 2.2 U                          | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 U                          |
| Heptachlor epoxide     | UG/KG                             | 55      | 21%         | 8        | 39       | 5.34E+01             | 1           | 20         | 3           | 17 R                           | 2.3 U                          |                               | 1.9 U                          | 1.8 U                          | 8                              | 1.8 U                          |
| Methoxychlor           | UG/KG                             | 0       | 0%          | 0        | 45       | 3.06E+05             |             |            |             | 2.2 UJ                         | 2.3 UJ                         |                               | 1.9 U                          | 1.8 U                          | 2 U                            | 1.8 UJ                         |
| Toxaphene              | UG/KG                             | 0       | 0%          | 0        | 45       | 4.42E+02             |             |            |             | 22 U                           | 23 U                           |                               | 19 U                           | 18 U                           | 20 U                           | 18 U                           |
| Aroclor-1016           | UG/KG                             | 0       | 0%          | 0        | 45       | 3.93E+03             |             |            |             | 21 UJ                          | 23 UJ                          |                               | 19 U                           | 18 U                           | 19 U                           | 18 UJ                          |
| Aroclor-1221           | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             |            |             | 21 UJ                          | 23 UJ                          |                               | 19 U                           | 18 U                           | 19 U                           | 18 UJ                          |
| Aroclor-1232           | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             |            |             | 21 UJ                          | 23 UJ                          |                               | 19 U                           | 18 U                           | 19 U                           | 18 UJ                          |
| Aroclor-1242           | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             |            |             | 21 UJ                          | 23 UJ                          |                               | 19 U                           | 18 U                           | 19 U                           | 18 UJ                          |
| Aroclor-1248           | UG/KG                             | 0       | 0%          | 0        | 45       |                      |             | 10000      |             | 21 UJ                          | 23 UJ                          |                               | 19 U                           | 18 U                           | 19 U                           | 18 UJ                          |
| Aroclor-1254           | UG/KG                             | 67      | 4%          | 2        | 45       | 2.22E+02             |             | 10000      |             | 21 UJ                          | 23 UJ                          |                               | 19 UJ                          | 18 UJ                          | 19 UJ                          | 18 UJ                          |
| Aroclor-1260           | UG/KG                             | 46      | 7%          | 3        | 45       |                      |             | 10000      |             | 21 UJ                          | 23 UJ                          |                               | 19 UJ                          | 18 UJ                          | 19 UJ                          | 18 UJ                          |
| Metals and Cyanide     | MONG                              | 12200   | 1000/       | 45       | 45       | 7.615.01             |             | 10200      |             | 2720                           | 2200                           |                               | 7610                           | 4750                           | 7020                           | 2410                           |
| Aluminum               | MG/KG                             | 13200   | 100%        | 45       | 45       | 7.61E+04             |             | 19300      | ,           | 3730                           | 2200                           |                               | 7610                           | 4750                           | 7030                           | 2410                           |
| Antimony               | MG/KG                             | 7.5     | 31%         | 14       | 45<br>34 | 3.13E+01             | 24          | 5.9        | 8           | 1.1 U                          | 1.2 U                          |                               | 6.5 U                          | 4.5                            | 6.7 U                          | 3.2                            |
| Arsenic                | MG/KG                             | 104     | 100%        | 34       | 34<br>45 | 3.90E-01             | 34          | 8.2<br>300 | 8           | 349 R                          | 239 R                          |                               | 5.1                            | 6.4                            | 5.8<br>48.9                    | 7.5 R                          |
| Barium                 | MG/KG                             | 207     | 100%<br>98% | 45<br>44 | 45<br>45 | 5.37E+03<br>1.54E+02 |             | 1.1        |             | 87.4 J                         | 84.9 J                         |                               | 48.3<br>0.42                   | 38.2<br>0.27                   | 48.9<br>0.43                   | 188<br>0.22                    |
| Beryllium              | MG/KG                             | 0.68    | 98%         | 44       | 45       | 1.54E+02             |             | 1.1        |             | 0.16 U                         | 0.18 U                         |                               | 0.42                           | 0.27                           | 0.45                           | 0.22                           |

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                              | Facility      |                    |           |          |            |           |             |          |             | SEAD-121I  | SEAD-121I  | SEAD-121I | SEAD-121I  | SEAD-121I  | SEAD-121I  | SEAD-121I  |
|------------------------------|---------------|--------------------|-----------|----------|------------|-----------|-------------|----------|-------------|------------|------------|-----------|------------|------------|------------|------------|
|                              | Location ID   |                    |           |          |            |           |             |          |             | SS121I-29  | SS121I-29  | SS121I-3  | SS121I-30  | SS121I-31  | SS121I-32  | SS121I-33  |
|                              | Matrix        |                    |           |          |            |           |             |          |             | SOIL       | SOIL       | SOIL      | SOIL       | SOIL       | SOIL       | SOIL       |
|                              | Sample ID     |                    |           |          |            |           |             |          |             | 121I-1025  | 121I-1030  | EB149     | 121I-1026  | 121I-1027  | 121I-1028  | 121I-1029  |
| Sample Depth to              | Top of Sample |                    |           |          |            |           |             |          |             | 0          | 0          | 0         | 0          | 0          | 0          | 0          |
| Sample Depth to Bot          | tom of Sample |                    |           |          |            |           |             |          |             | 0.2        | 0.2        | 0.2       | 0.2        | 0.2        | 0.2        | 0.2        |
| • •                          | Sample Date   |                    |           |          |            |           |             |          |             | 10/23/2002 | 10/23/2002 | 3/10/1998 | 10/22/2002 | 10/22/2002 | 10/22/2002 | 10/22/2002 |
|                              | QC Code       |                    |           |          |            | Region IX |             |          |             | SA         | SA         | SA        | SA         | SA         | SA         | SA         |
|                              | Study ID      |                    | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | PID-RI     | PID-RI     | EBS       | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                              |               | Maximum            | of        | of Times | of         | Criteria  |             | Criteria |             |            |            |           |            |            |            |            |
| Parameter                    | Units         | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)  | Value (Q)  | Value (Q) | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Cadmium                      | MG/KG         | 6.6                | 31%       | 14       | 45         | 3.70E+01  |             | 2.3      | 3           | 0.15 U     | 0.16 U     |           | 0.54 U     | 0.53 U     | 0.56 U     | 0.45       |
| Calcium                      | MG/KG         | 298000             | 100%      | 45       | 45         |           |             | 121000   | 18          | 29900 J    | 46500 J    |           | 50600      | 52400      | 40900      | 253000 J   |
| Chromium                     | MG/KG         | 439 4              | 100%      | 45       | 45         |           |             | 29.6     | 6           | 516        | 362        |           | 14.6       | 10.5       | 15.2       | 10.8       |
| Cobalt                       | MG/KG         | 206 4              | 100%      | 45       | 45         | 9.03E+02  |             | 30       | 4           | 237 J      | 174 J      |           | 9.6        | 9.5        | 8.9        | 7.2        |
| Copper                       | MG/KG         | 209 4              | 100%      | 40       | 40         | 3.13E+03  |             | 33       | 10          | 243        | 175        |           | 20.7 J     | 14.2 J     | 21.3 J     | 23.9       |
| Cyanide, Amenable            | MG/KG         | 0                  | 0%        | 0        | 45         |           |             |          |             | 0.63 U     | 0.68 U     |           | 0.56 UJ    | 0.54 UJ    | 0.58 UJ    | 0.55 U     |
| Cyanide, Total               | MG/KG         | 2.00 4             | 7%        | 3        | 45         |           |             |          |             | 1.26       | 2.73       |           | 0.557 UJ   | 0.545 UJ   | 0.577 UJ   | 0.546 U    |
| Iron                         | MG/KG         | 58400 <sup>4</sup> | 100%      | 45       | 45         | 2.35E+04  | 12          | 36500    | 2           | 69400      | 47400      |           | 18100      | 14500      | 16900      | 10300      |
| Lead                         | MG/KG         | 122                | 100%      | 45       | 45         | 4.00E+02  |             | 24.8     | 22          | 47.8 J     | 45.9 J     |           | 13.5       | 21         | 31.2       | 40 J       |
| Magnesium                    | MG/KG         | 22300              | 100%      | 45       | 45         |           |             | 21500    | 1           | 2770 J     | 6090 J     |           | 12800      | 4770       | 5330       | 18800 J    |
| Manganese                    | MG/KG         | 310500 4           | 100%      | 45       | 45         | 1.76E+03  | 11          | 1060     | 15          | 349000     | 272000     |           | 412        | 377        | 428        | 847        |
| Mercury                      | MG/KG         | 0.18               | 98%       | 44       | 45         | 2.35E+01  |             | 0.1      | 1           | 0.02       | 0.02       |           | 0.02       | 0.02       | 0.03       | 0.02       |
| Nickel                       | MG/KG         | 342 4              | 100%      | 45       | 45         | 1.56E+03  |             | 49       | 7           | 394 J      | 289 J      |           | 25.4       | 22.3       | 27.2       | 342 J      |
| Potassium                    | MG/KG         | 1450               | 100%      | 45       | 45         |           |             | 2380     |             | 656        | 612        |           | 1300       | 653        | 835        | 1000 J     |
| Selenium                     | MG/KG         | 146 4              | 47%       | 21       | 45         | 3.91E+02  |             | 2        | 5           | 160 J      | 131 J      |           | 0.54 U     | 0.53 U     | 0.56 U     | 0.62 J     |
| Silver                       | MG/KG         | 10.5               | 18%       | 6        | 34         | 3.91E+02  |             | 0.75     | 4           | 24.1 R     | 18.6 R     |           | 1.1 U      | 1.1 U      | 1.1 U      | 0.29 R     |
| Sodium                       | MG/KG         | 372                | 82%       | 37       | 45         |           |             | 172      | 24          | 126 U      | 135 U      |           | 129        | 138        | 117        | 326        |
| Thallium                     | MG/KG         | 163 4              | 20%       | 9        | 45         | 5.16E+00  | 5           | 0.7      | 5           | 173 Ј      | 152 J      |           | 1.1 U      | 1.1 U      | 1.1 U      | 0.33 UJ    |
| Vanadium                     | MG/KG         | 182 4              | 100%      | 45       | 45         | 7.82E+01  | 1           | 150      | 1           | 217 J      | 147 J      |           | 13.6       | 8.9        | 13.6       | 7.7        |
| Zinc                         | MG/KG         | 532                | 100%      | 45       | 45         | 2.35E+04  |             | 110      | 14          | 47.7 J     | 37.8 J     |           | 70.9 J     | 71.1 J     | 92.6 J     | 329        |
| Other                        |               |                    |           |          |            |           |             |          |             |            |            |           |            |            |            |            |
| Total Organic Carbon         | MG/KG         | 8900               | 100%      | 45       | 45         |           |             |          |             | 7300       | 4900       |           | 6600       | 4300       | 6600       | 3600       |
| Total Petroleum Hydrocarbons | MG/KG         | 2200               | 33%       | 15       | 45         |           |             |          |             | 240        | 1600       |           | 45 UJ      | 44 UJ      | 140 J      | 44 U       |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| 1  | Facility<br>Location ID<br>Matrix |         |           |          |          |                                |             |                                |             | SEAD-121I<br>SS121I-34<br>SOIL | SEAD-121I<br>SS121I-4<br>SOIL | SEAD-121I<br>SS121I-5<br>SOIL | SEAD-121I<br>SS121I-6<br>SOIL | SEAD-121I<br>SS121I-7<br>SOIL | SEAD-121I<br>SS121I-8<br>SOIL | SEAD-121I<br>SS121I-9<br>SOIL |
|--|-----------------------------------|---------|-----------|----------|----------|--------------------------------|-------------|--------------------------------|-------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|  | Sample ID                         |         |           |          |          |                                |             |                                |             | 121I-1032                      | EB148                         | 121I-1000                     | 121I-1001                     | 121I-1002                     | 121I-1004                     | 121I-1005                     |
| Sample Depth to To                               |                                   |         |           |          |          |                                |             |                                |             | 0                              | 0                             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sample Depth to Botton                           |                                   |         |           |          |          |                                |             |                                |             | 0.2                            | 0.2                           | 0.2                           | 0.2                           | 0.2                           | 0.2                           | 0.2                           |
| S  | ample Date                        |         |           |          |          |                                |             |                                |             | 10/22/2002                     | 3/10/1998                     | 10/22/2002                    | 10/22/2002                    | 10/22/2002                    | 10/22/2002                    | 10/22/2002                    |
|  | QC Code                           |         | _         |          |          | Region IX                      |             |                                |             | SA                             | SA                            | SA                            | SA                            | SA                            | SA                            | SA                            |
|  | Study ID                          |         | Frequency |          |          | PRG                            |             | NYSDEC                         |             | PID-RI                         | EBS                           | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        | PID-RI                        |
|  |                                   | Maximun |           | of Times | of       | Criteria<br>Value <sup>2</sup> |             | Criteria<br>Value <sup>3</sup> |             | *** (0)                        | **** (0)                      | **** (0)                      | **** (0)                      | ****                          | **** (0)                      | ***                           |
| Parameter Volatile Organic Compounds             | Units                             | Value   | Detection | Detected | Analyses | Value                          | Exceedances | Value                          | Exceedances | Value (Q)                      | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     | Value (Q)                     |
| 1,1,1-Trichloroethane                            | UG/KG                             | 0       | 0%        | 0        | 45       | 1.20E+06                       |             | 800                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,1,2,2-Tetrachloroethane                        | UG/KG                             | 0       | 0%        | 0        | 45       | 4.08E+02                       |             | 600                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,1,2-Trichloroethane                            | UG/KG                             | 0       | 0%        | 0        | 45       | 7.29E+02                       |             | 000                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,1-Dichloroethane                               | UG/KG                             | 0       | 0%        | 0        | 45       | 5.06E+05                       |             | 200                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,1-Dichloroethene                               | UG/KG                             | 0       | 0%        | 0        | 45       | 1.24E+05                       |             | 400                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,2-Dichloroethane                               | UG/KG                             | 0       | 0%        | 0        | 45       | 2.78E+02                       |             | 100                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 UJ                        | 2.8 UJ                        | 3.3 UJ                        | 2.9 UJ                        |
| 1,2-Dichloropropane                              | UG/KG                             | 0       | 0%        | 0        | 45       | 3.42E+02                       |             | 100                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Acetone  | UG/KG                             | 150     | 80%       | 36       | 45       | 1.41E+07                       |             | 200                            |             | 9.8 J                          |                               | 3 UJ                          | 7.7                           | 51                            | 11 J                          | 20 J                          |
| Benzene  | UG/KG                             | 41 4    | 20%       | 9        | 45       | 6.43E+02                       |             | 60                             |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 16                            | 3.3 U                         | 4.8                           |
| Bromodichloromethane                             | UG/KG                             | 0       | 0%        | 0        | 45       | 8.24E+02                       |             | 00                             |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Bromoform  | UG/KG                             | 0       | 0%        | 0        | 45       | 6.16E+04                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Carbon disulfide                                 | UG/KG                             | 0       | 0%        | 0        | 45       | 3.55E+05                       |             | 2700                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Carbon tetrachloride                             | UG/KG                             | 0       | 0%        | 0        | 45       | 2.51E+02                       |             | 600                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 UJ                        | 2.8 UJ                        | 3.3 UJ                        | 2.9 UJ                        |
| Chlorobenzene                                    | UG/KG                             | 0       | 0%        | 0        | 45       | 1.51E+05                       |             | 1700                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Chlorodibromomethane                             | UG/KG                             | 0       | 0%        | 0        | 45       | 1.11E+03                       |             | 1700                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Chloroethane                                     | UG/KG                             | 0       | 0%        | 0        | 45       | 3.03E+03                       |             | 1900                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Chloroform                                       | UG/KG                             | 0       | 0%        | 0        | 45       | 2.21E+02                       |             | 300                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Cis-1,2-Dichloroethene                           | UG/KG                             | 0       | 0%        | 0        | 45       | 4.29E+04                       |             | 300                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Cis-1,3-Dichloropropene                          | UG/KG                             | 0       | 0%        | 0        | 45       | 4.27E104                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Ethyl benzene                                    | UG/KG                             | 7.8     | 13%       | 6        | 45       | 3.95E+05                       |             | 5500                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.3 J                         | 3.3 U                         | 2.1 J                         |
| Meta/Para Xylene                                 | UG/KG                             | 6.3 4   | 13%       | 6        | 45       | 5.752.105                      |             | 3300                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.3 J                         | 3.3 U                         | 2.1 J                         |
| Methyl bromide                                   | UG/KG                             | 0.5     | 0%        | 0        | 45       | 3.90E+03                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 UJ                        | 2.8 UJ                        | 3.3 UJ                        | 2.9 UJ                        |
| Methyl butyl ketone                              | UG/KG                             | 0       | 0%        | 0        | 45       | 3.90E+03                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 UJ                        | 2.8 UJ                        | 3.3 UJ                        | 2.9 UJ                        |
| Methyl chloride                                  | UG/KG                             | 0       | 0%        | 0        | 45       | 4.69E+04                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Methyl ethyl ketone                              | UG/KG                             | 78      | 24%       | 11       | 45       | 2.23E+07                       |             | 300                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 31                            | 3.3 U                         | 9.8                           |
| Methyl isobutyl ketone                           | UG/KG                             | 0       | 0%        | 0        | 45       | 5.28E+06                       |             | 1000                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Methylene chloride                               | UG/KG                             | 2.8     | 20%       | 9        | 45       | 9.11E+03                       |             | 1000                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| '  | UG/KG                             | 3.6 4   | 13%       | 6        | 45       | J.11L+03                       |             | 100                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 1.4 J                         | 3.3 U                         | 1.3 J                         |
| Ortho Xylene                                     |                                   | 0.0     |           | 0        | 45<br>45 | 1.705.06                       |             |                                |             | 3 UJ                           |                               | 3 UJ                          |                               |                               | 3.3 U<br>3.3 U                | 2.9 U                         |
| Styrene<br>Tetrachloroethene                     | UG/KG<br>UG/KG                    | 0       | 0%<br>0%  | 0        | 45<br>45 | 1.70E+06<br>4.84E+02           |             | 1400                           |             |                                |                               |                               | 2.8 U                         | 2.8 U                         |                               |                               |
|  |                                   |         |           | -        |          |                                |             | l .                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Toluene  | UG/KG                             | 31 4    | 18%       | 8        | 45       | 5.20E+05                       |             | 1500                           |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 12                            | 3.3 U                         | 6.1                           |
| Trans-1,2-Dichloroethene                         | UG/KG                             | 0       | 0%        | 0        | 45       | 6.95E+04                       |             | 300                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Trans-1,3-Dichloropropene                        | UG/KG                             | 0       | 0%        | 0        | 45       |                                |             |                                |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Trichloroethene                                  | UG/KG                             | 0       | 0%        | 0        | 45       | 5.30E+01                       |             | 700                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| Vinyl chloride<br>Semivolatile Organic Compounds | UG/KG                             | 0       | 0%        | 0        | 45       | 7.91E+01                       |             | 200                            |             | 3 UJ                           |                               | 3 UJ                          | 2.8 U                         | 2.8 U                         | 3.3 U                         | 2.9 U                         |
| 1,2,4-Trichlorobenzene                           | UG/KG                             | 0       | 0%        | 0        | 51       | 6.22E+04                       |             | 3400                           |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 1,2-Dichlorobenzene                              | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 6.22E+04<br>6.00E+05           |             | 7900                           |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 1,3-Dichlorobenzene                              | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 5.31E+05                       |             | 1600                           |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 1,4-Dichlorobenzene                              | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 3.45E+03                       |             | 8500                           |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 2,4,5-Trichlorophenol                            | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 6.11E+06                       |             | 100                            |             | 910 U                          | 1300 U                        | 1000 U                        | 920 U                         | 980 U                         | 980 U                         | 970 U                         |
| 2,4,5-1 richlorophenol                           | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 6.11E+06<br>6.11E+03           |             | 100                            |             | 360 U                          | 550 U                         | 400 U                         | 920 U<br>370 U                | 390 U                         | 390 U                         | 380 U                         |
| 2,4,6-1 richlorophenol                           | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 1.83E+05                       |             | 400                            |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 2,4-Dimethylphenol                               | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 1.83E+03<br>1.22E+06           |             | 400                            |             | 360 U                          | 550 U                         | 400 U                         | 370 U                         | 390 U                         | 390 U                         | 380 U                         |
| 2,4-Dinitrophenol                                | UG/KG<br>UG/KG                    | 0       | 0%        | 0        | 51       | 1.22E+06<br>1.22E+05           |             | 200                            |             | 910 U                          | 1300 UJ                       | 1000 UJ                       | 920 U                         | 980 U                         | 980 UJ                        | 970 U                         |
| 2,4-Dimitrophenoi                                | UG/NG                             | U       | U%        | U        | 31       | 1.22E+03                       |             | 200                            |             | 910 U                          | 1300 UJ                       | 1000 UJ                       | 920 U                         | 980 U                         | 980 UJ                        | 970 0                         |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I SEAD-121I Location ID SS121I-34 SS121I-4 SS121I-5 SS121I-6 SS121I-7 SS121I-8 SS121I-9 Matrix SOIL SOIL SOIL SOIL SOIL SOIL SOIL 121I-1032 EB148 121I-1004 121I-1005 Sample ID 121I-1000 121I-1001 121I-1002 Sample Depth to Top of Sample 0 0 0 0 0 0

| Sample Depth to             |                |                  |           |          |            |                      |             |          |             | 0          | 0             | 0              | 0          | 0          | 0          | 0          |
|-----------------------------|----------------|------------------|-----------|----------|------------|----------------------|-------------|----------|-------------|------------|---------------|----------------|------------|------------|------------|------------|
| Sample Depth to Bott        |                |                  |           |          |            |                      |             |          |             | 0.2        | 0.2           | 0.2            | 0.2        | 0.2        | 0.2        | 0.2        |
|                             | Sample Date    |                  |           |          |            |                      |             |          |             | 10/22/2002 | 3/10/1998     | 10/22/2002     | 10/22/2002 | 10/22/2002 | 10/22/2002 | 10/22/2002 |
|                             | QC Code        |                  |           |          |            | Region IX            |             |          |             | SA         | SA            | SA             | SA         | SA         | SA         | SA         |
|                             | Study ID       |                  | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI     | EBS           | PID-RI         | PID-RI     | PID-RI     | PID-RI     | PID-RI     |
|                             |                | Maximum          | of        | of Times | of         | Criteria             |             | Criteria |             |            |               |                |            |            |            |            |
| Parameter                   | Units          | Value            | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3  | Exceedances | Value (Q)  | Value (Q)     | Value (Q)      | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| 2,4-Dinitrotoluene          | UG/KG          | 0                | 0%        | 0        | 51         | 1.22E+05             | Exceedances | V alue   | Exceedances | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
|                             |                | 0                |           | 0        |            | I                    |             | 1000     |             |            |               |                |            |            |            | I          |
| 2,6-Dinitrotoluene          | UG/KG          | -                | 0%        | 0        | 51         | 6.11E+04             |             | 1000     |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 2-Chloronaphthalene         | UG/KG          | 0                | 0%        | -        | 51         | 4.94E+06             |             |          |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 2-Chlorophenol              | UG/KG          | 0                | 0%        | 0        | 51         | 6.34E+04             |             | 800      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 2-Methylnaphthalene         | UG/KG          | 260              | 10%       | 5        | 51         |                      |             | 36400    |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 2-Methylphenol              | UG/KG          | 0                | 0%        | 0        | 51         | 3.06E+06             |             | 100      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 2-Nitroaniline              | UG/KG          | 0                | 0%        | 0        | 51         | 1.83E+05             |             | 430      |             | 910 UJ     | 1300 U        | 1000 UJ        | 920 U      | 980 UJ     | 980 U      | 970 UJ     |
| 2-Nitrophenol               | UG/KG          | 0                | 0%        | 0        | 51         |                      |             | 330      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 3 or 4-Methylphenol         | UG/KG          | 0                | 0%        | 0        | 45         |                      |             |          |             | 360 U      |               | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 3,3'-Dichlorobenzidine      | UG/KG          | 315 4            | 2%        | 1        | 47         | 1.08E+03             |             |          |             | 360 UJ     | 550 U         | 400 U          | 370 U      | 390 UJ     | 390 U      | 380 R      |
| 3-Nitroaniline              | UG/KG          | 0                | 0%        | 0        | 51         | 1.83E+04             |             | 500      |             | 910 U      | 1300 U        | 1000 U         | 920 U      | 980 U      | 980 U      | 970 U      |
| 4,6-Dinitro-2-methylphenol  | UG/KG          | 0                | 0%        | 0        | 50         | 6.11E+03             |             |          |             | 910 U      | 1300 U        | 1000 UJ        | 920 U      | 980 U      | 980 UJ     | 970 U      |
| 4-Bromophenyl phenyl ether  | UG/KG          | 0                | 0%        | 0        | 50         |                      |             |          |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 4-Chloro-3-methylphenol     | UG/KG          | 0                | 0%        | 0        | 51         |                      |             | 240      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 4-Chloroaniline             | UG/KG          | 0                | 0%        | 0        | 51         | 2.44E+05             |             | 220      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 4-Chlorophenyl phenyl ether | UG/KG          | 0                | 0%        | 0        | 51         |                      |             |          |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 4-Methylphenol              | UG/KG          | 0                | 0%        | 0        | 6          | 3.06E+05             |             | 900      |             | 500 0      | 550 U         | 100 0          | 370 0      | 3,00       | 370 0      | 500 0      |
| 4-Nitroaniline              | UG/KG          | 0                | 0%        | 0        | 51         | 2.32E+04             |             | ,,,,     |             | 910 U      | 1300 UJ       | 1000 U         | 920 U      | 980 U      | 980 U      | 970 U      |
| 4-Nitrophenol               | UG/KG          | 0                | 0%        | 0        | 51         | 2.521.04             |             | 100      |             | 910 U      | 1300 U        | 1000 U         | 920 U      | 980 U      | 980 U      | 970 U      |
| Acenaphthene                | UG/KG          | 6100             | 51%       | 26       | 51         | 3.68E+06             |             | 50000    |             | 360 U      | 320 J         | 400 U          | 370 U      | 65 J       | 390 U      | 84 J       |
| Acenaphthylene              | UG/KG          | 560              | 12%       | 6        | 51         | 3.00E100             |             | 41000    |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Anthracene                  | UG/KG          | 12000            | 58%       | 29       | 50         | 2.19E+07             |             | 50000    |             | 360 U      | 230 J         | 400 U          | 370 U      | 94 J       | 390 U      | 130 J      |
| Benzo(a)anthracene          | UG/KG          | 28000            | 90%       | 46       | 51         | 6.21E+02             | 18          | 224      | 28          | 99 J       | 1700          | 69 J           | 370 U      | 360 J      | 52 J       | 620 J      |
| Benzo(a)pyrene              | UG/KG          | 23000            | 88%       | 45       | 51         | 6.21E+01             | 44          | 61       | 44          | 130 J      | 1600          | 95 J           | 75 J       | 370 J      | 71 J       | 610 J      |
| Benzo(b)fluoranthene        | UG/KG          | 29000            | 94%       | 48       | 51         | 6.21E+01             | 21          | 1100     | 14          | 130 J      | 1700          | 82 J           | 61 J       | 360 J      | 55 J       | 690 J      |
| Benzo(ghi)perylene          | UG/KG          | 29000            | 82%       | 42       | 51         | 0.21E+02             | 21          | 50000    | 14          | 90 J       | 940           | 85 J           | 370 U      | 270 J      | 78 J       | 510 J      |
| Benzo(k)fluoranthene        | UG/KG          | 23000            | 74%       | 37       | 50         | 6.21E+03             | 4           | 1100     | 14          | 120 J      | 1800          | 400 U          | 370 U      | 470 J      | 390 U      | 530 J      |
| Bis(2-Chloroethoxy)methane  | UG/KG          | 0                | 0%        | 0        | 51         | 0.21E+03             | 4           | 1100     | 14          | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Bis(2-Chloroethyl)ether     | UG/KG          | 0                | 0%        | 0        | 51         | 2.18E+02             |             |          |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
|                             |                | 0                | 0%        | 0        | 51         | 2.18E+02<br>2.88E+03 |             |          |             | 360 U      |               | 400 U          | 370 U      | 390 U      | 390 U      |            |
| Bis(2-Chloroisopropyl)ether | UG/KG          | 1600             | 33%       | 17       | 51         | 3.47E+04             |             | 50000    |             | 360 UJ     | 550 U<br>47 J | 400 U          | 370 U      | 390 UJ     | 390 U      | 380 U      |
| Bis(2-Ethylhexyl)phthalate  | UG/KG          |                  |           |          |            |                      |             |          |             |            |               |                |            |            |            | 63 J       |
| Butylbenzylphthalate        | UG/KG          | 420 4            | 6%        | 3        | 48         | 1.22E+07             |             | 50000    |             | 360 UJ     | 550 U         | 400 U          | 370 U      | 390 UJ     | 390 U      | 380 R      |
| Carbazole                   | UG/KG          | 6800             | 57%       | 29       | 51         | 2.43E+04             |             |          |             | 360 U      | 380 J         | 400 U          | 370 U      | 110 J      | 390 U      | 130 J      |
| Chrysene                    | UG/KG          | 32000            | 86%       | 44       | 51         | 6.21E+04             |             | 400      | 25          | 170 J      | 1900          | 94 J           | 370 U      | 480 J      | 66 J       | 890 J      |
| Di-n-butylphthalate         | UG/KG          | 45               | 2%        | 1        | 50         | 6.11E+06             |             | 8100     |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Di-n-octylphthalate         | UG/KG          | $420^{4}$        | 2%        | 1        | 47         | 2.44E+06             |             | 50000    |             | 360 UJ     | 550 UJ        | 400 U          | 370 U      | 390 UJ     | 390 U      | 380 R      |
| Dibenz(a,h)anthracene       | UG/KG          | 5000             | 34%       | 15       | 44         | 6.21E+01             | 15          | 14       | 15          | 360 R      | 420 J         | 400 UJ         | 370 U      | 390 R      | 390 U      | 380 R      |
| Dibenzofuran                | UG/KG          | 2000             | 27%       | 14       | 51         | 1.45E+05             |             | 6200     |             | 360 U      | 63 J          | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Diethyl phthalate           | UG/KG          | 640 <sup>4</sup> | 2%        | 1        | 51         | 4.89E+07             |             | 7100     |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Dimethylphthalate           | UG/KG          | 0                | 0%        | 0        | 51         | 1.00E+08             |             | 2000     |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Fluoranthene                | UG/KG          | 62000            | 94%       | 48       | 51         | 2.29E+06             |             | 50000    | 1           | 180 J      | 4100          | 150 J          | 120 J      | 910        | 140 J      | 1400       |
| Fluorene                    | UG/KG          | 4200             | 43%       | 22       | 51         | 2.75E+06             |             | 50000    |             | 360 U      | 160 J         | 400 U          | 370 U      | 43 J       | 390 U      | 54 J       |
| Hexachlorobenzene           | UG/KG          | 0                | 0%        | 0        | 50         | 3.04E+02             |             | 410      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Hexachlorobutadiene         | UG/KG          | 0                | 0%        | 0        | 51         | 6.24E+03             |             | 410      |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| Hexachlorocyclopentadiene   | UG/KG          | 0                | 0%        | 0        | 51         | 3.65E+05             |             |          |             | 360 U      | 550 U         | 400 U<br>400 U | 370 U      | 390 U      | 390 U      | 380 U      |
| Hexachloroethane            | UG/KG<br>UG/KG | 0                | 0%        | 0        | 51         | 3.63E+03<br>3.47E+04 |             |          |             | 360 U      | 550 U         | 400 U          | 370 U      | 390 U      | 390 U      | 380 U      |
| 11CAGCHIOIOCHIAIIC          | UU/KU          | U                | U70       | U        | 31         | 3.47E±04             |             | I        |             | 300 U      | 330 U         | 400 U          | 370 0      | 370 U      | 370 U      | 300 U      |

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                                      | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |                      |             |           |             | SEAD-121I<br>SS121I-34<br>SOIL<br>121I-1032 | SEAD-121I<br>SS121I-4<br>SOIL<br>EB148 | SEAD-121I<br>SS121I-5<br>SOIL<br>121I-1000 | SEAD-121I<br>SS121I-6<br>SOIL<br>121I-1001 | SEAD-121I<br>SS121I-7<br>SOIL<br>121I-1002 | SEAD-121I<br>SS121I-8<br>SOIL<br>121I-1004 | SEAD-121I<br>SS121I-9<br>SOIL<br>121I-1005 |
|--------------------------------------|--|---------|-----------|----------|------------|----------------------|-------------|-----------|-------------|---|--|--|--|--|--|--|
| Sample Depth to                      |  |         |           |          |            |                      |             |           |             | 0   | 0                                      | 0  | 0  | 0  | 0  | 0  |
| Sample Depth to Bo                   | Sample Date                                    |         |           |          |            |                      |             |           |             | 0.2<br>10/22/2002                           | 0.2<br>3/10/1998                       | 0.2<br>10/22/2002                          | 0.2<br>10/22/2002                          | 0.2<br>10/22/2002                          | 0.2<br>10/22/2002                          | 0.2<br>10/22/2002                          |
|                                      | QC Code  |         |           |          |            | Region IX            |             |           |             | 10/22/2002<br>SA                            | 3/10/1998<br>SA                        | 10/22/2002<br>SA                           | SA   | 10/22/2002<br>SA                           | 10/22/2002<br>SA                           | 10/22/2002<br>SA                           |
|                                      | Study ID                                       |         | Frequency | Number   | Number     | PRG                  |             | NYSDEC    |             | PID-RI                                      | EBS                                    | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     | PID-RI                                     |
|                                      |  | Maximum |           | of Times | of         | Criteria             |             | Criteria  |             |   |  |  |  |  |  |  |
| Parameter                            | Units  | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3   | Exceedances | Value (Q)                                   | Value (Q)                              | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  | Value (Q)                                  |
| Indeno(1,2,3-cd)pyrene               | UG/KG  | 12000   | 71%       | 35       | 49         | 6.21E+02             | 13          | 3200      | 3           | 65 J  | 950                                    | 72 J                                       | 370 U                                      | 180 J                                      | 100 J                                      | 480 R                                      |
| Isophorone                           | UG/KG  | 315 4   | 2%        | 1        | 51         | 5.12E+05             |             | 4400      |             | 360 U                                       | 550 U                                  | 400 U                                      | 370 U                                      | 390 U                                      | 390 U                                      | 380 U                                      |
| N-Nitrosodiphenylamine               | UG/KG  | 0       | 0%        | 0        | 50         | 9.93E+04             |             |           |             | 360 U                                       | 550 U                                  | 400 U                                      | 370 U                                      | 390 U                                      | 390 U                                      | 380 U                                      |
| N-Nitrosodipropylamine               | UG/KG  | 0       | 0%        | 0        | 51         | 6.95E+01             |             |           |             | 360 UJ                                      | 550 U                                  | 400 UJ                                     | 370 U                                      | 390 UJ                                     | 390 U                                      | 380 UJ                                     |
| Naphthalene                          | UG/KG  | 630     | 14%       | 7        | 51         | 5.59E+04             |             | 13000     |             | 360 U                                       | 51 J                                   | 400 U                                      | 370 U                                      | 390 U                                      | 390 U                                      | 380 U                                      |
| Nitrobenzene                         | UG/KG  | 315 4   | 2%        | 1        | 51         | 1.96E+04             |             | 200       | 1           | 360 U                                       | 550 U                                  | 400 U                                      | 370 U                                      | 390 U                                      | 390 U                                      | 380 U                                      |
| Pentachlorophenol                    | UG/KG  | 0       | 0%        | 0        | 50         | 2.98E+03             |             | 1000      |             | 910 U                                       | 1300 U                                 | 1000 U                                     | 920 U                                      | 980 U                                      | 980 U                                      | 970 U                                      |
| Phenanthrene                         | UG/KG  | 52000   | 94%       | 48       | 51         |                      |             | 50000     | 1           | 130 J                                       | 1800                                   | 66 J                                       | 76 J                                       | 650  | 73 J                                       | 930  |
| Phenol                               | UG/KG  | 315 4   | 2%        | 1        | 51         | 1.83E+07             |             | 30        | 1           | 360 U                                       | 550 U                                  | 400 U                                      | 370 U                                      | 390 U                                      | 390 U                                      | 380 U                                      |
| Pyrene                               | UG/KG  | 64000   | 94%       | 48       | 51         | 2.32E+06             |             | 50000     | 1           | 260 J                                       | 3200                                   | 140 J                                      | 120 J                                      | 1100 J                                     | 97 J                                       | 3000 J                                     |
| Pesticides/PCBs                      | 00/110   | 0.000   | , ,,,     |          | 5.         | 2.522.100            |             | 20000     | •           | 2000  | 3200                                   | 1.00                                       | 1200                                       | 11000                                      | ,,,  | 3000 \$                                    |
| 4,4'-DDD                             | UG/KG  | 0       | 0%        | 0        | 45         | 2.44E+03             |             | 2900      |             | 1.9 UJ                                      |  | 2.1 UJ                                     | 1.9 UJ                                     | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       |
| 4,4'-DDE                             | UG/KG  | 34      | 11%       | 5        | 45         | 1.72E+03             |             | 2100      |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| 4,4'-DDT                             | UG/KG  | 39      | 5%        | 2        | 44         | 1.72E+03             |             | 2100      |             | 1.9 UJ                                      |  | 2.1 U                                      | 1.9 UJ                                     | 2 U  | 2 UJ                                       | 2 UJ                                       |
| Aldrin                               | UG/KG  | 12      | 9%        | 4        | 45         | 2.86E+01             |             | 41        |             | 1.9 U                                       |  | 2.1 UJ                                     | 1.9 U                                      | 2 UJ                                       | 2 U  | 3.2 J                                      |
| Alpha-BHC                            | UG/KG  | 0       | 0%        | 0        | 45         | 9.02E+01             |             | 110       |             | 1.9 UJ                                      |  | 2.1 UJ                                     | 1.9 UJ                                     | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       |
| Alpha-Chlordane                      | UG/KG  | 0       | 0%        | 0        | 41         |                      |             |           |             | 1.9 UJ                                      |  | 2.1 UJ                                     | 1.9 UJ                                     | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       |
| Beta-BHC                             | UG/KG  | 0       | 0%        | 0        | 45         | 3.16E+02             |             | 200       |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Chlordane                            | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |           |             | 19 U  |  | 21 U                                       | 19 U                                       | 20 U                                       | 20 U                                       | 20 U                                       |
| Delta-BHC                            | UG/KG  | 0       | 0%        | 0        | 45         |                      |             | 300       |             | 1.9 UJ                                      |  | 2.1 UJ                                     | 1.9 UJ                                     | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       |
| Dieldrin                             | UG/KG  | 34      | 4%        | 2        | 45         | 3.04E+01             | 1           | 44        |             | 1.9 UJ                                      |  | 2.1 UJ                                     | 1.9 UJ                                     | 2 UJ                                       | 2 UJ                                       | 2 UJ                                       |
| Endosulfan I                         | UG/KG  | 95      | 59%       | 24       | 41         |                      |             | 900       |             | 4.9 J                                       |  | 4.2  | 2.6  | 8.7  | 4  | 36 J                                       |
| Endosulfan II                        | UG/KG  | 0       | 0%        | 0        | 45         |                      |             | 900       |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Endosulfan sulfate                   | UG/KG  | 0       | 0%        | 0        | 45         |                      |             | 1000      |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Endrin                               | UG/KG  | 30      | 4%        | 2        | 45         | 1.83E+04             |             | 100       |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 UJ                                     | 2 U  | 2 UJ                                       | 2 UJ                                       |
| Endrin aldehyde                      | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |           |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Endrin ketone                        | UG/KG  | 0       | 0%        | 0        | 45         | 4.275.02             |             |           |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Gamma-BHC/Lindane<br>Gamma-Chlordane | UG/KG  | 0       | 0%        | 0        | 45<br>45   | 4.37E+02             |             | 60<br>540 |             | 1.9 U<br>1.9 U                              |  | 2.1 UJ<br>2.1 U                            | 1.9 UJ                                     | 2 UJ<br>2 U                                | 2 UJ<br>2 U                                | 2 UJ<br>2 U                                |
|                                      | UG/KG  | 0       | 0%<br>0%  | 0        | 45<br>45   | 1.005.00             |             | II .      |             | 1.9 U<br>1.9 U                              |  | 2.1 U<br>2.1 U                             | 1.9 U                                      | 2 U  | 2 U  | 2 U  |
| Heptachlor<br>Heptachlor epoxide     | UG/KG<br>UG/KG                                 | 55      | 21%       | 8        | 45<br>39   | 1.08E+02<br>5.34E+01 | 1           | 100<br>20 | 3           | 1.9 U                                       |  | 2.1 U<br>2.1 U                             | 1.9 U<br>1.9 U                             | 6.4  | 2 U  | 25   |
| Methoxychlor                         | UG/KG<br>UG/KG                                 | 0       | 0%        | 8        | 39<br>45   | 3.06E+05             | 1           | 20        | ی           | 1.9 U<br>1.9 UJ                             |  | 2.1 U<br>2.1 U                             | 1.9 U                                      | 6.4<br>2 U                                 | 2 U  | 25<br>2 U                                  |
| Toxaphene                            | UG/KG  | 0       | 0%        | 0        | 45         | 4.42E+02             |             |           |             | 1.9 U                                       |  | 2.1 U                                      | 1.9 U                                      | 20 U                                       | 20 U                                       | 20 U                                       |
| Aroclor-1016                         | UG/KG  | 0       | 0%        | 0        | 45         | 3.93E+03             |             |           |             | 19 UJ                                       |  | 21 U                                       | 19 UJ                                      | 20 U                                       | 20 UJ                                      | 20 U                                       |
| Aroclor-1221                         | UG/KG  | 0       | 0%        | 0        | 45         | 3.93E+03             |             |           |             | 19 UJ                                       |  | 21 U                                       | 19 U                                       | 20 U                                       | 20 U                                       | 20 U                                       |
| Aroclor-1232                         | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |           |             | 19 UJ                                       |  | 21 U                                       | 19 UJ                                      | 20 U                                       | 20 UJ                                      | 20 U                                       |
| Aroclor-1242                         | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |           |             | 19 UJ                                       |  | 21 U                                       | 19 UJ                                      | 20 U                                       | 20 UJ                                      | 20 U                                       |
| Aroclor-1248                         | UG/KG  | 0       | 0%        | 0        | 45         |                      |             |           |             | 19 UJ                                       |  | 21 U                                       | 19 U                                       | 20 U                                       | 20 U                                       | 20 U                                       |
| Aroclor-1254                         | UG/KG  | 67      | 4%        | 2        | 45         | 2.22E+02             |             | 10000     |             | 19 UJ                                       |  | 21 UJ                                      | 19 U                                       | 20 UJ                                      | 20 U                                       | 20 UJ                                      |
| Aroclor-1260                         | UG/KG  | 46      | 7%        | 3        | 45         |                      |             | 10000     |             | 19 UJ                                       |  | 21 UJ                                      | 19 U                                       | 20 UJ                                      | 20 U                                       | 20 UJ                                      |
| Metals and Cyanide                   |  |         |           |          | -          |                      |             | I         |             |   |  |  |  |  |  |  |
| Aluminum                             | MG/KG  | 13200   | 100%      | 45       | 45         | 7.61E+04             |             | 19300     |             | 5670  |  | 6960                                       | 10600                                      | 7880                                       | 7750                                       | 7210                                       |
| Antimony                             | MG/KG  | 7.5     | 31%       | 14       | 45         | 3.13E+01             |             | 5.9       | 1           | 4.1   |  | 7.3 U                                      | 6.7 U                                      | 7.1 U                                      | 3.6  | 6.9 U                                      |
| Arsenic                              | MG/KG  | 104     | 100%      | 34       | 34         | 3.90E-01             | 34          | 8.2       | 8           | 5.7 R                                       |  | 3.7  | 7.2  | 30   | 4.1  | 14   |
| Barium                               | MG/KG  | 207     | 100%      | 45       | 45         | 5.37E+03             |             | 300       |             | 97.2 J                                      |  | 41.4                                       | 61.9                                       | 79.2                                       | 83.5                                       | 87.5                                       |
| Beryllium                            | MG/KG  | 0.68    | 98%       | 44       | 45         | 1.54E+02             |             | 1.1       |             | 0.38  |  | 0.39 J                                     | 0.53 J                                     | 0.41 J                                     | 0.38 J                                     | 0.45                                       |

#### SEAD-121C and SEAD-121I RI REPORT

|  | Seneca Army Depot Activity |
|--|----------------------------|
|  |                            |

| Sample Depth to T<br>Sample Depth to Bott | tom of Sample<br>Sample Date<br>QC Code<br>Study ID | Maximum            | Frequency<br>of | Number of Times | Number<br>of | Region IX<br>PRG<br>Criteria |             | NYSDEC<br>Criteria |             | SEAD-121I<br>SS121I-34<br>SOIL<br>121I-1032<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-1211<br>SS1211-4<br>SOIL<br>EB148<br>0<br>0.2<br>3/10/1998<br>SA<br>EBS | SEAD-1211<br>SS1211-5<br>SOIL<br>1211-1000<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-6<br>SOIL.<br>121I-1001<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-7<br>SOIL.<br>121I-1002<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-8<br>SOIL<br>121I-1004<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI | SEAD-121I<br>SS121I-9<br>SOIL<br>121I-1005<br>0<br>0.2<br>10/22/2002<br>SA<br>PID-RI |
|---|---|--------------------|-----------------|-----------------|--------------|------------------------------|-------------|--------------------|-------------|---|--|--|---|---|--|--|
| Parameter                                 | Units   | Value              | Detection       | Detected        | Analyses 1   | Value 2                      | Exceedances | Value 3            | Exceedances | Value (Q)   | Value (Q)  | Value (Q)  | Value (Q)   | Value (Q)   | Value (Q)  | Value (Q)  |
| Cadmium                                   | MG/KG   | 6.6                | 31%             | 14              | 45           | 3.70E+01                     |             | 2.3                | 3           | 0.17  |  | 0.61 U   | 0.56 U  | 0.6 U   | 0.57 U   | 0.15   |
| Calcium                                   | MG/KG   | 298000             | 100%            | 45              | 45           |                              |             | 121000             | 18          | 160000 J  |  | 37300  | 36000   | 30600   | 62600  | 39800  |
| Chromium                                  | MG/KG   | 439 4              | 100%            | 45              | 45           |                              |             | 29.6               | 6           | 14.2  |  | 14.7   | 19.8  | 77.1  | 11.8   | 35   |
| Cobalt                                    | MG/KG   | 206 4              | 100%            | 45              | 45           | 9.03E+02                     |             | 30                 | 4           | 8.3   |  | 11   | 11.7  | 26.5  | 8.1  | 15   |
| Copper                                    | MG/KG   | 209 4              | 100%            | 40              | 40           | 3.13E+03                     |             | 33                 | 10          | 21  |  | 24.1 J   | 23.1 J  | 41.8 J  | 31 J   | 37 J   |
| Cyanide, Amenable                         | MG/KG   | 0                  | 0%              | 0               | 45           |                              |             |                    |             | 0.55 U  |  | 0.61 UJ  | 0.56 UJ   | 0.6 UJ  | 0.59 UJ  | 0.58 UJ  |
| Cyanide, Total                            | MG/KG   | 2.00 4             | 7%              | 3               | 45           |                              |             |                    |             | 0.551 U   |  | 0.61 UJ  | 0.559 J   | 0.595 UJ  | 0.588 UJ   | 0.581 UJ   |
| Iron                                      | MG/KG   | 58400 <sup>4</sup> | 100%            | 45              | 45           | 2.35E+04                     | 12          | 36500              | 2           | 14600   |  | 15900  | 24500   | 25200   | 15100  | 22900  |
| Lead                                      | MG/KG   | 122                | 100%            | 45              | 45           | 4.00E+02                     |             | 24.8               | 22          | 25.9 J  |  | 21.4   | 16  | 35.6  | 15.2   | 51   |
| Magnesium                                 | MG/KG   | 22300              | 100%            | 45              | 45           |                              |             | 21500              | 1           | 11800 J   |  | 6310   | 11500   | 9420  | 14200  | 7110   |
| Manganese                                 | MG/KG   | 310500 4           | 100%            | 45              | 45           | 1.76E+03                     | 11          | 1060               | 15          | 634   |  | 404  | 880   | 28100   | 567  | 9500   |
| Mercury                                   | MG/KG   | 0.18               | 98%             | 44              | 45           | 2.35E+01                     |             | 0.1                | 1           | 0.03  |  | 0.04   | 0.03  | 0.04  | 0.03   | 0.03   |
| Nickel                                    | MG/KG   | 342 4              | 100%            | 45              | 45           | 1.56E+03                     |             | 49                 | 7           | 30.8 J  |  | 30.9   | 30.3  | 74.8  | 25.9   | 34.3   |
| Potassium                                 | MG/KG   | 1450               | 100%            | 45              | 45           |                              |             | 2380               |             | 867   |  | 1140   | 1140  | 969   | 889  | 723  |
| Selenium                                  | MG/KG   | 146 4              | 47%             | 21              | 45           | 3.91E+02                     |             | 2                  | 5           | 0.76 J  |  | 0.61 U   | 1.3   | 5.5   | 0.57 U   | 1.3  |
| Silver                                    | MG/KG   | 10.5               | 18%             | 6               | 34           | 3.91E+02                     |             | 0.75               | 4           | 0.29 R  |  | 1.2 U  | 1.1 U   | 1.8   | 1.1 U  | 0.51 J   |
| Sodium                                    | MG/KG   | 372                | 82%             | 37              | 45           |                              |             | 172                | 24          | 218   |  | 132  | 132   | 595 U   | 134  | 123  |
| Thallium                                  | MG/KG   | 163 <sup>4</sup>   | 20%             | 9               | 45           | 5.16E+00                     | 5           | 0.7                | 5           | 0.34 UJ   |  | 1.2 U  | 0.38  | 6.7   | 1.1 U  | 0.5 J  |
| Vanadium                                  | MG/KG   | 182 4              | 100%            | 45              | 45           | 7.82E+01                     | 1           | 150                | 1           | 11.3 J  |  | 11.9   | 17.3  | 34.5  | 13.8   | 18.7   |
| Zinc                                      | MG/KG   | 532                | 100%            | 45              | 45           | 2.35E+04                     |             | 110                | 14          | 78.8 J  |  | 59.7 J   | 82.6 J  | 123 J   | 56.8 J   | 132 J  |
| Other                                     |   |                    |                 |                 |              |                              |             |                    |             |   |  |  |   |   |  |  |
| Total Organic Carbon                      | MG/KG   | 8900               | 100%            | 45              | 45           |                              |             |                    |             | 4900  |  | 4200   | 8900  | 6100  | 4900   | 5000   |
| Total Petroleum Hydrocarbons              | MG/KG   | 2200               | 33%             | 15              | 45           |                              |             |                    |             | 44 U  |  | 410 J  | 45 UJ   | 48 UJ   | 47 UJ  | 47 UJ  |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

| Sample Depth to To<br>Sample Depth to Botton |             |         |           |          |            |           |             |          |             | SEAD-121I<br>SD121I-1EBS<br>DITCHSOIL<br>EB151<br>0 | SEAD-121I<br>SD1211-2EBS<br>DITCHSOIL<br>EB152<br>0 | SEAD-121I<br>SD121I-4<br>DITCHSOIL<br>121I-4003<br>0 | SEAD-121I<br>SD121I-5<br>DITCHSOIL<br>121I-4004<br>0 | SEAD-121I<br>SD121I-7<br>DITCHSOIL<br>121I-4005<br>0 | SEAD-121I<br>SD121I-6<br>DITCHSOIL<br>121I-4006<br>0 | SEAD-121I<br>SD121I-7<br>DITCHSOIL<br>121I-4007<br>0 |
|--|-------------|---------|-----------|----------|------------|-----------|-------------|----------|-------------|---|---|--|--|--|--|--|
|  | Sample Date |         |           |          |            |           |             |          |             | 3/10/1998   | 3/10/1998   | 11/6/2002  | 11/6/2002  | 10/26/2002   | 11/6/2002  | 10/26/2002   |
|  | QC Code     |         |           |          |            | Region IX |             |          |             | SA  | SA  | SA   | SA   | SA   | SA   | SA   |
|  | Study ID    |         | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | EBS   | EBS   | PID-RI   | PID-RI   | PID-RI   | PID-RI   | PID-RI   |
|  |             | Maximum | of        | of Times | of         | Criteria  |             | Criteria |             |   |   | 1  | 1  | 1  | 1  | 1  |
| Parameter                                    | Units       | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)   | Value (Q)   | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  | Value (Q)  |
| Volatile Organic Compounds                   |             |         |           |          | Ť          |           |             |          |             |   |   |  |  |  |  |  |
| 1,1,1-Trichloroethane                        | UG/KG       | 0       | 0%        | 0        | 45         | 1.20E+06  |             | 800      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| 1,1,2,2-Tetrachloroethane                    | UG/KG       | 0       | 0%        | 0        | 45         | 4.08E+02  |             | 600      |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| 1,1,2-Trichloroethane                        | UG/KG       | 0       | 0%        | 0        | 45         | 7.29E+02  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| 1,1-Dichloroethane                           | UG/KG       | 0       | 0%        | 0        | 45         | 5.06E+05  |             | 200      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| 1,1-Dichloroethene                           | UG/KG       | 0       | 0%        | 0        | 45         | 1.24E+05  |             | 400      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| 1,2-Dichloroethane                           | UG/KG       | 0       | 0%        | 0        | 45         | 2.78E+02  |             | 100      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| 1,2-Dichloropropane                          | UG/KG       | 0       | 0%        | 0        | 45         | 3.42E+02  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Acetone                                      | UG/KG       | 150     | 80%       | 36       | 45         | 1.41E+07  |             | 200      |             |   |   | 28   | 16   | 25 J   | 16   | 10 J   |
| Benzene                                      | UG/KG       | 41 4    | 20%       | 9        | 45         | 6.43E+02  |             | 60       |             |   |   | 2.3 J  | 3.1 U  | 3.1 UJ   | 1.2 J  | 3.2 UJ   |
| Bromodichloromethane                         | UG/KG       | 0       | 0%        | 0        | 45         | 8.24E+02  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Bromoform                                    | UG/KG       | 0       | 0%        | 0        | 45         | 6.16E+04  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Carbon disulfide                             | UG/KG       | 0       | 0%        | 0        | 45         | 3.55E+05  |             | 2700     |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Carbon tetrachloride                         | UG/KG       | 0       | 0%        | 0        | 45         | 2.51E+02  |             | 600      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Chlorobenzene                                | UG/KG       | 0       | 0%        | 0        | 45         | 1.51E+05  |             | 1700     |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Chlorodibromomethane                         | UG/KG       | 0       | 0%        | 0        | 45         | 1.11E+03  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Chloroethane                                 | UG/KG       | 0       | 0%        | 0        | 45         | 3.03E+03  |             | 1900     |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Chloroform                                   | UG/KG       | 0       | 0%        | 0        | 45         | 2.21E+02  |             | 300      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Cis-1,2-Dichloroethene                       | UG/KG       | 0       | 0%        | 0        | 45         | 4.29E+04  |             |          |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Cis-1,3-Dichloropropene                      | UG/KG       | 0       | 0%        | 0        | 45         |           |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Ethyl benzene                                | UG/KG       | 7.8     | 13%       | 6        | 45         | 3.95E+05  |             | 5500     |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Meta/Para Xylene                             | UG/KG       | 6.3 4   | 13%       | 6        | 45         |           |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Methyl bromide                               | UG/KG       | 0       | 0%        | 0        | 45         | 3.90E+03  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Methyl butyl ketone                          | UG/KG       | 0       | 0%        | 0        | 45         |           |             |          |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Methyl chloride                              | UG/KG       | 0       | 0%        | 0        | 45         | 4.69E+04  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Methyl ethyl ketone                          | UG/KG       | 78      | 24%       | 11       | 45         | 2.23E+07  |             | 300      |             |   |   | 7.2  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Methyl isobutyl ketone                       | UG/KG       | 0       | 0%        | 0        | 45         | 5.28E+06  |             | 1000     |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Methylene chloride                           | UG/KG       | 2.8     | 20%       | 9        | 45         | 9.11E+03  |             | 100      |             |   |   | 2.7 UJ   | 3.1 UJ   | 2.5 U  | 4.4 UJ   | 1.9 U  |
| Ortho Xylene                                 | UG/KG       | 3.6 4   | 13%       | 6        | 45         |           |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Styrene                                      | UG/KG       | 0       | 0%        | 0        | 45         | 1.70E+06  |             |          |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Tetrachloroethene                            | UG/KG       | 0       | 0%        | 0        | 45         | 4.84E+02  |             | 1400     |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Toluene                                      | UG/KG       | 31 4    | 18%       | 8        | 45         | 5.20E+05  |             | 1500     |             |   |   | 1.7 J  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Trans-1,2-Dichloroethene                     | UG/KG       | 0       | 0%        | 0        | 45         | 6.95E+04  |             | 300      |             |   |   | 2.7 UJ   | 3.1 UJ   | 3.1 UJ   | 4.4 UJ   | 3.2 UJ   |
| Trans-1,3-Dichloropropene                    | UG/KG       | 0       | 0%        | 0        | 45         | 0.552.01  |             | 500      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Trichloroethene                              | UG/KG       | 0       | 0%        | 0        | 45         | 5.30E+01  |             | 700      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Vinyl chloride                               | UG/KG       | 0       | 0%        | 0        | 45         | 7.91E+01  |             | 200      |             |   |   | 2.7 U  | 3.1 U  | 3.1 UJ   | 4.4 U  | 3.2 UJ   |
| Semivolatile Organic Compound                |             |         |           |          |            |           |             |          |             |   |   |  |  |  |  |  |
| 1,2,4-Trichlorobenzene                       | UG/KG       | 0       | 0%        | 0        | 51         | 6.22E+04  |             | 3400     |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 1,2-Dichlorobenzene                          | UG/KG       | 0       | 0%        | 0        | 51         | 6.00E+05  |             | 7900     |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 1,3-Dichlorobenzene                          | UG/KG       | 0       | 0%        | 0        | 51         | 5.31E+05  | l           | 1600     |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 1,4-Dichlorobenzene                          | UG/KG       | 0       | 0%        | 0        | 51         | 3.45E+03  | l           | 8500     |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 2,4,5-Trichlorophenol                        | UG/KG       | 0       | 0%        | 0        | 51         | 6.11E+06  |             | 100      |             | 1200 U  | 11000 U   | 970 U  | 1000 U   | 1100 U   | 1300 U   | 1100 U   |
| 2,4,6-Trichlorophenol                        | UG/KG       | 0       | 0%        | 0        | 51         | 6.11E+03  | l           |          |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 2,4-Dichlorophenol                           | UG/KG       | 0       | 0%        | 0        | 51         | 1.83E+05  |             | 400      |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 2,4-Dimethylphenol                           | UG/KG       | 0       | 0%        | 0        | 51         | 1.22E+06  |             |          |             | 480 U   | 4400 U  | 390 U  | 410 U  | 420 U  | 530 U  | 420 U  |
| 2,4-Dinitrophenol                            | UG/KG       | 0       | 0%        | 0        | 51         | 1.22E+05  |             | 200      |             | 1200 U  | 11000 U   | 970 U  | 1000 U   | 1100 U   | 1300 U   | 1100 U   |

Page 25 of 32 4/27/2006

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                             | Facility<br>Location ID<br>Matrix<br>Sample ID |         |           |          |            |                    |             |          |             | SEAD-121I<br>SD121I-1EBS<br>DITCHSOIL<br>EB151 | SEAD-121I<br>SD121I-2EBS<br>DITCHSOIL<br>EB152 | SEAD-121I<br>SD121I-4<br>DITCHSOIL<br>121I-4003 | SEAD-121I<br>SD121I-5<br>DITCHSOIL<br>121I-4004 | SEAD-121I<br>SD121I-7<br>DITCHSOIL<br>121I-4005 | SEAD-121I<br>SD121I-6<br>DITCHSOIL<br>121I-4006 | SEAD-121I<br>SD121I-7<br>DITCHSOIL<br>121I-4007 |
|-----------------------------|--|---------|-----------|----------|------------|--------------------|-------------|----------|-------------|--|--|---|---|---|---|---|
| Sample Depth to T           | op of Sample                                   |         |           |          |            |                    |             |          |             | 0  | 0  | 0   | 0   | 0   | 0   | 0   |
| Sample Depth to Botto       | om of Sample                                   |         |           |          |            |                    |             |          |             | 0.2  | 0.2  | 2   | 2   | 2   | 2   | 2   |
|                             | Sample Date                                    |         |           |          |            |                    |             |          |             | 3/10/1998                                      | 3/10/1998                                      | 11/6/2002                                       | 11/6/2002                                       | 10/26/2002                                      | 11/6/2002                                       | 10/26/2002                                      |
|                             | QC Code  |         |           |          |            | Region IX          |             |          |             | SA   | SA   | SA  | SA  | SA  | SA  | SA  |
|                             | Study ID                                       |         | Frequency |          |            | PRG                |             | NYSDEC   |             | EBS  | EBS  | PID-RI  | PID-RI  | PID-RI  | PID-RI  | PID-RI  |
|                             |  | Maximum | of        | of Times | of         | Criteria           |             | Criteria |             |  |  | 1   | 1   | 1   | 1   | 1   |
| Parameter                   | Units  | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value 3  | Exceedances | Value (Q)                                      | Value (Q)                                      | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       |
| 2,4-Dinitrotoluene          | UG/KG  | 0       | 0%        | 0        | 51         | 1.22E+05           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 2,6-Dinitrotoluene          | UG/KG  | 0       | 0%        | 0        | 51         | 6.11E+04           |             | 1000     |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 2-Chloronaphthalene         | UG/KG  | 0       | 0%        | 0        | 51         | 4.94E+06           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 2-Chlorophenol              | UG/KG  | 0       | 0%        | 0        | 51         | 6.34E+04           |             | 800      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 2-Methylnaphthalene         | UG/KG  | 260     | 10%       | 5        | 51         |                    |             | 36400    |             | 33 J   | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 130 J   |
| 2-Methylphenol              | UG/KG  | 0       | 0%        | 0        | 51         | 3.06E+06           |             | 100      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 2-Nitroaniline              | UG/KG  | 0       | 0%        | 0        | 51         | 1.83E+05           |             | 430      |             | 1200 U   | 11000 U  | 970 U   | 1000 U  | 1100 U  | 1300 U  | 1100 U  |
| 2-Nitrophenol               | UG/KG  | 0       | 0%        | 0        | 51         |                    |             | 330      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 3 or 4-Methylphenol         | UG/KG  | 0       | 0%        | 0        | 45         |                    |             |          |             |  |  | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 3,3'-Dichlorobenzidine      | UG/KG  | 315 4   | 2%        | 1        | 47         | 1.08E+03           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 UJ  | 530 U   | 420 J   |
| 3-Nitroaniline              | UG/KG  | 0       | 0%        | 0        | 51         | 1.83E+04           |             | 500      |             | 1200 U   | 11000 U  | 970 U   | 1000 U  | 1100 U  | 1300 U  | 1100 U  |
| 4,6-Dinitro-2-methylphenol  | UG/KG  | 0       | 0%        | 0        | 50         | 6.11E+03           |             |          |             | 1200 U   | 11000 U  | 970 U   | 1000 U  | 1100 U  | 1300 U  | 1100 U  |
| 4-Bromophenyl phenyl ether  | UG/KG  | 0       | 0%        | 0        | 50         |                    |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 4-Chloro-3-methylphenol     | UG/KG  | 0       | 0%        | 0        | 51         |                    |             | 240      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 4-Chloroaniline             | UG/KG  | 0       | 0%        | 0        | 51         | 2.44E+05           |             | 220      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| 4-Chlorophenyl phenyl ether | UG/KG  | 0       | 0%        | 0        | 51         |                    |             |          |             | 480 U  | 4400 U   | 390 U   | 410 UJ  | 420 U   | 530 U   | 420 U   |
| 4-Methylphenol              | UG/KG  | 0       | 0%        | 0        | 6          | 3.06E+05           |             | 900      |             | 480 U  | 4400 U   |   |   |   |   |   |
| 4-Nitroaniline              | UG/KG  | 0       | 0%        | 0        | 51         | 2.32E+04           |             |          |             | 1200 U   | 11000 U  | 970 U   | 1000 U  | 1100 U  | 1300 U  | 1100 U  |
| 4-Nitrophenol               | UG/KG  | 0       | 0%        | 0        | 51         |                    |             | 100      |             | 1200 U   | 11000 U  | 970 U   | 1000 U  | 1100 U  | 1300 U  | 1100 U  |
| Acenaphthene                | UG/KG  | 6100    | 51%       | 26       | 51         | 3.68E+06           |             | 50000    |             | 140 J  | 390 J  | 300 J   | 140 J   | 280 J   | 80 J  | 1200  |
| Acenaphthylene              | UG/KG  | 560     | 12%       | 6        | 51         |                    |             | 41000    |             | 480 U  | 420 J  | 83 J  | 410 U   | 70 J  | 530 U   | 420 U   |
| Anthracene                  | UG/KG  | 12000   | 58%       | 29       | 50         | 2.19E+07           |             | 50000    |             | 260 J  | 1800 J   | 650   | 140 J   | 420 J   | 110 J   | 1900  |
| Benzo(a)anthracene          | UG/KG  | 28000   | 90%       | 46       | 51         | 6.21E+02           | 18          | 224      | 28          | 1300   | 14000  | 2900  | 770   | 2200 J  | 270 J   | 5000 J  |
| Benzo(a)pyrene              | UG/KG  | 23000   | 88%       | 45       | 51         | 6.21E+01           | 44          | 61       | 44          | 1300   | 16000  | 2800 J  | 750 J   | 2800 J  | 290 J   | 5900 J  |
| Benzo(b)fluoranthene        | UG/KG  | 29000   | 94%       | 48       | 51         | 6.21E+02           | 21          | 1100     | 14          | 2100   | 22000  | 3600 J  | 1100 J  | 3600 J  | 380 J   | 8100 J  |
| Benzo(ghi)perylene          | UG/KG  | 29000   | 82%       | 42       | 51         |                    |             | 50000    |             | 840  | 12000  | 810 J   | 250 J   | 1400 J  | 110 J   | 3200 J  |
| Benzo(k)fluoranthene        | UG/KG  | 23000   | 74%       | 37       | 50         | 6.21E+03           | 4           | 1100     | 14          | 1600   | 23000  | 2400 J  | 710 J   | 2500 J  | 140 J   | 4900 J  |
| Bis(2-Chloroethoxy)methane  | UG/KG  | 0       | 0%        | 0        | 51         |                    |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Bis(2-Chloroethyl)ether     | UG/KG  | 0       | 0%        | 0        | 51         | 2.18E+02           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 UJ  | 530 U   | 420 U   |
| Bis(2-Chloroisopropyl)ether | UG/KG  | 0       | 0%        | 0        | 51         | 2.88E+03           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Bis(2-Ethylhexyl)phthalate  | UG/KG  | 1600    | 33%       | 17       | 51         | 3.47E+04           |             | 50000    |             | 25 J   | 4400 U   | 390 U   | 410 U   | 75 J  | 530 U   | 110 J   |
| Butylbenzylphthalate        | UG/KG  | 420 4   | 6%        | 3        | 48         | 1.22E+07           |             | 50000    |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 J   | 530 U   | 420 J   |
| Carbazole                   | UG/KG  | 6800    | 57%       | 29       | 51         | 2.43E+04           |             |          |             | 410 J  | 1600 J   | 510   | 150 J   | 440   | 110 J   | 1700  |
| Chrysene                    | UG/KG  | 32000   | 86%       | 44       | 51         | 6.21E+04           |             | 400      | 25          | 1700   | 25000  | 3400 J  | 910   | 2400 J  | 340 J   | 5400 J  |
| Di-n-butylphthalate         | UG/KG  | 45      | 2%        | 1        | 50         | 6.11E+06           |             | 8100     |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Di-n-octylphthalate         | UG/KG  | 420 4   | 2%        | 1        | 47         | 2.44E+06           |             | 50000    |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 J   | 530 U   | 420 J   |
| Dibenz(a,h)anthracene       | UG/KG  | 5000    | 34%       | 15       | 44         | 6.21E+01           | 15          | 14       | 15          | 400 J  | 5000 J   | 86 J  | 410 UJ  | 130 J   | 530 U   | 350 J   |
| Dibenzofuran                | UG/KG  | 2000    | 27%       | 14       | 51         | 1.45E+05           | 13          | 6200     | 13          | 58 J   | 4400 U   | 160 J   | 410 UJ  | 71 J  | 530 U   | 640   |
|                             |  |         |           | 1        |            | I                  |             |          |             |  |  |   |   |   |   |   |
| Diethyl phthalate           | UG/KG  | 640 4   | 2%        | •        | 51         | 4.89E+07           |             | 7100     |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Dimethylphthalate           | UG/KG  | 0       | 0%        | 0        | 51         | 1.00E+08           |             | 2000     |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Fluoranthene                | UG/KG  | 62000   | 94%       | 48       | 51         | 2.29E+06           |             | 50000    | 1           | 3400   | 24000  | 5800  | 1600  | 4400  | 680   | 13000   |
| Fluorene                    | UG/KG  | 4200    | 43%       | 22       | 51         | 2.75E+06           |             | 50000    |             | 130 J  | 360 J  | 270 J   | 72 J  | 190 J   | 70 J  | 1100  |
| Hexachlorobenzene           | UG/KG  | 0       | 0%        | 0        | 50         | 3.04E+02           |             | 410      |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Hexachlorobutadiene         | UG/KG  | 0       | 0%        | 0        | 51         | 6.24E+03           | l           |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |
| Hexachlorocyclopentadiene   | UG/KG  | 0       | 0%        | 0        | 51         | 3.65E+05           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 UJ  | 420 U   | 530 U   | 420 U   |
| Hexachloroethane            | UG/KG  | 0       | 0%        | 0        | 51         | 3.47E+04           |             |          |             | 480 U  | 4400 U   | 390 U   | 410 U   | 420 U   | 530 U   | 420 U   |

Page 26 of 32

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                               | Facility<br>Location ID |          |           |          |            |                      |             |            |             | SEAD-121I<br>SD121I-1EBS | SEAD-121I<br>SD121I-2EBS | SEAD-121I<br>SD121I-4 | SEAD-121I<br>SD121I-5 | SEAD-121I<br>SD121I-7 | SEAD-121I<br>SD121I-6 | SEAD-121I<br>SD121I-7  |
|-------------------------------|-------------------------|----------|-----------|----------|------------|----------------------|-------------|------------|-------------|--------------------------|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
|                               | Matrix<br>Sample ID     |          |           |          |            |                      |             |            |             | DITCHSOIL                | DITCHSOIL                | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL             | DITCHSOIL<br>121I-4007 |
| Sample Depth to               |                         |          |           |          |            |                      |             |            |             | EB151<br>0               | EB152                    | 121I-4003<br>0        | 121I-4004<br>0        | 121I-4005<br>0        | 121I-4006<br>0        | 1211-4007              |
| Sample Depth to Bo            |                         |          |           |          |            |                      |             |            |             | 0.2                      | 0.2                      | 2                     | 2                     | 2                     | 2                     | 2                      |
| Sample Bepair to Bo           | Sample Date             |          |           |          |            |                      |             |            |             | 3/10/1998                | 3/10/1998                | 11/6/2002             | 11/6/2002             | 10/26/2002            | 11/6/2002             | 10/26/2002             |
|                               | QC Code                 |          |           |          |            | Region IX            |             |            |             | SA                       | SA                       | SA                    | SA                    | SA                    | SA                    | SA                     |
|                               | Study ID                |          | Frequency | Number   | Number     | PRG                  |             | NYSDEC     |             | EBS                      | EBS                      | PID-RI                | PID-RI                | PID-RI                | PID-RI                | PID-RI                 |
|                               |                         | Maximum  | n of      | of Times | of         | Criteria             |             | Criteria   |             |                          |                          | 1                     | 1                     | 1                     | 1                     | 1                      |
| Parameter                     | Units                   | Value    | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3    | Exceedances | Value (Q)                | Value (Q)                | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)             | Value (Q)              |
| Indeno(1,2,3-cd)pyrene        | UG/KG                   | 12000    | 71%       | 35       | 49         | 6.21E+02             | 13          | 3200       | 3           | 850 J                    | 12000 J                  | 350 J                 | 140 J                 | 400 J                 | 98 J                  | 1300 J                 |
| Isophorone                    | UG/KG                   | 315 4    | 2%        | 1        | 51         | 5.12E+05             |             | 4400       |             | 480 U                    | 4400 U                   | 390 U                 | 410 U                 | 420 J                 | 530 U                 | 420 U                  |
| N-Nitrosodiphenylamine        | UG/KG                   | 0        | 0%        | 0        | 50         | 9.93E+04             |             |            |             | 480 U                    | 4400 U                   | 390 U                 | 410 U                 | 420 U                 | 530 U                 | 420 U                  |
| N-Nitrosodipropylamine        | UG/KG                   | 0        | 0%        | 0        | 51         | 6.95E+01             |             |            |             | 480 U                    | 4400 U                   | 390 U                 | 410 UJ                | 420 U                 | 530 U                 | 420 U                  |
| Naphthalene                   | UG/KG                   | 630      | 14%       | 7        | 51         | 5.59E+04             |             | 13000      |             | 480 U                    | 4400 U                   | 390 U                 | 410 U                 | 420 U                 | 530 U                 | 490                    |
| Nitrobenzene                  | UG/KG                   | 315 4    | 2%        | 1        | 51         | 1.96E+04             |             | 200        | 1           | 480 U                    | 4400 U                   | 390 U                 | 410 U                 | 420 J                 | 530 U                 | 420 U                  |
| Pentachlorophenol             | UG/KG                   | 0        | 0%        | 0        | 50         | 2.98E+03             |             | 1000       |             | 1200 U                   | 11000 U                  | 970 U                 | 1000 U                | 1100 U                | 1300 U                | 1100 U                 |
| Phenanthrene                  | UG/KG                   | 52000    | 94%       | 48       | 51         |                      |             | 50000      | 1           | 1600                     | 4400 J                   | 4200                  | 870                   | 2500                  | 620                   | 10000                  |
| Phenol                        | UG/KG                   | 315 4    | 2%        | 1        | 51         | 1.83E+07             |             | 30         | 1           | 480 U                    | 4400 U                   | 390 U                 | 410 U                 | 420 J                 | 530 U                 | 420 U                  |
| Pyrene                        | UG/KG                   | 64000    | 94%       | 48       | 51         | 2.32E+06             |             | 50000      | 1           | 2700                     | 17000                    | 8800 J                | 1500                  | 6500 J                | 560                   | 17000 J                |
| Pesticides/PCBs               |                         |          |           |          |            |                      |             |            |             |                          |                          |                       |                       |                       |                       |                        |
| 4,4'-DDD                      | UG/KG                   | 0        | 0%        | 0        | 45         | 2.44E+03             |             | 2900       |             |                          |                          | 0.24 U                | 0.25 U                | 2.2 U                 | 0.33 U                | 2.2 U                  |
| 4,4'-DDE                      | UG/KG                   | 34       | 11%       | 5        | 45         | 1.72E+03             |             | 2100       |             |                          |                          | 0.24 U                | 0.25 U                | 14 J                  | 0.33 U                | 2.2 UJ                 |
| 4,4'-DDT                      | UG/KG                   | 39       | 5%        | 2        | 44         | 1.72E+03             |             | 2100       |             |                          |                          | 0.24 UJ               | 0.25 UJ               | 2.2 UJ                | 0.33 UJ               | 2.2 UJ                 |
| Aldrin                        | UG/KG                   | 12       | 9%        | 4        | 45         | 2.86E+01             |             | 41         |             |                          |                          | 0.12 U                | 0.12 U                | 2.2 U                 | 0.16 U                | 2.2 U                  |
| Alpha-BHC                     | UG/KG                   | 0        | 0%        | 0        | 45         | 9.02E+01             |             | 110        |             |                          |                          | 1.4 UJ                | 1.5 UJ                | 2.2 U                 | 2 UJ                  | 2.2 U                  |
| Alpha-Chlordane               | UG/KG                   | 0        | 0%        | 0        | 41         |                      |             |            |             |                          |                          | 0.35 R                | 0.38 UJ               | 2.2 U                 | 0.49 UJ               | 2.2 U                  |
| Beta-BHC                      | UG/KG                   | 0        | 0%        | 0        | 45         | 3.16E+02             |             | 200        |             |                          |                          | 0.12 U                | 0.12 U                | 2.2 U                 | 0.16 U                | 2.2 U                  |
| Chlordane                     | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             |            |             |                          |                          | 2.2 U                 | 2.4 U                 | 22 U                  | 3.1 U                 | 22 U                   |
| Delta-BHC                     | UG/KG                   | 0        | 0%        | 0 2      | 45         | 2.045 - 01           | 1           | 300        |             |                          |                          | 0.24 UJ               | 0.25 UJ               | 2.2 UJ                | 0.33 UJ               | 2.2 UJ                 |
| Dieldrin                      | UG/KG                   | 34<br>95 | 4%        | _        | 45<br>41   | 3.04E+01             | 1           | 44<br>900  |             |                          |                          | 0.12 UJ<br>0.59 R     | 0.12 UJ<br>0.62 UJ    | 2.2 UJ<br>2.2 U       | 0.16 UJ<br>0.82 UJ    | 2.2 UJ                 |
| Endosulfan I<br>Endosulfan II | UG/KG<br>UG/KG          | 95       | 59%<br>0% | 24       | 41         |                      |             | 900        |             |                          |                          | 0.39 K<br>0.35 U      | 0.82 UJ<br>0.38 U     | 2.2 U<br>2.2 U        | 0.82 UJ<br>0.49 U     | 56 R<br>2.2 U          |
| Endosulfan sulfate            | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             | 1000       |             |                          |                          | 0.33 U<br>0.71 U      | 0.75 U                | 2.2 U                 | 0.49 U                | 2.2 U                  |
| Endrin                        | UG/KG                   | 30       | 4%        | 2        | 45         | 1.83E+04             |             | 1000       |             |                          |                          | 0.94 U                | 1 U                   | 2.2 UJ                | 1.3 U                 | 2.2 UJ                 |
| Endrin aldehyde               | UG/KG                   | 0        | 0%        | 0        | 45         | 1.03E104             |             | 100        |             |                          |                          | 0.94 UJ               | 1 UJ                  | 2.2 UJ                | 1.3 UJ                | 2.2 UJ                 |
| Endrin ketone                 | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             |            |             |                          |                          | 0.12 U                | 0.12 U                | 2.2 U                 | 0.16 U                | 2.2 U                  |
| Gamma-BHC/Lindane             | UG/KG                   | 0        | 0%        | 0        | 45         | 4.37E+02             |             | 60         |             |                          |                          | 0.12 UJ               | 0.12 UJ               | 2.2 U                 | 0.16 UJ               | 2.2 U                  |
| Gamma-Chlordane               | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             | 540        |             |                          |                          | 0.35 UJ               | 0.38 UJ               | 2.2 U                 | 0.49 UJ               | 2.2 U                  |
| Heptachlor                    | UG/KG                   | 0        | 0%        | 0        | 45         | 1.08E+02             |             | 100        |             |                          |                          | 1.2 U                 | 1.2 U                 | 2.2 U                 | 1.6 U                 | 2.2 U                  |
| Heptachlor epoxide            | UG/KG                   | 55       | 21%       | 8        | 39         | 5.34E+01             | 1           | 20         | 3           |                          |                          | 0.35 R                | 0.38 U                | 2.2 U                 | 0.49 U                | 2.2 U                  |
| Methoxychlor                  | UG/KG                   | 0        | 0%        | 0        | 45         | 3.06E+05             |             |            |             |                          |                          | 0.12 U                | 0.12 U                | 2.2 UJ                | 0.16 U                | 2.2 UJ                 |
| Toxaphene                     | UG/KG                   | 0        | 0%        | 0        | 45         | 4.42E+02             |             |            |             |                          |                          | 3.8 U                 | 4 U                   | 22 U                  | 5.2 U                 | 22 U                   |
| Aroclor-1016                  | UG/KG                   | 0        | 0%        | 0        | 45         | 3.93E+03             |             |            |             |                          |                          | 6 U                   | 6.3 U                 | 22 U                  | 8.5 U                 | 22 U                   |
| Aroclor-1221                  | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             |            |             |                          |                          | 1.5 U                 | 1.6 U                 | 22 U                  | 2.1 U                 | 22 U                   |
| Aroclor-1232                  | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             |            |             |                          |                          | 9.2 U                 | 9.7 U                 | 22 U                  | 13 U                  | 22 U                   |
| Aroclor-1242                  | UG/KG                   | 0        | 0%        | 0        | 45         |                      |             |            |             |                          |                          | 2.5 U                 | 2.7 U                 | 22 U                  | 3.6 U                 | 22 U                   |
| Aroclor-1248                  | UG/KG                   | 0        | 0%        | 0        | 45         | 2 22= 22             |             | 10000      |             |                          |                          | 6.3 U                 | 6.7 U                 | 22 U                  | 9 U                   | 22 U                   |
| Aroclor-1254                  | UG/KG                   | 67       | 4%        | 2        | 45         | 2.22E+02             |             | 10000      |             |                          |                          | 12 U                  | 67                    | 22 U                  | 17 U                  | 22 U                   |
| Aroclor-1260                  | UG/KG                   | 46       | 7%        | 3        | 45         |                      |             | 10000      |             |                          |                          | 2.3 U                 | 2.4 U                 | 22 U                  | 3.3 U                 | 17 NJ                  |
| Metals and Cyanide            | MC/VC                   | 13200    | 100%      | 15       | 15         | 7.61E+04             |             | 19300      |             |                          |                          | 6270                  | 4740                  | 6950                  | 10300                 | 6170                   |
| Antimony                      | MG/KG                   | 7.5      | 31%       | 45<br>14 | 45<br>45   | ll .                 |             | ll .       | 1           |                          |                          |                       | 4740<br>1.1 UJ        | 6950<br>1.1 U         | 10300<br>1.5 UJ       | 0.99 U                 |
| Antimony<br>Arsenic           | MG/KG<br>MG/KG          | 104      | 100%      | 14<br>34 | 45<br>34   | 3.13E+01<br>3.90E-01 | 34          | 5.9<br>8.2 | 8           |                          |                          | 1.1 UJ<br>27.4        | 4.6                   | 7.8                   | 8.8                   | 6.9                    |
| Barium                        | MG/KG<br>MG/KG          | 207      | 100%      | 45       | 34<br>45   | 5.37E+03             | 34          | 300        | o           |                          |                          | 80.5 J                | 57.7 J                | 72.2                  | 6.6<br>65 J           | 58.9                   |
| Beryllium                     | MG/KG<br>MG/KG          | 0.68     | 98%       | 43       | 45<br>45   | 1.54E+02             |             | 1.1        |             |                          |                          | 0.37                  | 0.33                  | 0.48 J                | 0.66                  | 0.43 J                 |
| Dorymuni                      | MO/NO                   | 0.00     | 2070      |          | 70         | 1.3415-02            |             | 1.1        |             | I .                      |                          | 0.57                  | 0.55                  | 0.40 J                | 0.00                  | 0.45 3                 |

#### SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

|                              | Facility    |                    |           |          |            |           |             |          |             | SEAD-121I   | SEAD-121I   | SEAD-121I | SEAD-121I | SEAD-121I  | SEAD-121I | SEAD-121I  |
|------------------------------|-------------|--------------------|-----------|----------|------------|-----------|-------------|----------|-------------|-------------|-------------|-----------|-----------|------------|-----------|------------|
|                              | Location ID |                    |           |          |            |           |             |          |             | SD121I-1EBS | SD121I-2EBS | SD121I-4  | SD121I-5  | SD121I-7   | SD121I-6  | SD121I-7   |
|                              | Matrix      |                    |           |          |            |           |             |          |             | DITCHSOIL   | DITCHSOIL   | DITCHSOIL | DITCHSOIL | DITCHSOIL  | DITCHSOIL | DITCHSOIL  |
|                              | Sample ID   |                    |           |          |            |           |             |          |             | EB151       | EB152       | 121I-4003 | 121I-4004 | 121I-4005  | 121I-4006 | 121I-4007  |
| Sample Depth to              |             |                    |           |          |            |           |             |          |             | 0           | 0           | 0         | 0         | 0          | 0         | 0          |
| Sample Depth to Bo           |             |                    |           |          |            |           |             |          |             | 0.2         | 0.2         | 2         | 2         | 2          | 2         | 2          |
| * *                          | Sample Date |                    |           |          |            |           |             |          |             | 3/10/1998   | 3/10/1998   | 11/6/2002 | 11/6/2002 | 10/26/2002 | 11/6/2002 | 10/26/2002 |
|                              | QC Code     |                    |           |          |            | Region IX |             |          |             | SA          | SA          | SA        | SA        | SA         | SA        | SA         |
|                              | Study ID    |                    | Frequency | Number   | Number     | PRG       |             | NYSDEC   |             | EBS         | EBS         | PID-RI    | PID-RI    | PID-RI     | PID-RI    | PID-RI     |
|                              |             | Maximum            | of        | of Times | of         | Criteria  |             | Criteria |             |             |             | 1         | 1         | 1          | 1         | 1          |
| Parameter                    | Units       | Value              | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)   | Value (Q)   | Value (Q) | Value (Q) | Value (Q)  | Value (Q) | Value (Q)  |
| Cadmium                      | MG/KG       | 6.6                | 31%       | 14       | 45         | 3.70E+01  |             | 2.3      | 3           |             |             | 0.14 U    | 0.15 U    | 0.83       | 0.19 U    | 0.77       |
| Calcium                      | MG/KG       | 298000             | 100%      | 45       | 45         |           |             | 121000   | 18          |             |             | 30100     | 72300     | 145000     | 39000     | 110000     |
| Chromium                     | MG/KG       | 439 4              | 100%      | 45       | 45         |           |             | 29.6     | 6           |             |             | 9.9       | 10.1      | 14.5       | 25.5      | 13.5       |
| Cobalt                       | MG/KG       | 206 4              | 100%      | 45       | 45         | 9.03E+02  |             | 30       | 4           |             |             | 25.1      | 6.8       | 11         | 12.3      | 10.5       |
| Copper                       | MG/KG       | 209 4              | 100%      | 40       | 40         | 3.13E+03  |             | 33       | 10          |             |             | 130       | 20        | 33.8 J     | 45.4      | 34.7 J     |
| Cyanide, Amenable            | MG/KG       | 0                  | 0%        | 0        | 45         |           |             |          |             |             |             | 0.59 U    | 0.62 U    | 0.64 U     | 0.82 U    | 0.65 U     |
| Cyanide, Total               | MG/KG       | $2.00^{4}$         | 7%        | 3        | 45         |           |             |          |             |             |             | 0.59 U    | 0.62 U    | 0.644 U    | 0.82 U    | 0.648 U    |
| Iron                         | MG/KG       | 58400 <sup>4</sup> | 100%      | 45       | 45         | 2.35E+04  | 12          | 36500    | 2           |             |             | 21200     | 11300     | 15200 J    | 23800     | 13900 J    |
| Lead                         | MG/KG       | 122                | 100%      | 45       | 45         | 4.00E+02  |             | 24.8     | 22          |             |             | 82.4      | 42.9      | 71.2 J     | 93.3      | 77.4 J     |
| Magnesium                    | MG/KG       | 22300              | 100%      | 45       | 45         |           |             | 21500    | 1           |             |             | 5240      | 11300     | 11700 J    | 8050      | 9890 J     |
| Manganese                    | MG/KG       | 310500 4           | 100%      | 45       | 45         | 1.76E+03  | 11          | 1060     | 15          |             |             | 12300     | 471       | 588 J      | 1290      | 541 J      |
| Mercury                      | MG/KG       | 0.18               | 98%       | 44       | 45         | 2.35E+01  |             | 0.1      | 1           |             |             | 0.03      | 0.03      | 0.12 UJ    | 0.06      | 0.11 UJ    |
| Nickel                       | MG/KG       | 342 4              | 100%      | 45       | 45         | 1.56E+03  |             | 49       | 7           |             |             | 29.8      | 16.7      | 27.9 J     | 33.7      | 26.9 J     |
| Potassium                    | MG/KG       | 1450               | 100%      | 45       | 45         |           |             | 2380     |             |             |             | 671       | 886       | 1340 J     | 1450      | 1230 J     |
| Selenium                     | MG/KG       | 146 4              | 47%       | 21       | 45         | 3.91E+02  |             | 2        | 5           |             |             | 0.49 U    | 0.52 U    | 0.53 U     | 0.68 U    | 0.46 U     |
| Silver                       | MG/KG       | 10.5               | 18%       | 6        | 34         | 3.91E+02  |             | 0.75     | 4           |             |             | 2.5       | 0.34 U    | 0.34 U     | 0.44 U    | 0.3 U      |
| Sodium                       | MG/KG       | 372                | 82%       | 37       | 45         |           |             | 172      | 24          |             |             | 118 U     | 264       | 288        | 185       | 211        |
| Thallium                     | MG/KG       | 163 4              | 20%       | 9        | 45         | 5.16E+00  | 5           | 0.7      | 5           |             |             | 0.36 U    | 0.39 U    | 0.71 J     | 0.5 U     | 0.34 U     |
| Vanadium                     | MG/KG       | 182 4              | 100%      | 45       | 45         | 7.82E+01  | 1           | 150      | 1           |             |             | 25.8      | 11.4      | 20.2 J     | 22.1      | 18.4 J     |
| Zinc                         | MG/KG       | 532                | 100%      | 45       | 45         | 2.35E+04  |             | 110      | 14          |             |             | 78.6 J    | 100 J     | 124 J      | 532       | 125 J      |
| Other                        |             |                    |           |          |            |           |             |          |             |             |             |           |           |            |           |            |
| Total Organic Carbon         | MG/KG       | 8900               | 100%      | 45       | 45         |           |             |          |             |             |             | 3500      | 6700      | 5300       | 5400      | 4500       |
| Total Petroleum Hydrocarbons | MG/KG       | 2200               | 33%       | 15       | 45         | l         |             |          |             |             |             | 350       | 760       | 1000 J     | 66 U      | 630 J      |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|  | Facility<br>ocation ID<br>Matrix<br>Sample ID |         |           |          |            |                      |             |          |             | SEAD-121I<br>SD121I-8<br>DITCHSOIL<br>121I-4008 | SEAD-121I<br>SD121I-9<br>DITCHSOIL<br>121I-4009<br>0 | SEAD-121I<br>SD121I-10<br>DITCHSOIL<br>121I-4010<br>0 | SEAD-121I<br>SD121I-1<br>DITCHSOIL<br>121I-4000<br>0 | SEAD-121I<br>SD121I-2<br>DITCHSOIL<br>121I-4001 | SEAD-121I<br>SD121I-3<br>DITCHSOIL<br>121I-4002 |
|--|---|---------|-----------|----------|------------|----------------------|-------------|----------|-------------|---|--|---|--|---|---|
| Sample Depth to Bottom                           |   |         |           |          |            |                      |             |          |             | 2   | 2  | 2   | 2  | 2   | 2   |
|  | imple Date                                    |         |           |          |            |                      |             |          |             | 11/6/2002                                       | 11/6/2002  | 11/6/2002   | 11/6/2002  | 11/6/2002                                       | 11/6/2002                                       |
|  | QC Code                                       |         |           |          |            | Region IX            |             |          |             | SA  | SA   | SA  | SA   | SA  | SA  |
|  | Study ID                                      |         | Frequency | Number   | Number     | PRG                  |             | NYSDEC   |             | PID-RI  | PID-RI   | PID-RI  | PID-RI   | PID-RI  | PID-RI  |
|  |   | Maximum | of        | of Times | of         | Criteria             |             | Criteria |             | 1   | 1  | 1   | 1  |   | 1   |
| Parameter  | Units   | Value   | Detection | Detected | Analyses 1 | Value 2              | Exceedances | Value 3  | Exceedances | Value (Q)                                       | Value (Q)  | Value (Q)   | Value (Q)  | Value (Q)                                       | Value (Q)                                       |
| Volatile Organic Compounds                       |   |         |           |          |            |                      |             |          |             |   |  |   |  |   |   |
| 1,1,1-Trichloroethane                            | UG/KG   | 0       | 0%        | 0        | 45         | 1.20E+06             |             | 800      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,1,2,2-Tetrachloroethane                        | UG/KG   | 0       | 0%        | 0        | 45         | 4.08E+02             |             | 600      |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| 1,1,2-Trichloroethane                            | UG/KG   | 0       | 0%        | 0        | 45         | 7.29E+02             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,1-Dichloroethane                               | UG/KG   | 0       | 0%        | 0        | 45         | 5.06E+05             |             | 200      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,1-Dichloroethene                               | UG/KG   | 0       | 0%        | 0        | 45         | 1.24E+05             |             | 400      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,2-Dichloroethane                               | UG/KG   | 0       | 0%        | 0        | 45         | 2.78E+02             |             | 100      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,2-Dichloropropane                              | UG/KG   | 0       | 0%        | 0        | 45         | 3.42E+02             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Acetone  | UG/KG   | 150     | 80%       | 36       | 45         | 1.41E+07             |             | 200      |             | 150   | 22 J   | 13 J  | 30   | 8   | 9.9   |
| Benzene  | UG/KG   | 41 4    | 20%       | 9        | 45         | 6.43E+02             |             | 60       |             | 39  | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Bromodichloromethane                             | UG/KG   | 0       | 0%        | 0        | 45         | 8.24E+02             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Bromoform  | UG/KG   | 0       | 0%        | 0        | 45         | 6.16E+04             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Carbon disulfide                                 | UG/KG   | 0       | 0%        | 0        | 45         | 3.55E+05             |             | 2700     |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| Carbon tetrachloride                             | UG/KG   | 0       | 0%        | 0        | 45         | 2.51E+02             |             | 600      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Chlorobenzene                                    | UG/KG   | 0       | 0%        | 0        | 45         | 1.51E+05             |             | 1700     |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 U   |
| Chlorodibromomethane                             | UG/KG   | 0       | 0%        | 0        | 45         | 1.11E+03             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Chloroethane                                     | UG/KG   | 0       | 0%        | 0        | 45         | 3.03E+03             |             | 1900     |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| Chloroform                                       | UG/KG   | 0       | 0%        | 0        | 45         | 2.21E+02             |             | 300      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Cis-1,2-Dichloroethene                           | UG/KG   | 0       | 0%        | 0        | 45         | 4.29E+04             |             |          |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 UJ  |
| Cis-1,3-Dichloropropene                          | UG/KG   | 0       | 0%        | 0        | 45         |                      |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Ethyl benzene                                    | UG/KG   | 7.8     | 13%       | 6        | 45         | 3.95E+05             |             | 5500     |             | 5.2   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 U   |
| Meta/Para Xylene                                 | UG/KG   | 6.3 4   | 13%       | 6        | 45         |                      |             |          |             | 4.8   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Methyl bromide                                   | UG/KG   | 0       | 0%        | 0        | 45         | 3.90E+03             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Methyl butyl ketone                              | UG/KG   | 0       | 0%        | 0        | 45         |                      |             |          |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 U   | 3.3 UJ  |
| Methyl chloride                                  | UG/KG   | 0       | 0%        | 0        | 45         | 4.69E+04             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Methyl ethyl ketone                              | UG/KG   | 78      | 24%       | 11       | 45         | 2.23E+07             |             | 300      |             | 78  | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Methyl isobutyl ketone                           | UG/KG   | 0       | 0%        | 0        | 45         | 5.28E+06             |             | 1000     |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| Methylene chloride                               | UG/KG   | 2.8     | 20%       | 9        | 45         | 9.11E+03             |             | 100      |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| Ortho Xylene                                     | UG/KG   | 3.6 4   | 13%       | 6        | 45         |                      |             |          |             | 3   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Styrene  | UG/KG   | 0       | 0%        | 0        | 45         | 1.70E+06             |             |          |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 U   |
| Tetrachloroethene                                | UG/KG   | 0       | 0%        | 0        | 45         | 4.84E+02             |             | 1400     |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 U   |
|  |   | 31 4    | 18%       | 8        | 45         | l                    |             |          |             |   |  |   |  |   |   |
| Toluene  | UG/KG   |         |           | -        |            | 5.20E+05             |             | 1500     |             | 26  | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 UJ  | 3.3 U   |
| Trans-1,2-Dichloroethene                         | UG/KG   | 0       | 0%<br>0%  | 0        | 45         | 6.95E+04             |             | 300      |             | 2.9 UJ  | 3.7 UJ   | 3.2 UJ  | 3.8 UJ   | 3.2 UJ  | 3.3 UJ  |
| Trans-1,3-Dichloropropene                        | UG/KG   | 0       |           | 0        | 45         | 5 20E - 01           |             | 700      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Trichloroethene                                  | UG/KG   | 0       | 0%        |          | 45         | 5.30E+01             |             | 700      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| Vinyl chloride<br>Semivolatile Organic Compounds | UG/KG   | U       | 0%        | 0        | 45         | 7.91E+01             |             | 200      |             | 2.9 U   | 3.7 UJ   | 3.2 UJ  | 3.8 U  | 3.2 U   | 3.3 U   |
| 1,2,4-Trichlorobenzene                           | UG/KG   | 0       | 0%        | 0        | 51         | 6.22E+04             |             | 3400     |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 1,2-Dichlorobenzene                              | UG/KG   | 0       | 0%        | 0        | 51         | 6.00E+05             |             | 7900     |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 1 '  |   | 0       |           | 0        | 51         | l .                  |             | 1600     |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 1,3-Dichlorobenzene<br>1,4-Dichlorobenzene       | UG/KG<br>UG/KG                                | 0       | 0%<br>0%  | 0        | 51         | 5.31E+05<br>3.45E+03 | ļ           | 8500     |             | 440 U<br>440 U                                  | 450 U<br>450 U                                       | 480 U<br>480 U  | 460 U  | 380 U   | 430 U<br>430 U                                  |
| 2,4,5-Trichlorophenol                            | UG/KG   | 0       | 0%        | 0        | 51         | 6.11E+06             | ļ           | 100      |             | 1100 U  | 1100 U   | 1200 U  | 1100 U   | 960 U   | 1100 U  |
| 2,4,5-1richlorophenol                            | UG/KG<br>UG/KG                                | 0       | 0%        | 0        | 51         | 6.11E+06<br>6.11E+03 | ļ           | 100      |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 2,4,0-1 richlorophenol                           | UG/KG   | 0       | 0%        | 0        | 51         | 1.83E+05             | ļ           | 400      |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 2,4-Dimethylphenol                               | UG/KG   | 0       | 0%        | 0        | 51         | 1.83E+03<br>1.22E+06 | ļ           | 400      |             | 440 U   | 450 U  | 480 U   | 460 U  | 380 U   | 430 U   |
| 2,4-Dinietrophenol                               | UG/KG   | 0       | 0%        | 0        | 51         | 1.22E+06<br>1.22E+05 | ļ           | 200      |             | 1100 U  | 1100 U   | 1200 U  | 1100 U   | 960 U   | 1100 U  |
| 2,4-Dillirophenoi                                | UU/NU   | U       | U%        | U        | 31         | 1.22E+03             |             | 200      |             | 1100 U  | 1100 U   | 1200 U  | 1100 U   | 900 U   | 1100 U  |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                             | Facility<br>Location ID<br>Matrix<br>Sample ID |                  |           |          |            |           |             |          |             | SEAD-121I<br>SD121I-8<br>DITCHSOIL<br>121I-4008 | SEAD-121I<br>SD121I-9<br>DITCHSOIL<br>121I-4009 | SEAD-121I<br>SD121I-10<br>DITCHSOIL<br>121I-4010 | SEAD-121I<br>SD121I-1<br>DITCHSOIL<br>121I-4000 | SEAD-121I<br>SD121I-2<br>DITCHSOIL<br>121I-4001 | SEAD-121I<br>SD121I-3<br>DITCHSOIL<br>121I-4002 |
|-----------------------------|--|------------------|-----------|----------|------------|-----------|-------------|----------|-------------|---|---|--|---|---|---|
| Sample Depth to             | Top of Sample                                  |                  |           |          |            |           |             |          |             | 0   | 0   | 0  | 0   | 0   | 0   |
| Sample Depth to Bo          | ttom of Sample                                 | ,                |           |          |            |           |             |          |             | 2   | 2   | 2  | 2   | 2   | 2   |
|                             | Sample Date                                    |                  |           |          |            |           |             |          |             | 11/6/2002                                       | 11/6/2002                                       | 11/6/2002  | 11/6/2002                                       | 11/6/2002                                       | 11/6/2002                                       |
|                             | QC Code  |                  |           |          |            | Region IX |             |          |             | SA  | SA  | SA   | SA  | SA  | SA  |
|                             | Study ID                                       |                  |           | Number   |            | PRG       |             | NYSDEC   |             | PID-RI  | PID-RI  | PID-RI   | PID-RI  | PID-RI  | PID-RI  |
|                             |  | Maximum          | of        | of Times | of         | Criteria  |             | Criteria |             | 1   | 1   | 1  | 1   |   | 1   |
| Parameter                   | Units  | Value            | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value 3  | Exceedances | Value (Q)                                       | Value (Q)                                       | Value (Q)  | Value (Q)                                       | Value (Q)                                       | Value (Q)                                       |
| 2,4-Dinitrotoluene          | UG/KG  | 0                | 0%        | 0        | 51         | 1.22E+05  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2,6-Dinitrotoluene          | UG/KG  | 0                | 0%        | 0        | 51         | 6.11E+04  |             | 1000     |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2-Chloronaphthalene         | UG/KG  | 0                | 0%        | 0        | 51         | 4.94E+06  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2-Chlorophenol              | UG/KG  | 0                | 0%        | 0        | 51         | 6.34E+04  |             | 800      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2-Methylnaphthalene         | UG/KG  | 260              | 10%       | 5        | 51         |           |             | 36400    |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2-Methylphenol              | UG/KG  | 0                | 0%        | 0        | 51         | 3.06E+06  |             | 100      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 2-Nitroaniline              | UG/KG  | 0                | 0%        | 0        | 51         | 1.83E+05  |             | 430      |             | 1100 U  | 1100 U  | 1200 U   | 1100 U  | 960 U   | 1100 U  |
| 2-Nitrophenol               | UG/KG  | 0                | 0%        | 0        | 51         |           |             | 330      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 3 or 4-Methylphenol         | UG/KG  | 0                | 0%        | 0        | 45         |           |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 3,3'-Dichlorobenzidine      | UG/KG  | 315 4            | 2%        | 1        | 47         | 1.08E+03  |             |          |             | 440 U   | 450 UJ  | 480 U  | 460 U   | 380 U   | 430 U   |
| 3-Nitroaniline              | UG/KG  | 0                | 0%        | 0        | 51         | 1.83E+04  |             | 500      |             | 1100 U  | 1100 U  | 1200 U   | 1100 U  | 960 U   | 1100 U  |
| 4,6-Dinitro-2-methylphenol  | UG/KG  | 0                | 0%        | 0        | 50         | 6.11E+03  |             |          |             | 1100 U  | 1100 U  | 1200 U   | 1100 U  | 960 U   | 1100 U  |
| 4-Bromophenyl phenyl ether  | UG/KG  | 0                | 0%        | 0        | 50         |           |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 4-Chloro-3-methylphenol     | UG/KG  | 0                | 0%        | 0        | 51         |           |             | 240      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 4-Chloroaniline             | UG/KG  | 0                | 0%        | 0        | 51         | 2.44E+05  |             | 220      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| 4-Chlorophenyl phenyl ether | UG/KG  | 0                | 0%        | 0        | 51         |           |             |          |             | 440 UJ  | 450 U   | 480 U  | 460 UJ  | 380 U   | 430 U   |
| 4-Methylphenol              | UG/KG  | 0                | 0%        | 0        | 6          | 3.06E+05  |             | 900      |             |   |   |  |   |   |   |
| 4-Nitroaniline              | UG/KG  | 0                | 0%        | 0        | 51         | 2.32E+04  |             |          |             | 1100 U  | 1100 U  | 1200 U   | 1100 U  | 960 U   | 1100 U  |
| 4-Nitrophenol               | UG/KG  | 0                | 0%        | 0        | 51         |           |             | 100      |             | 1100 U  | 1100 U  | 1200 U   | 1100 U  | 960 U   | 1100 U  |
| Acenaphthene                | UG/KG  | 6100             | 51%       | 26       | 51         | 3.68E+06  |             | 50000    |             | 66 J  | 640   | 130 J  | 460 U   | 380 U   | 430 U   |
| Acenaphthylene              | UG/KG  | 560              | 12%       | 6        | 51         |           |             | 41000    |             | 440 U   | 76 J  | 480 U  | 460 U   | 380 U   | 430 U   |
| Anthracene                  | UG/KG  | 12000            | 58%       | 29       | 50         | 2.19E+07  |             | 50000    |             | 120 J   | 980   | 210 J  | 460 U   | 380 U   | 430 U   |
| Benzo(a)anthracene          | UG/KG  | 28000            | 90%       | 46       | 51         | 6.21E+02  | 18          | 224      | 28          | 450   | 5800 J  | 510  | 460 U   | 380 U   | 49 J  |
| Benzo(a)pyrene              | UG/KG  | 23000            | 88%       | 45       | 51         | 6.21E+01  | 44          | 61       | 44          | 420 J   | 5500 J  | 390 J  | 460 U   | 380 U   | 430 U   |
| Benzo(b)fluoranthene        | UG/KG  | 29000            | 94%       | 48       | 51         | 6.21E+02  | 21          | 1100     | 14          | 610 J   | 8500 J  | 550  | 460 U   | 45 J  | 44 J  |
| Benzo(ghi)perylene          | UG/KG  | 29000            | 82%       | 42       | 51         |           |             | 50000    |             | 140 J   | 2100 J  | 150 J  | 460 U   | 380 U   | 430 U   |
| Benzo(k)fluoranthene        | UG/KG  | 23000            | 74%       | 37       | 50         | 6.21E+03  | 4           | 1100     | 14          | 260 J   | 3300 J  | 250 J  | 460 UJ  | 380 U   | 430 U   |
| Bis(2-Chloroethoxy)methane  | UG/KG  | 0                | 0%        | 0        | 51         |           |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Bis(2-Chloroethyl)ether     | UG/KG  | 0                | 0%        | 0        | 51         | 2.18E+02  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Bis(2-Chloroisopropyl)ether | UG/KG  | 0                | 0%        | 0        | 51         | 2.88E+03  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Bis(2-Ethylhexyl)phthalate  | UG/KG  | 1600             | 33%       | 17       | 51         | 3.47E+04  |             | 50000    |             | 440 U   | 78 J  | 480 U  | 460 U   | 380 U   | 430 U   |
| Butylbenzylphthalate        | UG/KG  | 420 4            | 6%        | 3        | 48         | 1.22E+07  |             | 50000    |             | 440 U   | 450 UJ  | 480 U  | 460 U   | 380 U   | 430 U   |
| Carbazole                   | UG/KG  | 6800             | 57%       | 29       | 51         | 2.43E+04  |             | 30000    |             | 100 J   | 920   | 200 J  | 460 U   | 380 U   | 430 U   |
| Chrysene                    | UG/KG  | 32000            | 86%       | 44       | 51         | 6.21E+04  |             | 400      | 25          | 500   | 5800 J  | 540  | 460 U   | 380 U   | 430 U   |
| Di-n-butylphthalate         | UG/KG  | 45               | 2%        | 1        | 50         | 6.11E+06  |             | 8100     | 23          | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
|                             |  |                  |           | •        |            | l         |             | ll       |             |   |   |  |   |   |   |
| Di-n-octylphthalate         | UG/KG  | 420 4            | 2%        | 1        | 47         | 2.44E+06  |             | 50000    |             | 440 U   | 450 UJ  | 480 U  | 460 U   | 380 U   | 430 U   |
| Dibenz(a,h)anthracene       | UG/KG  | 5000             | 34%       | 15       | 44         | 6.21E+01  | 15          | 14       | 15          | 440 UJ  | 160 J   | 480 U  | 460 U   | 380 U   | 430 U   |
| Dibenzofuran                | UG/KG  | 2000             | 27%       | 14       | 51         | 1.45E+05  |             | 6200     |             | 440 UJ  | 130 J   | 94 J   | 460 UJ  | 380 U   | 430 U   |
| Diethyl phthalate           | UG/KG  | 640 <sup>4</sup> | 2%        | 1        | 51         | 4.89E+07  |             | 7100     |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Dimethylphthalate           | UG/KG  | 0                | 0%        | 0        | 51         | 1.00E+08  |             | 2000     |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Fluoranthene                | UG/KG  | 62000            | 94%       | 48       | 51         | 2.29E+06  |             | 50000    | 1           | 1100  | 9400  | 1300   | 460 U   | 99 J  | 130 J   |
| Fluorene                    | UG/KG  | 4200             | 43%       | 22       | 51         | 2.75E+06  |             | 50000    |             | 53 J  | 390 J   | 140 J  | 460 U   | 380 U   | 430 U   |
| Hexachlorobenzene           | UG/KG  | 0                | 0%        | 0        | 50         | 3.04E+02  |             | 410      |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Hexachlorobutadiene         | UG/KG  | 0                | 0%        | 0        | 51         | 6.24E+03  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |
| Hexachlorocyclopentadiene   | UG/KG  | 0                | 0%        | 0        | 51         | 3.65E+05  |             |          |             | 440 UJ  | 450 U   | 480 U  | 460 UJ  | 380 U   | 430 U   |
| Hexachloroethane            | UG/KG  | 0                | 0%        | 0        | 51         | 3.47E+04  |             |          |             | 440 U   | 450 U   | 480 U  | 460 U   | 380 U   | 430 U   |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

| Sample Depth to              | Facility Location ID Matrix Sample ID |         |           |          |            |                      |             |          |             | SEAD-121I<br>SD121I-8<br>DITCHSOIL<br>121I-4008<br>0 | SEAD-121I<br>SD121I-9<br>DITCHSOIL<br>121I-4009<br>0 | SEAD-121I<br>SD121I-10<br>DITCHSOIL<br>121I-4010<br>0 | SEAD-121I<br>SD121I-1<br>DITCHSOIL<br>121I-4000<br>0 | SEAD-121I<br>SD121I-2<br>DITCHSOIL<br>121I-4001 | SEAD-121I<br>SD121I-3<br>DITCHSOIL<br>121I-4002<br>0 |
|------------------------------|---------------------------------------|---------|-----------|----------|------------|----------------------|-------------|----------|-------------|--|--|---|--|---|--|
| Sample Depth to Be           |                                       |         |           |          |            |                      |             |          |             | 2  | 2  | 2   | 2  | 2   | 2  |
| xx                           | Sample Date                           |         |           |          |            |                      |             |          |             | 11/6/2002  | 11/6/2002  | 11/6/2002   | 11/6/2002  | 11/6/2002                                       | 11/6/2002  |
|                              | QC Code                               |         |           |          |            | Region IX            |             |          |             | SA   | SA   | SA  | SA   | SA  | SA   |
|                              | Study ID                              |         |           | Number   |            | PRG                  |             | NYSDEC   | !           | PID-RI   | PID-RI   | PID-RI  | PID-RI   | PID-RI  | PID-RI   |
|                              |                                       | Maximum |           | of Times | of         | Criteria             |             | Criteria |             | 1  | 1  | 1   | 1  |   | 1  |
| Parameter                    | Units                                 | Value   | Detection |          | Analyses 1 | Value <sup>2</sup>   | Exceedances |          | Exceedances | Value (Q)  | Value (Q)  | Value (Q)   | Value (Q)  | Value (Q)                                       | Value (Q)  |
| Indeno(1,2,3-cd)pyrene       | UG/KG                                 | 12000   | 71%       | 35       | 49         | 6.21E+02             | 13          | 3200     | 3           | 110 J  | 750 J  | 150 J   | 460 U  | 380 U   | 430 U  |
| Isophorone                   | UG/KG                                 | 315 4   | 2%        | 1        | 51         | 5.12E+05             |             | 4400     |             | 440 U  | 450 U  | 480 U   | 460 U  | 380 U   | 430 U  |
| N-Nitrosodiphenylamine       | UG/KG                                 | 0       | 0%        | 0        | 50         | 9.93E+04             |             |          |             | 440 U  | 450 U  | 480 U   | 460 U  | 380 U   | 430 U  |
| N-Nitrosodipropylamine       | UG/KG                                 | 0       | 0%        | 0        | 51         | 6.95E+01             |             |          |             | 440 UJ   | 450 U  | 480 U   | 460 UJ   | 380 U   | 430 U  |
| Naphthalene                  | UG/KG                                 | 630     | 14%       | 7        | 51         | 5.59E+04             |             | 13000    |             | 440 U  | 450 U  | 65 J  | 460 U  | 380 U   | 430 U  |
| Nitrobenzene                 | UG/KG                                 | 315 4   | 2%        | 1        | 51         | 1.96E+04             |             | 200      | 1           | 440 U  | 450 U  | 480 U   | 460 U  | 380 U   | 430 U  |
| Pentachlorophenol            | UG/KG                                 | 0       | 0%        | 0        | 50         | 2.98E+03             |             | 1000     |             | 1100 U   | 1100 U   | 1200 U  | 1100 U   | 960 U   | 1100 U   |
| Phenanthrene                 | UG/KG                                 | 52000   | 94%       | 48       | 51         |                      |             | 50000    | 1           | 650  | 4900   | 1200  | 460 U  | 50 J  | 93 J   |
| Phenol                       | UG/KG                                 | 315 4   | 2%        | 1        | 51         | 1.83E+07             |             | 30       | 1           | 440 U  | 450 U  | 480 U   | 460 U  | 380 U   | 430 U  |
| Pyrene                       | UG/KG                                 | 64000   | 94%       | 48       | 51         | 2.32E+06             |             | 50000    | 1           | 840  | 17000 J  | 940   | 460 U  | 78 J  | 93 J   |
| Pesticides/PCBs              |                                       |         |           |          |            |                      |             |          |             |  |  |   |  |   |  |
| 4,4'-DDD                     | UG/KG                                 | 0       | 0%        | 0        | 45         | 2.44E+03             |             | 2900     |             | 0.27 U   | 0.27 U   | 0.29 U  | 0.28 UJ  | 0.24 U  | 0.26 U   |
| 4,4'-DDE                     | UG/KG                                 | 34      | 11%       | 5        | 45         | 1.72E+03             |             | 2100     |             | 0.27 U   | 0.27 U   | 0.29 U  | 0.28 U   | 0.24 U  | 0.26 U   |
| 4,4'-DDT                     | UG/KG                                 | 39      | 5%        | 2        | 44         | 1.72E+03             |             | 2100     |             | 0.27 UJ  | 0.27 UJ  | 0.29 UJ   | 0.28 UJ  | 0.24 UJ   | 0.26 UJ  |
| Aldrin                       | UG/KG                                 | 12      | 9%        | 4        | 45         | 2.86E+01             |             | 41       |             | 0.14 U   | 0.14 U   | 0.14 U  | 0.14 UJ  | 0.12 U  | 0.13 U   |
| Alpha-BHC<br>Alpha-Chlordane | UG/KG<br>UG/KG                        | 0       | 0%<br>0%  | 0        | 45<br>41   | 9.02E+01             |             | 110      |             | 1.6 UJ<br>0.41 R                                     | 1.6 UJ<br>0.41 R                                     | 1.7 UJ<br>0.43 UJ                                     | 1.7 UJ<br>0.42 UJ                                    | 1.4 UJ<br>0.35 R                                | 1.6 UJ<br>0.39 UJ                                    |
| Beta-BHC                     | UG/KG<br>UG/KG                        | 0       | 0%        | 0        | 41         | 3.16E+02             |             | 200      |             | 0.41 K<br>0.14 U                                     | 0.41 K<br>0.14 U                                     | 0.43 UJ<br>0.14 U                                     | 0.42 UJ<br>0.14 U                                    | 0.33 K<br>0.12 U                                | 0.13 U   |
| Chlordane                    | UG/KG                                 | 0       | 0%        | 0        | 45         | 3.10E+02             |             | 200      |             | 2.6 U  | 2.6 U  | 2.8 U   | 2.6 U  | 2.2 U   | 2.5 U  |
| Delta-BHC                    | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             | 300      |             | 0.27 UJ  | 0.27 UJ  | 0.29 UJ   | 0.28 UJ  | 0.24 UJ   | 0.26 UJ  |
| Dieldrin                     | UG/KG                                 | 34      | 4%        | 2        | 45         | 3.04E+01             | 1           | 44       |             | 0.14 UJ  | 0.14 UJ  | 0.14 UJ   | 0.14 UJ  | 0.12 UJ   | 0.13 UJ  |
| Endosulfan I                 | UG/KG                                 | 95      | 59%       | 24       | 41         |                      |             | 900      |             | 0.68 R   | 0.68 R   | 0.72 UJ   | 0.69 UJ  | 0.59 R  | 0.66 UJ  |
| Endosulfan II                | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             | 900      |             | 0.41 U   | 0.41 U   | 0.43 U  | 0.42 UJ  | 0.35 U  | 0.39 U   |
| Endosulfan sulfate           | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             | 1000     |             | 0.81 U   | 0.82 U   | 0.87 U  | 0.83 UJ  | 0.71 U  | 0.79 U   |
| Endrin                       | UG/KG                                 | 30      | 4%        | 2        | 45         | 1.83E+04             |             | 100      |             | 1.1 U  | 1.1 U  | 1.2 U   | 1.1 UJ   | 0.94 U  | 1.1 U  |
| Endrin aldehyde              | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             |          |             | 1.1 UJ   | 1.1 UJ   | 1.2 UJ  | 1.1 UJ   | 0.94 UJ   | 1.1 UJ   |
| Endrin ketone                | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             |          |             | 0.14 U   | 0.14 U   | 0.14 U  | 0.14 UJ  | 0.12 U  | 0.13 U   |
| Gamma-BHC/Lindane            | UG/KG                                 | 0       | 0%        | 0        | 45         | 4.37E+02             |             | 60       |             | 0.14 UJ  | 0.14 UJ  | 0.14 UJ   | 0.14 UJ  | 0.12 UJ   | 0.13 UJ  |
| Gamma-Chlordane              | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             | 540      |             | 0.41 UJ  | 0.41 UJ  | 0.43 UJ   | 0.42 UJ  | 0.35 UJ   | 0.39 UJ  |
| Heptachlor                   | UG/KG                                 | 0       | 0%        | 0        | 45         | 1.08E+02             | _           | 100      | _           | 1.4 U  | 1.4 U  | 1.4 U   | 1.4 U  | 1.2 U   | 1.3 U  |
| Heptachlor epoxide           | UG/KG                                 | 55      | 21%       | 8        | 39         | 5.34E+01             | 1           | 20       | 3           | 0.41 R   | 0.41 R   | 0.43 U  | 0.42 U   | 0.35 R  | 0.39 U   |
| Methoxychlor                 | UG/KG                                 | 0       | 0%        | 0        | 45         | 3.06E+05             |             |          |             | 0.14 U   | 0.14 U   | 0.14 U  | 0.14 U   | 0.12 U  | 0.13 U   |
| Toxaphene<br>Aroclor-1016    | UG/KG<br>UG/KG                        | 0       | 0%<br>0%  | 0        | 45<br>45   | 4.42E+02<br>3.93E+03 |             |          |             | 4.3 U<br>6.9 U                                       | 4.4 U<br>7.1 UJ                                      | 4.6 U<br>7.5 UJ                                       | 4.4 U<br>7.2 U                                       | 3.8 U<br>6.1 U                                  | 4.2 U<br>6.8 U                                       |
| Aroclor-1016<br>Aroclor-1221 | UG/KG<br>UG/KG                        | 0       | 0%        | 0        | 45         | 3.93E+03             |             |          |             | 1.7 U  | 7.1 UJ<br>1.8 U                                      | 7.5 UJ<br>1.9 U                                       | 1.8 U  | 1.5 U   | 1.7 U  |
| Aroclor-1232                 | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             |          |             | 11 U   | 11 UJ  | 1.9 U<br>12 UJ  | 1.8 U  | 9.4 U   | 10 U   |
| Aroclor-1242                 | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             |          |             | 2.9 U  | 3 UJ   | 3.2 UJ  | 3 U  | 2.6 U   | 2.9 U  |
| Aroclor-1248                 | UG/KG                                 | 0       | 0%        | 0        | 45         |                      |             |          |             | 7.3 U  | 7.5 U  | 8 U   | 7.6 U  | 6.4 U   | 7.2 U  |
| Aroclor-1254                 | UG/KG                                 | 67      | 4%        | 2        | 45         | 2.22E+02             |             | 10000    |             | 14 U   | 14 U   | 15 U  | 15 U   | 12 U  | 14 U   |
| Aroclor-1260                 | UG/KG                                 | 46      | 7%        | 3        | 45         |                      |             | 10000    |             | 2.6 U  | 2.7 UJ   | 2.9 UJ  | 2.8 U  | 2.3 U   | 2.6 U  |
| Metals and Cyanide           |                                       |         |           |          |            |                      |             |          |             |  |  |   |  |   |  |
| Aluminum                     | MG/KG                                 | 13200   | 100%      | 45       | 45         | 7.61E+04             |             | 19300    |             | 5040   | 6140   | 5330  | 8790   | 4180  | 6930   |
| Antimony                     | MG/KG                                 | 7.5     | 31%       | 14       | 45         | 3.13E+01             |             | 5.9      | 1           | 1.2 UJ   | 1.2 UJ   | 1.3 UJ  | 1.2 UJ   | 1 UJ  | 1.2 UJ   |
| Arsenic                      | MG/KG                                 | 104     | 100%      | 34       | 34         | 3.90E-01             | 34          | 8.2      | 8           | 104  | 6.6  | 3.8   | 7.7  | 2.6   | 4  |
| Barium                       | MG/KG                                 | 207     | 100%      | 45       | 45         | 5.37E+03             |             | 300      |             | 91.1 J   | 75.6 J   | 74.4 J  | 47.8 J   | 44.1 J  | 53.7 J   |
| Beryllium                    | MG/KG                                 | 0.68    | 98%       | 44       | 45         | 1.54E+02             |             | 1.1      |             | 0.3  | 0.5  | 0.43  | 0.52   | 0.31  | 0.42   |

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

| Sample Depth to To<br>Sample Depth to Botton |                |                     | Frequency<br>of<br>Detection | of Times | Number<br>of<br>Analyses <sup>1</sup> | Region IX<br>PRG<br>Criteria<br>Value <sup>2</sup> | Exceedances | NYSDEC<br>Criteria<br>Value <sup>3</sup> | Exceedances | SEAD-121I<br>SD121I-8<br>DITCHSOIL<br>121I-4008<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>1<br>Value (Q) | SEAD-121I<br>SD121I-9<br>DITCHSOIL<br>121I-4009<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>1<br>Value (Q) | SEAD-12II<br>SD12II-10<br>DITCHSOIL<br>12II-4010<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>1<br>Value (Q) | SEAD-12II<br>SD12II-1<br>DITCHSOIL<br>121I-4000<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>1<br>Value (Q) | SEAD-121I<br>SD121I-2<br>DITCHSOIL<br>121I-4001<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>Value (Q) | SEAD-121I<br>SD121I-3<br>DITCHSOIL<br>121I-4002<br>0<br>2<br>11/6/2002<br>SA<br>PID-RI<br>1<br>Value (Q) |
|--|----------------|---------------------|------------------------------|----------|---------------------------------------|--|-------------|--|-------------|--|--|---|--|---|--|
| Cadmium                                      | MG/KG          | 6.6                 | 31%                          | 14       | 45                                    | 3.70E+01   |             | 2.3                                      | 3           | 0.16 U   | 0.16 U   | 0.17 U  | 0.16 U   | 0.14 U  | 0.16 U   |
| Calcium                                      | MG/KG          | 298000              | 100%                         | 45       | 45                                    |  |             | 121000                                   | 18          | 8990   | 65800  | 54300   | 17000  | 36500   | 33200  |
| Chromium                                     | MG/KG          | 439 4               | 100%                         | 45       | 45                                    |  |             | 29.6                                     | 6           | 83.9   | 12.2   | 10.1  | 15.6   | 8.6   | 11.7   |
| Cobalt                                       | MG/KG          | 206 4               | 100%                         | 45       | 45                                    | 9.03E+02   |             | 30                                       | 4           | 91.9   | 8.8  | 7.4   | 10.3   | 5.9   | 9.3  |
| Copper                                       | MG/KG          | 209 4               | 100%                         | 40       | 40                                    | 3.13E+03   |             | 33                                       | 10          | 117  | 33.2   | 20.4  | 17.1 J   | 23.1  | 22.9   |
| Cyanide, Amenable                            | MG/KG          | 0                   | 0%                           | 0        | 45                                    |  |             |  |             | 0.67 U   | 0.68 U   | 0.72 U  | 0.69 UJ  | 0.59 U  | 0.66 U   |
| Cyanide, Total                               | MG/KG          | 2.00 4              | 7%                           | 3        | 45                                    |  |             |  |             | 0.67 U   | 0.68 U   | 0.72 U  | 0.69 UJ  | 0.59 U  | 0.66 U   |
| Iron   | MG/KG          | 58400 <sup>4</sup>  | 100%                         | 45       | 45                                    | 2.35E+04   | 12          | 36500                                    | 2           | 30400  | 13900  | 12500   | 19800 J  | 10100   | 16600  |
| Lead<br>Magnesium                            | MG/KG<br>MG/KG | 122<br>22300        | 100%<br>100%                 | 45<br>45 | 45<br>45                              | 4.00E+02   |             | 24.8<br>21500                            | 22<br>1     | 67.2<br>2150   | 86.9<br>7380   | 39.6<br>7450  | 11.2 J<br>4480 J   | 22.4<br>3530  | 17.8<br>7540   |
| "  | MG/KG<br>MG/KG | 310500 <sup>4</sup> | 100%                         | 45       | 45                                    | 1.76E+03   | 11          | 1060                                     | 15          | 14900  | 767  | 477   | 478 J  | 303   | 399  |
| Manganese<br>Mercury                         | MG/KG<br>MG/KG | 0.18                | 98%                          | 43       | 45                                    | 2.35E+01   | 11          | 0.1                                      | 13          | 0.05   | 0.1  | 0.05  | 0.04 J   | 0.02  | 0.18   |
| Nickel                                       | MG/KG          | 342 4               | 100%                         | 45       | 45                                    | 1.56E+03   |             | 49                                       | 7           | 153  | 20.4   | 17  | 24.3 J   | 16.4  | 24.4   |
| Potassium                                    | MG/KG<br>MG/KG | 1450                | 100%                         | 45       | 45                                    | 1.50E+05   |             | 2380                                     | ,           | 874  | 958  | 837   | 723 J  | 541   | 818  |
| Selenium                                     | MG/KG          | 146 4               | 47%                          | 21       | 45                                    | 3.91E+02   |             | 2  | 5           | 18   | 0.56 U   | 0.6 U   | 0.57 UJ  | 0.48 U  | 0.55 U   |
| Silver                                       | MG/KG          | 10.5                | 18%                          | 6        | 34                                    | 3.91E+02   |             | 0.75                                     | 4           | 10.5   | 0.36 U   | 0.39 U  | 0.37 UJ  | 0.31 U  | 0.36 U   |
| Sodium                                       | MG/KG          | 372                 | 82%                          | 37       | 45                                    |  |             | 172                                      | 24          | 132 U  | 162  | 266   | 184 J  | 186   | 209  |
| Thallium                                     | MG/KG          | 163 4               | 20%                          | 9        | 45                                    | 5.16E+00   | 5           | 0.7                                      | 5           | 21.5   | 0.41 U   | 0.44 U  | 0.42 UJ  | 0.36 U  | 0.41 U   |
| Vanadium                                     | MG/KG          | 182 4               | 100%                         | 45       | 45                                    | 7.82E+01   | 1           | 150                                      | 1           | 69.4   | 17   | 11.6  | 13.4 J   | 8.1   | 12.4   |
| Zinc   | MG/KG          | 532                 | 100%                         | 45       | 45                                    | 2.35E+04   |             | 110                                      | 14          | 121 J  | 129 J  | 89.2 J  | 57.3 J   | 59.3 J  | 132 J  |
| Other  |                |                     |                              |          |                                       |  |             |  |             |  |  |   |  |   |  |
| Total Organic Carbon                         | MG/KG          | 8900                | 100%                         | 45       | 45                                    |  | ļ           |  |             | 5400   | 7000   | 6200  | 7200 J   | 4400  | 2800   |
| Total Petroleum Hydrocarbons                 | MG/KG          | 2200                | 33%                          | 15       | 45                                    |  |             |  |             | 54 U   | 910  | 58 U  | 55 UJ  | 150   | 52 U   |

#### NOTES

- 1) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Residential Soil (October 2004)
- 3) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 4) The maximum detected concentration was obtained from the average of the sample and its duplicate.
- U = compound was not detected
- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process
- NJ = compound was "tentatively identified" and the associated numerical value is approximate

# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-121I SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                                      | Facility            |         |                 |                    |              |                  |             |          |             | SEAD-121I    | SEAD-121I    | SEAD-121I    | SEAD-121I    |
|--------------------------------------|---------------------|---------|-----------------|--------------------|--------------|------------------|-------------|----------|-------------|--------------|--------------|--------------|--------------|
| L                                    | ocation ID          |         |                 |                    |              |                  |             |          |             | SW121I-1     | SW121I-10    | SW121I-2     | SW121I-3     |
|                                      | Matrix              |         |                 |                    |              |                  |             |          |             | SW           | SW           | SW           | SW           |
|                                      | Sample ID           |         |                 |                    |              |                  |             |          |             | 121I-3000    | 121I-3010    | 121I-3001    | 121I-3002    |
| Sample Depth to Top                  |                     |         |                 |                    |              |                  |             |          |             | 0            | 0            | 0            | 0            |
| Sample Depth to Bottom               |                     |         |                 |                    |              |                  |             |          |             | N/A          | N/A          | N/A          | N/A          |
| Sa                                   | mple Date           |         |                 |                    |              | D . IV           |             |          |             | 11/6/2002    | 11/6/2002    | 11/6/2002    | 11/6/2002    |
|                                      | QC Code<br>Study ID |         | E               | N                  | N            | Region IX<br>PRG |             | NYSDEC   |             | SA<br>PID-RI | SA<br>PID-RI | SA<br>PID-RI | SA<br>DID DI |
|                                      | Study ID            | Maximum | Frequency<br>of | Number<br>of Times | Number<br>of | Criteria         |             | Criteria |             | PID-KI<br>1  | PID-KI<br>1  | PID-KI<br>1  | PID-RI       |
| D                                    | Units               |         |                 |                    | Analyses 1   | Value 2          | F           | Value 3  | E           | V-1 (O)      | 1            | 1            | V-1 (O)      |
| Parameter Volatile Organic Compounds | Units               | Value   | Detection       | Detected           | Allalyses    | v alue           | Exceedances | value    | Exceedances | Value (Q)    | Value (Q)    | Value (Q)    | Value (Q)    |
| 1,1,1-Trichloroethane                | UG/L                | 0       | 0%              | 0                  | 7            | 3.17E+03         |             |          |             | 0.75 U       | 0.75 U       | 0.75 U       | 0.75 U       |
| 1.1.2.2-Tetrachloroethane            | UG/L                | 0       | 0%              | 0                  | 7            | 5.53E-02         |             |          |             | 0.7 U        | 0.7 U        | 0.7 U        | 0.7 U        |
| 1.1.2-Trichloroethane                | UG/L                | 0       | 0%              | 0                  | 7            | 2.00E-01         |             |          |             | 0.62 U       | 0.62 U       | 0.62 U       | 0.62 U       |
| 1,1-Dichloroethane                   | UG/L                | 0       | 0%              | 0                  | 7            | 8.11E+02         |             |          |             | 0.66 U       | 0.66 U       | 0.66 U       | 0.66 U       |
| 1,1-Dichloroethene                   | UG/L                | 0       | 0%              | 0                  | 7            | 3.39E+02         |             |          |             | 0.69 U       | 0.69 U       | 0.69 U       | 0.69 U       |
| 1,2-Dichloroethane                   | UG/L                | 0       | 0%              | 0                  | 7            | 1.23E-01         |             |          |             | 0.56 U       | 0.56 U       | 0.56 U       | 0.56 U       |
| 1,2-Dichloropropane                  | UG/L                | 0       | 0%              | 0                  | 7            | 1.65E-01         |             |          |             | 0.73 U       | 0.73 U       | 0.73 U       | 0.73 U       |
| Acetone                              | UG/L                | 0       | 0%              | 0                  | 7            | 5.48E+03         |             |          |             | 3.5 UJ       | 3.5 U        | 3.5 U        | 3.5 U        |
| Benzene                              | UG/L                | 0       | 0%              | 0                  | 7            | 3.54E-01         |             |          |             | 0.71 U       | 0.71 U       | 0.71 U       | 0.71 U       |
| Bromodichloromethane                 | UG/L                | 0       | 0%              | 0                  | 7            | 1.81E-01         |             |          |             | 0.73 U       | 0.73 U       | 0.73 U       | 0.73 U       |
| Bromoform                            | UG/L                | 0       | 0%              | 0                  | 7            | 8.51E+00         |             |          |             | 0.49 U       | 0.49 U       | 0.49 U       | 0.49 U       |
| Carbon disulfide                     | UG/L                | 0       | 0%              | 0                  | 7            | 1.04E+03         |             |          |             | 0.72 U       | 0.72 U       | 0.72 U       | 0.72 U       |
| Carbon tetrachloride                 | UG/L                | 0       | 0%              | 0                  | 7            | 1.71E-01         |             |          |             | 0.47 U       | 0.47 U       | 0.47 U       | 0.47 U       |
| Chlorobenzene                        | UG/L                | 0       | 0%              | 0                  | 7            | 1.06E+02         |             | 5        |             | 0.78 U       | 0.78 U       | 0.78 U       | 0.78 U       |
| Chlorodibromomethane                 | UG/L                | 0       | 0%              | 0                  | 7            | 1.33E-01         |             |          |             | 0.66 U       | 0.66 U       | 0.66 U       | 0.66 U       |
| Chloroethane                         | UG/L                | 0       | 0%              | 0                  | 7            | 4.64E+00         |             |          |             | 2.4 U        | 2.4 U        | 2.4 U        | 2.4 U        |
| Chloroform                           | UG/L                | 0       | 0%              | 0                  | 7            | 1.66E-01         |             |          |             | 0.61 U       | 0.61 U       | 0.61 U       | 0.61 U       |
| Cis-1,2-Dichloroethene               | UG/L                | 0       | 0%              | 0                  | 7            | 6.08E+01         |             |          |             | 0.62 U       | 0.62 U       | 0.62 U       | 0.62 U       |
| Cis-1,3-Dichloropropene              | UG/L                | 0       | 0%              | 0                  | 7            |                  |             |          |             | 0.66 U       | 0.66 U       | 0.66 U       | 0.66 U       |
| Ethyl benzene                        | UG/L                | 0       | 0%              | 0                  | 7            | 1.34E+03         |             |          |             | 0.76 U       | 0.76 U       | 0.76 U       | 0.76 U       |
| Meta/Para Xylene                     | UG/L                | 0       | 0%              | 0                  | 7            |                  |             |          |             | 1.5 U        | 1.5 U        | 1.5 U        | 1.5 U        |
| Methyl bromide                       | UG/L                | 0       | 0%              | 0                  | 7            | 8.66E+00         |             |          |             | 0.38 UJ      | 0.38 U       | 0.38 U       | 0.38 U       |
| Methyl butyl ketone                  | UG/L                | 0       | 0%              | 0                  | 7            |                  |             |          |             | 0.6 U        | 0.6 U        | 0.6 U        | 0.6 U        |
| Methyl chloride                      | UG/L                | 0       | 0%              | 0                  | 7            | 1.58E+02         |             |          |             | 0.51 U       | 0.51 U       | 0.51 U       | 0.51 U       |
| Methyl ethyl ketone                  | UG/L                | 0       | 0%              | 0                  | 7            | 6.97E+03         |             |          |             | 2.3 U        | 2.3 U        | 2.3 U        | 2.3 U        |
| Methyl isobutyl ketone               | UG/L                | 0       | 0%              | 0                  | 7            | 1.99E+03         |             |          |             | 0.81 UJ      | 0.81 U       | 0.81 U       | 0.81 U       |
| Methylene chloride                   | UG/L                | 0       | 0%              | 0                  | 7            | 4.28E+00         |             |          |             | 1.8 U        | 1.8 U        | 1.8 U        | 1.8 U        |
| Ortho Xylene                         | UG/L                | 0       | 0%              | 0                  | 7            |                  |             |          |             | 0.72 U       | 0.72 U       | 0.72 U       | 0.72 U       |
| Styrene                              | UG/L                | 0       | 0%              | 0                  | 7            | 1.64E+03         |             |          |             | 0.92 U       | 0.92 U       | 0.92 U       | 0.92 U       |
| Tetrachloroethene                    | UG/L                | 0       | 0%              | 0                  | 7            | 1.04E-01         |             |          |             | 0.7 UJ       | 0.7 U        | 0.7 U        | 0.7 U        |
| Toluene                              | UG/L                | 0       | 0%              | 0                  | 7            | 7.23E+02         |             | 6000     |             | 0.71 U       | 0.71 U       | 0.71 U       | 0.71 U       |
| Trans-1,2-Dichloroethene             | UG/L                | 0       | 0%              | 0                  | 7            | 1.22E+02         |             |          |             | 0.81 U       | 0.81 U       | 0.81 U       | 0.81 U       |
| Trans-1,3-Dichloropropene            | UG/L                | 0       | 0%              | 0                  | 7            |                  |             |          |             | 0.66 U       | 0.66 U       | 0.66 U       | 0.66 U       |
| Trichloroethene                      | UG/L                | 0       | 0%              | 0                  | 7            | 2.80E-02         |             | 40       | l           | 0.72 U       | 0.72 U       | 0.72 U       | 0.72 U       |
| Vinyl chloride                       | UG/L                | 0       | 0%              | 0                  | 7            | 1.98E-02         |             |          |             | 0.79 U       | 0.79 U       | 0.79 U       | 0.79 U       |

Seneca Army Depot Activity

|  | Facility     |         |                 |                    |                       |                      |             |                    |             | SEAD-121I    | SEAD-121I     | SEAD-121I     | SEAD-121I        |
|--|--------------|---------|-----------------|--------------------|-----------------------|----------------------|-------------|--------------------|-------------|--------------|---------------|---------------|------------------|
|  | Location ID  |         |                 |                    |                       |                      |             |                    |             | SW121I-1     | SW121I-10     | SW121I-2      | SW121I-3         |
|  | Matrix       |         |                 |                    |                       |                      |             |                    |             | SW           | SW            | SW            | SW               |
| S1- D4- t- T   | Sample ID    |         |                 |                    |                       |                      |             |                    |             | 121I-3000    | 121I-3010     | 121I-3001     | 121I-3002        |
| Sample Depth to T  |              |         |                 |                    |                       |                      |             |                    |             | 0            | 0             | 0             | 0                |
| Sample Depth to Botto                                    | •            |         |                 |                    |                       |                      |             |                    |             | N/A          | N/A           | N/A           | N/A<br>11/6/2002 |
|  | Sample Date  |         |                 |                    |                       | Dogion IV            |             |                    |             | 11/6/2002    | 11/6/2002     | 11/6/2002     |                  |
|  | QC Code      |         | F               | N                  | N                     | Region IX<br>PRG     |             | NYSDEC             |             | SA<br>PID-RI | SA<br>PID-RI  | SA<br>PID-RI  | SA               |
|  | Study ID     | Maximum | Frequency<br>of | Number<br>of Times | Number<br>of          | Criteria             |             | Criteria           |             | PID-KI       | PID-KI<br>1   | PID-KI<br>1   | PID-RI           |
| D 4  | WT *4        |         |                 |                    | Analyses <sup>1</sup> | Value <sup>2</sup>   |             | Value <sup>3</sup> | T 1         | 1            | -             | I (0)         | I (0)            |
| Parameter Semivolatile Organic Compo                     | Units        | Value   | Detection       | Detected           | Analyses              | vaiue                | Exceedances | vaiue              | Exceedances | Value (Q)    | Value (Q)     | Value (Q)     | Value (Q)        |
| 1,2,4-Trichlorobenzene                                   | UG/L         | 0       | 0%              | 0                  | 7                     | 7.16E+00             |             | 5                  |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 1,2,4-171Chlorobenzene                                   | UG/L<br>UG/L | 0       | 0%              | 0                  | 7                     | 3.70E+00             |             | 5                  |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 1,3-Dichlorobenzene                                      | UG/L<br>UG/L | 0       | 0%              | 0                  | 7                     | 3.70E+02<br>1.83E+02 |             | 5                  |             | 10 U         | 10 U<br>10 U  | 10 U          | 10 U             |
| 1,4-Dichlorobenzene                                      | UG/L         | 0       | 0%              | 0                  | 7                     | 5.02E-01             |             | 5                  |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 2,4,5-Trichlorophenol                                    | UG/L         | 0       | 0%              | 0                  | 4                     | 3.65E+03             |             | 3                  |             | 10 U         | 10 U          | 10 C          | 10 C             |
| 2,4,5-Trichlorophenol                                    | UG/L         | 0       | 0%              | 0                  | 4                     | 3.65E+03             |             |                    |             | 10 U         | 10 U          | 10 R          | 10 R             |
| 2,4-Dichlorophenol                                       | UG/L         | 0       | 0%              | 0                  | 4                     | 1.09E+02             |             | 1                  |             | 10 U         | 10 U          | 10 R          | 10 R             |
| 2,4-Dichlorophenol                                       | UG/L         | 0       | 0%              | 0                  | 4                     | 7.30E+02             |             | 1000               |             | 10 U         | 10 U          | 10 R          | 10 R             |
| 2,4-Dinitrophenol  | UG/L         | 0       | 0%              | 0                  | 4                     | 7.30E+02<br>7.30E+01 |             | 400                |             | 10 UJ        | 10 UJ         | 10 R          | 10 R             |
| 2,4-Dinitrophenor  | UG/L         | 0       | 0%              | 0                  | 7                     | 7.30E+01<br>7.30E+01 |             | 400                |             | 10 U         | 10 U          | 10 K          | 10 K             |
| 2,6-Dinitrotoluene                                       | UG/L         | 0       | 0%              | 0                  | 7                     | 3.65E+01             |             |                    |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 2-Chloronaphthalene                                      | UG/L         | 0       | 0%              | 0                  | 7                     | 4.87E+02             |             |                    |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 2-Chlorophenol   | UG/L         | 0       | 0%              | 0                  | 4                     | 3.04E+01             |             |                    |             | 10 U         | 10 U          | 10 C          | 10 C             |
| 2-Methylnaphthalene                                      | UG/L         | 0       | 0%              | 0                  | 7                     | 3.04E+01             |             | 4.7                |             | 10 U         | 10 U          | 10 K<br>10 U  | 10 K             |
| 2-Methylphenol   | UG/L         | 0       | 0%              | 0                  | 4                     | 1.82E+03             |             | 4.7                |             | 10 UJ        | 10 U          | 10 C          | 10 C             |
| 2-Nitroaniline   | UG/L         | 0       | 0%              | 0                  | 7                     | 1.82E+03<br>1.09E+02 |             |                    |             | 10 U         | 10 U<br>10 UJ | 10 K<br>10 U  | 10 K             |
| 2-Nitrophenol  | UG/L         | 0       | 0%              | 0                  | 4                     | 1.09E+02             |             |                    |             | 10 U         | 10 UJ         | 10 C<br>10 R  | 10 C             |
| •  | UG/L         | 0       | 0%              | 0                  | 7                     |                      |             |                    |             | 10 U         | 10 U          | 10 K<br>10 U  | 10 K             |
| 3 or 4-Methylphenol<br>3,3'-Dichlorobenzidine            | UG/L         | 0       | 0%              | 0                  | 7                     | 1.49E-01             |             |                    |             | 10 U         | 10 U          | 10 U          | 10 U             |
| 3-Nitroaniline   | UG/L         | 0       | 0%              | 0                  | 7                     | 3.20E+00             |             |                    |             | 10 U         | 10 U          | 10 U          | 10 UJ            |
|  | UG/L<br>UG/L | 0       | 0%              | 0                  | 4                     | 3.65E+00             |             |                    |             | 10 UJ        | 10 U<br>10 UJ | 10 C          | 10 CJ<br>10 R    |
| 4,6-Dinitro-2-methylphenol<br>4-Bromophenyl phenyl ether | UG/L         | 0       | 0%              | 0                  | 7                     | 3.03E+00             |             |                    |             | 10 UJ        | 10 UJ         | 10 K<br>10 UJ | 10 K<br>10 UJ    |
| 4-Chloro-3-methylphenol                                  | UG/L         | 0       | 0%              | 0                  | 4                     |                      |             |                    |             | 10 U         | 10 UJ         | 10 CJ<br>10 R | 10 CJ<br>10 R    |
| 4-Chloroaniline  | UG/L<br>UG/L | 0       | 0%              | 0                  | 7                     | 1.46E+02             |             |                    |             | 10 U         | 10 U<br>10 UJ | 10 K<br>10 U  | 10 K<br>10 U     |
| 4-Chlorophenyl phenyl ether                              | UG/L         | 0       | 0%              | 0                  | 7                     | 1.40E+02             |             |                    |             | 10 U         | 10 UJ         | 10 U          | 10 U             |
| 4-Nitroaniline   | UG/L         | 0       | 0%              | 0                  | 7                     | 3.20E+00             |             |                    |             | 10 UJ        | 10 UJ         | 10 UJ         | 10 U<br>10 UJ    |
|  | UG/L         | 0       | 0%              | 0                  | 4                     | 3.20E+00             |             |                    |             | 10 UJ        | 10 UJ         | 10 CJ<br>10 R | 10 CJ<br>10 R    |
| 4-Nitrophenol  | UG/L         | 0       | 0%              | 0                  | 7                     | 3.65E+02             |             |                    |             | 10 U         | 10 UJ         | 10 K<br>10 U  | 10 K             |
| Acenaphthene   |              | 0       |                 | -                  | 7                     | 3.03E+02             |             |                    |             |              |               |               |                  |
| Acenaphthylene   | UG/L         | 0       | 0%<br>0%        | 0                  | 7                     | 1 925 : 02           |             |                    | l           | 10 U<br>10 U | 10 U<br>10 U  | 10 U<br>10 U  | 10 U             |
| Anthracene   | UG/L         | 0       |                 | 0                  | 7                     | 1.83E+03<br>9.21E-02 |             |                    | l           | 10 U<br>10 U | 10 U<br>10 U  | 10 U<br>10 U  | 10 U<br>10 U     |
| Benzo(a)anthracene                                       | UG/L         | 0       | 0%              | 0                  | 7                     | 9.21E-02<br>9.21E-03 |             |                    | l           |              |               |               | 10 U<br>10 U     |
| Benzo(a)pyrene   | UG/L<br>UG/L | 0       | 0%<br>0%        | 0                  | 7                     | 1                    |             |                    | l           | 10 U<br>10 U | 10 U<br>10 U  | 10 U<br>10 U  | 10 U<br>10 U     |
| Benzo(b)fluoranthene                                     |              | 0       | 0%<br>0%        | 0                  | 7                     | 9.21E-02             |             |                    |             | 10 U<br>10 U |               | 10 U<br>10 U  |                  |
| Benzo(ghi)perylene                                       | UG/L         | 0       |                 | -                  |                       | 0.215.01             |             |                    | l           |              | 10 U          |               | 10 U             |
| Benzo(k)fluoranthene                                     | UG/L         | 0       | 0%              | 0                  | 7<br>7                | 9.21E-01             |             |                    |             | 10 U         | 10 U          | 10 U          | 10 U             |
| Bis(2-Chloroethoxy)methane                               | UG/L         | U       | 0%              | U                  | /                     |                      |             |                    |             | 10 U         | 10 U          | 10 U          | 10 U             |

Page 2 of 10

#### Seneca Army Depot Activity

|                             | Facility<br>Location ID<br>Matrix |         |           |          |            |           |             |                    |             | SEAD-121I<br>SW121I-1<br>SW | SEAD-121I<br>SW121I-10<br>SW | SEAD-121I<br>SW121I-2<br>SW | SEAD-121I<br>SW121I-3<br>SW |
|-----------------------------|-----------------------------------|---------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
|                             | Sample ID                         |         |           |          |            |           |             |                    |             | 121I-3000                   | 121I-3010                    | 121I-3001                   | 121I-3002                   |
| Sample Depth to To          |                                   |         |           |          |            |           |             |                    |             | 0                           | 0                            | 0                           | 0                           |
| Sample Depth to Botto       |                                   |         |           |          |            |           |             |                    |             | N/A                         | N/A                          | N/A                         | N/A                         |
|                             | Sample Date                       |         |           |          |            |           |             |                    |             | 11/6/2002                   | 11/6/2002                    | 11/6/2002                   | 11/6/2002                   |
|                             | QC Code                           |         |           |          |            | Region IX |             |                    |             | SA                          | SA                           | SA                          | SA                          |
|                             | Study ID                          |         | Frequency | Number   | Number     | PRG       |             | NYSDEC             |             | PID-RI                      | PID-RI                       | PID-RI                      | PID-RI                      |
|                             | •                                 | Maximum | of        | of Times | of         | Criteria  |             | Criteria           |             | 1                           | 1                            | 1                           | 1                           |
| Parameter                   | Units                             | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q)                   | Value (Q)                    | Value (Q)                   | Value (Q)                   |
| Bis(2-Chloroethyl)ether     | UG/L                              | 0       | 0%        | 0        | 7          | 1.02E-02  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Bis(2-Chloroisopropyl)ether | UG/L                              | 0       | 0%        | 0        | 7          | 2.74E-01  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Bis(2-Ethylhexyl)phthalate  | UG/L                              | 0       | 0%        | 0        | 7          | 4.80E+00  |             | 0.6                |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Butylbenzylphthalate        | UG/L                              | 1.1     | 14%       | 1        | 7          | 7.30E+03  |             |                    |             | 10 U                        | 1.1 J                        | 10 U                        | 10 U                        |
| Carbazole                   | UG/L                              | 0       | 0%        | 0        | 7          | 3.36E+00  |             |                    |             | 10 U                        | 10 UJ                        | 10 U                        | 10 U                        |
| Chrysene                    | UG/L                              | 0       | 0%        | 0        | 7          | 9.21E+00  |             |                    |             | 10 U                        | 10 UJ                        | 10 U                        | 10 U                        |
| Di-n-butylphthalate         | UG/L                              | 0       | 0%        | 0        | 7          | 3.65E+03  |             |                    |             | 10 UJ                       | 10 UJ                        | 10 UJ                       | 10 UJ                       |
| Di-n-octylphthalate         | UG/L                              | 0       | 0%        | 0        | 7          | 1.46E+03  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Dibenz(a,h)anthracene       | UG/L                              | 0       | 0%        | 0        | 7          | 9.21E-03  |             |                    |             | 10 U                        | 10 UJ                        | 10 U                        | 10 U                        |
| Dibenzofuran                | UG/L                              | 0       | 0%        | 0        | 7          | 1.22E+01  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Diethyl phthalate           | UG/L                              | 0       | 0%        | 0        | 7          | 2.92E+04  |             |                    |             | 10 U                        | 10 UJ                        | 10 U                        | 10 U                        |
| Dimethylphthalate           | UG/L                              | 0       | 0%        | 0        | 7          | 3.65E+05  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Fluoranthene                | UG/L                              | 1.1     | 14%       | 1        | 7          | 1.46E+03  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Fluorene                    | UG/L                              | 0       | 0%        | 0        | 7          | 2.43E+02  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Hexachlorobenzene           | UG/L                              | 0       | 0%        | 0        | 7          | 4.20E-02  |             | 0.00003            |             | 10 UJ                       | 10 UJ                        | 10 UJ                       | 10 UJ                       |
| Hexachlorobutadiene         | UG/L                              | 0       | 0%        | 0        | 7          | 8.62E-01  |             | 0.01               |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Hexachlorocyclopentadiene   | UG/L                              | 0       | 0%        | 0        | 7          | 2.19E+02  |             | 0.45               |             | 10 U                        | 10 UJ                        | 10 U                        | 10 UJ                       |
| Hexachloroethane            | UG/L                              | 0       | 0%        | 0        | 7          | 4.80E+00  |             | 0.6                |             | 10 U                        | 10 U                         | 10 U                        | 10 UJ                       |
| Indeno(1,2,3-cd)pyrene      | UG/L                              | 0       | 0%        | 0        | 7          | 9.21E-02  |             |                    |             | 10 UJ                       | 10 UJ                        | 10 UJ                       | 10 U                        |
| Isophorone                  | UG/L                              | 0       | 0%        | 0        | 7          | 7.08E+01  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| N-Nitrosodiphenylamine      | UG/L                              | 0       | 0%        | 0        | 7          | 1.37E+01  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 UJ                       |
| N-Nitrosodipropylamine      | UG/L                              | 0       | 0%        | 0        | 7          | 9.60E-03  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Naphthalene                 | UG/L                              | 0       | 0%        | 0        | 7          | 6.20E+00  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Nitrobenzene                | UG/L                              | 0       | 0%        | 0        | 7          | 3.40E+00  |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Pentachlorophenol           | UG/L                              | 0       | 0%        | 0        | 4          | 5.60E-01  |             | 1                  |             | 10 UJ                       | 10 UJ                        | 10 R                        | 10 R                        |
| Phenanthrene                | UG/L                              | 0       | 0%        | 0        | 7          |           |             |                    |             | 10 U                        | 10 U                         | 10 U                        | 10 U                        |
| Phenol                      | UG/L                              | 0       | 0%        | 0        | 4          | 1.09E+04  |             | 5                  |             | 10 U                        | 10 U                         | 10 R                        | 10 R                        |
| Pyrene                      | UG/L                              | 0       | 0%        | 0        | 7          | 1.83E+02  |             |                    |             | 10 UJ                       | 10 UJ                        | 10 UJ                       | 10 UJ                       |
| Pesticides/PCBs             |                                   |         |           |          |            |           |             |                    |             |                             |                              |                             |                             |
| 4,4'-DDD                    | UG/L                              | 0       | 0%        | 0        | 7          | 2.80E-01  |             | 0.00008            |             | 0.01 U                      | 0.01 U                       | 0.01 U                      | 0.01 U                      |
| 4,4'-DDE                    | UG/L                              | 0       | 0%        | 0        | 7          | 1.98E-01  |             | 0.000007           |             | 0.005 U                     | 0.005 U                      | 0.005 U                     | 0.005 U                     |
| 4,4'-DDT                    | UG/L                              | 0       | 0%        | 0        | 7          | 1.98E-01  |             | 0.00001            |             | 0.01 UJ                     | 0.01 UJ                      | 0.01 UJ                     | 0.01 UJ                     |
| Aldrin                      | UG/L                              | 0       | 0%        | 0        | 7          | 3.95E-03  |             | 0.001              |             | 0.02 U                      | 0.02 U                       | 0.02 U                      | 0.02 U                      |
| Alpha-BHC                   | UG/L                              | 0       | 0%        | 0        | 7          | 1.07E-02  |             |                    |             | 0.01 UJ                     | 0.01 UJ                      | 0.01 UJ                     | 0.01 UJ                     |
| Alpha-Chlordane             | UG/L                              | 0       | 0%        | 0        | 7          |           |             |                    |             | 0.02 U                      | 0.02 U                       | 0.02 U                      | 0.02 U                      |
| Beta-BHC                    | UG/L                              | 0       | 0%        | 0        | 7          | 3.74E-02  |             |                    |             | 0.01 U                      | 0.01 U                       | 0.01 U                      | 0.01 U                      |
| Chlordane                   | UG/L                              | 0       | 0%        | 0        | 7          |           |             |                    |             | 0.13 U                      | 0.13 U                       | 0.13 U                      | 0.13 U                      |

Page 3 of 10

#### Seneca Army Depot Activity

|                        |              |               |                 |                    |              |                      |             | •            |             |                  |                  |                  |                  |
|------------------------|--------------|---------------|-----------------|--------------------|--------------|----------------------|-------------|--------------|-------------|------------------|------------------|------------------|------------------|
|                        | Facility     |               |                 |                    |              |                      |             |              |             | SEAD-121I        | SEAD-121I        | SEAD-121I        | SEAD-121I        |
|                        | Location ID  |               |                 |                    |              |                      |             |              |             | SW121I-1         | SW121I-10        | SW121I-2         | SW121I-3         |
|                        | Matrix       |               |                 |                    |              |                      |             |              |             | SW               | SW               | SW               | SW               |
| 0 15 1.                | Sample ID    |               |                 |                    |              |                      |             |              |             | 121I-3000        | 121I-3010        | 121I-3001        | 121I-3002        |
| Sample Depth to        |              |               |                 |                    |              |                      |             |              |             | 0                | 0                | 0                | 0                |
| Sample Depth to Bot    | •            |               |                 |                    |              |                      |             |              |             | N/A              | N/A              | N/A              | N/A              |
|                        | Sample Date  |               |                 |                    |              | D IV                 |             |              |             | 11/6/2002        | 11/6/2002        | 11/6/2002        | 11/6/2002        |
|                        | QC Code      |               | F               | N                  | N            | Region IX<br>PRG     |             | NYSDEC       |             | SA<br>DID DI     | SA               | SA               | SA<br>DID DI     |
|                        | Study ID     | Maximum       | Frequency<br>of | Number<br>of Times | Number<br>of | Criteria             |             | Criteria     |             | PID-RI           | PID-RI<br>1      | PID-RI<br>1      | PID-RI           |
| _                      |              |               |                 |                    |              | Value <sup>2</sup>   |             | Value 3      | _           | 1                | -                | 1                | 1                |
| Parameter              | Units        | Value         | Detection       | Detected           | Analyses 1   | Value -              | Exceedances | Value        | Exceedances | Value (Q)        | Value (Q)        | Value (Q)        | Value (Q)        |
| Delta-BHC              | UG/L         | 0             | 0%              | 0                  | 7            | 4 205 02             |             | 0.0000006    |             | 0.004 U          | 0.004 U          | 0.004 U          | 0.004 U          |
| Dieldrin               | UG/L         | 0             | 0%              | 0                  | 7            | 4.20E-03             |             | 0.0000006    |             | 0.009 U          | 0.009 U          | 0.009 U          | 0.009 U          |
| Endosulfan I           | UG/L         | 0             | 0%              | 0                  | 7            |                      |             | 0.009        |             | 0.01 U           | 0.01 U           | 0.01 U           | 0.01 U           |
| Endosulfan II          | UG/L         | 0             | 0%              | 0                  | 7<br>7       |                      |             | 0.009        |             | 0.01 UJ          | 0.01 UJ          | 0.01 UJ          | 0.01 UJ          |
| Endosulfan sulfate     | UG/L         | 0             | 0%              | 0                  |              | 1.005.01             |             | 0.002        |             | 0.02 U           | 0.02 U           | 0.02 U           | 0.02 U           |
| Endrin                 | UG/L         | 0             | 0%              | 0                  | 7            | 1.09E+01             |             | 0.002        |             | 0.02 U           | 0.02 U           | 0.02 U           | 0.02 U           |
| Endrin aldehyde        | UG/L         | 0             | 0%              | 0                  | 7            |                      |             |              |             | 0.02 U           | 0.02 U           | 0.02 U           | 0.02 U           |
| Endrin ketone          | UG/L         | 0             | 0%              | 0                  | 7            | 5 175 02             |             |              |             | 0.009 U          | 0.009 U          | 0.009 U          | 0.009 U          |
| Gamma-BHC/Lindane      | UG/L         | 0             | 0%              | 0                  | 7            | 5.17E-02             |             |              |             | 0.009 U          | 0.009 U          | 0.009 U          | 0.009 U          |
| Gamma-Chlordane        | UG/L         | 0             | 0%              | 0                  | 7            | 1 405 02             |             | 0.0002       |             | 0.01 U           | 0.01 U           | 0.01 U           | 0.01 U           |
| Heptachlor             | UG/L         | 0             | 0%              | 0                  | 7            | 1.49E-02             |             | 0.0002       |             | 0.007 U          | 0.007 U          | 0.007 U          | 0.007 U          |
| Heptachlor epoxide     | UG/L         | 0             | 0%              | 0                  | 7            | 7.39E-03             |             | 0.0003       |             | 0.008 U          | 0.008 U          | 0.008 U          | 0.008 U          |
| Methoxychlor           | UG/L         | •             | 0%              | 0                  | 7            | 1.82E+02             |             | 0.03         |             | 0.008 U          | 0.008 U          | 0.008 U          | 0.008 U          |
| Toxaphene              | UG/L         | 0             | 0%              | 0                  | 7            | 6.11E-02             |             | 0.000006     |             | 0.12 U           | 0.12 U           | 0.12 U           | 0.12 U           |
| Aroclor-1016           | UG/L         | 0             | 0%              | 0                  | 7            | 9.60E-01             |             | 0.000001     |             | 0.24 UJ          | 0.24 UJ          | 0.24 UJ          | 0.24 UJ          |
| Aroclor-1221           | UG/L         | 0             | 0%              | 0                  | 7<br>7       |                      |             | 0.000001     |             | 0.08 U           | 0.08 U           | 0.08 U           | 0.08 U           |
| Aroclor-1232           | UG/L         | 0             | 0%              | -                  | 7            |                      |             | 0.000001     |             | 0.09 UJ          | 0.09 UJ          | 0.09 UJ          | 0.09 UJ          |
| Aroclor-1242           | UG/L         | 0             | 0%              | 0                  |              |                      |             | 0.000001     |             | 0.08 UJ          | 0.08 UJ          | 0.08 UJ          | 0.08 UJ          |
| Aroclor-1248           | UG/L         | 0             | 0%              | 0                  | 7            | 2.265.02             |             | 0.000001     |             | 0.12 U           | 0.12 U           | 0.12 U           | 0.12 U           |
| Aroclor-1254           | UG/L         | 0             | 0%<br>0%        | 0                  | 7<br>7       | 3.36E-02             |             | 0.000001     |             | 0.05 U           | 0.05 U           | 0.05 U           | 0.05 U           |
| Aroclor-1260           | UG/L         | U             | 0%              | Ü                  | /            |                      |             | 0.000001     |             | 0.01 UJ          | 0.01 UJ          | 0.01 UJ          | 0.01 UJ          |
| Metals and Cyanide     | исл          | 2050          | 1000/           | 7                  | 7            | 3.65E+04             |             | 100          | 3           | 27.6             | 1490             | 22.0             | 12.5             |
| Aluminum               | UG/L<br>UG/L | 2050          | 100%<br>0%      | 0                  | 7            | 3.65E+04<br>1.46E+01 |             | 100          | 3           | 37.6<br>4.7 U    | 1490<br>4.7 U    | 23.9<br>4.7 U    | 43.5<br>4.7 U    |
| Antimony               |              | 0             |                 | 0                  | 7            |                      |             | 150          |             |                  |                  |                  |                  |
| Arsenic<br>Barium      | UG/L<br>UG/L | 49.2          | 0%<br>86%       | 6                  | 7            | 4.48E-02<br>2.55E+03 |             | 150          |             | 2.8 U            | 2.8 U            | 2.8 U<br>33.8    | 2.8 U<br>33.2    |
|                        |              |               |                 |                    | 7            | II                   |             | 1100         |             | 49.2             | 48.9             |                  |                  |
| Beryllium<br>Cadmium   | UG/L<br>UG/L | 0.28<br>0.54  | 86%<br>14%      | 6<br>1             | 7            | 7.30E+01<br>1.82E+01 |             | 1100<br>3.84 |             | 0.21<br>0.4 U    | 0.26<br>0.54     | 0.16             | 0.16             |
| Calcium                | UG/L<br>UG/L | 74200         | 14%             | 7                  | 7            | 1.82E+01             |             | 3.84         |             | 74200            | 56600            | 0.4 U<br>60900   | 0.4 U<br>61100   |
|                        |              |               |                 | 5                  | 7            |                      |             | 120.45       |             |                  |                  |                  |                  |
| Chromium<br>Cobalt     | UG/L         | 6<br>3        | 71%             | 2                  | 7            | 7.30E+02             |             | 139.45       |             | 1.9<br>0.6 U     | 4.3<br>2.8       | 1.1<br>0.6 U     | 0.6 U            |
|                        | UG/L<br>UG/L | 11.2          | 29%<br>86%      | 6                  | 7            | 1.46E+03             |             | 5<br>17.32   |             | 1.4              | 2.8<br>7.2       | 1.2              | 0.6 U<br>2       |
| Copper                 |              |               |                 |                    | 7            | 1.40E+03             |             | 17.32        |             |                  |                  |                  |                  |
| Cyanide, Amenable      | MG/L<br>MG/L | 0             | 0%<br>0%        | 0                  | 7            |                      |             |              |             | 0.01 U<br>0.01 U | 0.01 U<br>0.01 U | 0.01 U<br>0.01 U | 0.01 U<br>0.01 U |
| Cyanide, Total<br>Iron | MG/L<br>UG/L | 3410          | 0%<br>71%       | 5                  | 7            | 1.09E+04             |             | 300          | 2           | 0.01 U<br>32.3 J | 3080             | 0.01 U<br>17.3 U | 0.01 U<br>17.3 U |
| Lead                   | UG/L<br>UG/L | 26.3          | 71%<br>57%      | 5<br>4             | 7            | 1.09E+04             |             | 1.4624632    | 4           | 32.3 J<br>2.1 U  | 21               | 4.3 J            | 2.1 U            |
|                        | UG/L<br>UG/L | 26.3<br>11100 | 57%<br>100%     | 4<br>7             | 7            |                      |             | 1.4024032    | 4           | 2.1 U<br>11100   | 7240             | 4.3 J<br>7790    | 9700             |
| Magnesium              | UG/L         | 11100         | 100%            | 1                  | 1            | I                    |             |              |             | 11100            | 7240             | 7 790            | 9700             |

Page 4 of 10

# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-121I SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility   |         |           |          |            |           |             |                    |             | SEAD-121I | SEAD-121I | SEAD-121I | SEAD-121I |
|------------------------------|------------|---------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------|-----------|-----------|-----------|
| L                            | ocation ID |         |           |          |            |           |             |                    |             | SW121I-1  | SW121I-10 | SW121I-2  | SW121I-3  |
|                              | Matrix     |         |           |          |            |           |             |                    |             | SW        | SW        | SW        | SW        |
|                              | Sample ID  |         |           |          |            |           |             |                    |             | 121I-3000 | 121I-3010 | 121I-3001 | 121I-3002 |
| Sample Depth to Top          | of Sample  |         |           |          |            |           |             |                    |             | 0         | 0         | 0         | 0         |
| Sample Depth to Bottom       | of Sample  |         |           |          |            |           |             |                    |             | N/A       | N/A       | N/A       | N/A       |
| Sa                           | ample Date |         |           |          |            |           |             |                    |             | 11/6/2002 | 11/6/2002 | 11/6/2002 | 11/6/2002 |
|                              | QC Code    |         |           |          |            | Region IX |             |                    |             | SA        | SA        | SA        | SA        |
|                              | Study ID   |         | Frequency | Number   | Number     | PRG       |             | NYSDEC             |             | PID-RI    | PID-RI    | PID-RI    | PID-RI    |
|                              |            | Maximum | of        | of Times | of         | Criteria  |             | Criteria           |             | 1         | 1         | 1         | 1         |
| Parameter                    | Units      | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q) | Value (Q) |
| Manganese                    | UG/L       | 206     | 100%      | 7        | 7          | 8.76E+02  |             |                    |             | 18        | 139       | 0.8       | 1.7       |
| Mercury                      | UG/L       | 0       | 0%        | 0        | 7          | 1.09E+01  |             | 0.0007             |             | 0.2 U     | 0.2 U     | 0.2 U     | 0.2 U     |
| Nickel                       | UG/L       | 3.6     | 29%       | 2        | 7          | 7.30E+02  |             | 99.92              |             | 1.8 U     | 3.5       | 1.8 U     | 1.8 U     |
| Potassium                    | UG/L       | 4640    | 100%      | 7        | 7          |           |             |                    |             | 2400 J    | 3200 J    | 1700 J    | 1290 J    |
| Selenium                     | UG/L       | 2.5 4   | 14%       | 1        | 7          | 1.82E+02  |             | 4.6                |             | 3 U       | 3 U       | 3 U       | 3 U       |
| Silver                       | UG/L       | 0       | 0%        | 0        | 7          | 1.82E+02  |             | 0.1                |             | 1 U       | 1 U       | 1 U       | 1 U       |
| Sodium                       | UG/L       | 38500   | 100%      | 7        | 7          |           |             |                    |             | 18700 J   | 38500 J   | 14900 J   | 30900 J   |
| Thallium                     | UG/L       | 0       | 0%        | 0        | 7          | 2.41E+00  |             | 8                  |             | 5.4 U     | 5.4 U     | 5.4 U     | 5.4 U     |
| Vanadium                     | UG/L       | 3.9     | 43%       | 3        | 7          | 3.65E+01  |             | 14                 |             | 2.1       | 3.3       | 0.7 U     | 0.7 U     |
| Zinc                         | UG/L       | 190     | 100%      | 7        | 7          | 1.09E+04  |             | 159.25             | 1           | 15.9      | 54.1      | 12.5      | 16.4      |
| Other                        |            |         |           |          |            |           |             |                    |             |           |           |           |           |
| Total Petroleum Hydrocarbons | MG/L       | 0       | 0%        | 0        | 7          |           |             |                    |             | 1 U       | 1 U       | 1 U       | 1 U       |

#### NOTES:

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- 4) The maximum detected concentration was obtained from the average of the sample (121I-3007) and its duplicate (121I-3005).

U = compound was not detected

- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

**Seneca Army Depot Activity** Facility SEAD-121I SEAD-121I SEAD-121I SEAD-121I Location ID SW121I-5 SW121I-6 SW121I-7 SW121I-7 swMatrix SWSWSWSample ID 121I-3004 121I-3006 121I-3007 121I-3005 Sample Depth to Top of Sample 0 0 0 Sample Depth to Bottom of Sample N/A N/A N/A N/A

| Parameter U  Volatile Organic Compounds 1,1,1-Trichloroethane U 1,1,2,2-Tetrachloroethane U 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U | Code dy ID  Inits  JG/L JG/L JG/L JG/L JG/L JG/L JG/L JG/    | Maximum Value  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Frequency<br>of<br>Detection<br>0%<br>0%<br>0%<br>0%<br>0%<br>0% | Number of Times Detected  0 0 0 0 0 0 | Number<br>of<br>Analyses <sup>1</sup><br>7<br>7<br>7 | Region IX<br>PRG<br>Criteria<br>Value <sup>2</sup><br>3.17E+03<br>5.53E-02 | Exceedances | NYSDEC<br>Criteria<br>Value <sup>3</sup> | Exceedances | SA<br>PID-RI<br>1<br>Value (Q) | SA<br>PID-RI<br>1<br>Value (Q) | SA<br>PID-RI<br>1<br>Value (Q) | SA<br>PID-RI<br>1<br>Value (Q) |
|--|--|--|--|---------------------------------------|--|--|-------------|--|-------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Parameter U  Volatile Organic Compounds 1,1,1-Trichloroethane U 1,1,2,2-Tetrachloroethane U 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U   | JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L | Value  0 0 0 0 0 0 0 0 0                           | 0%<br>0%<br>0%<br>0%<br>0%                                       | 0<br>0<br>0<br>0                      | 7 7 7 7  | Value <sup>2</sup> 3.17E+03 5.53E-02                                       | Exceedances |  | Exceedances |                                |                                | 1<br>Value (Q)                 | 1<br>Value (Q)                 |
| Volatile Organic Compounds 1,1,1-Trichloroethane U 1,1,2,2-Tetrachloroethane U 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L         | 0<br>0<br>0<br>0<br>0                              | 0%<br>0%<br>0%<br>0%<br>0%                                       | 0<br>0<br>0                           | 7<br>7<br>7  | 3.17E+03<br>5.53E-02   | Exceedances | Value <sup>3</sup>                       | Exceedances |                                |                                | Value (Q)                      | Value (Q)                      |
| 1,1,1-Trichloroethane U 1,1,2,2-Tetrachloroethane U 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L                 | 0<br>0<br>0<br>0                                   | 0%<br>0%<br>0%<br>0%   | 0<br>0<br>0                           | 7  | 5.53E-02   |             |  |             |                                |                                |                                |                                |
| 1,1,2,2-Tetrachloroethane U 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethene U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L                 | 0<br>0<br>0<br>0                                   | 0%<br>0%<br>0%<br>0%   | 0<br>0<br>0                           | 7  | 5.53E-02   |             |  |             |                                |                                |                                |                                |
| 1,1,2-Trichloroethane U 1,1-Dichloroethane U 1,1-Dichloroethene U 1,2-Dichloroethane U 1,2-Dichloroethane U 1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L<br>JG/L                 | 0<br>0<br>0<br>0                                   | 0%<br>0%<br>0%   | 0                                     | 7  |  |             |  |             | 0.75 U                         | 0.75 U                         | 5 U                            | 5 U                            |
| 1,1-Dichloroethane U<br>1,1-Dichloroethene U<br>1,2-Dichloroethane U<br>1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L<br>JG/L                                 | 0<br>0<br>0  | 0%<br>0%   | 0                                     |  | 2 000  |             |  |             | 0.7 U                          | 0.7 U                          | 5 U                            | 5 U                            |
| 1,1-Dichloroethene U<br>1,2-Dichloroethane U<br>1,2-Dichloropropane U  | JG/L<br>JG/L<br>JG/L   | 0  | 0%   | -                                     | 7  | 2.00E-01   |             |  |             | 0.62 U                         | 0.62 U                         | 5 U                            | 5 U                            |
| 1,2-Dichloroethane U<br>1,2-Dichloropropane U  | JG/L<br>JG/L   | 0  |  | 0                                     | ,  | 8.11E+02   |             |  |             | 0.66 U                         | 0.66 U                         | 5 U                            | 5 U                            |
| 1,2-Dichloropropane U  | JG/L   | -  | 004  | U                                     | 7  | 3.39E+02   |             |  |             | 0.69 U                         | 0.69 U                         | 5 U                            | 5 U                            |
| ,  |  | 0  | U70  | 0                                     | 7  | 1.23E-01   |             |  |             | 0.56 U                         | 0.56 U                         | 5 U                            | 5 U                            |
| TA   | JG/L   | U  | 0%   | 0                                     | 7  | 1.65E-01   |             |  |             | 0.73 U                         | 0.73 U                         | 5 U                            | 5 U                            |
| Acetone U  |  | 0  | 0%   | 0                                     | 7  | 5.48E+03   |             |  |             | 3.5 U                          | 3.5 U                          | 5 UJ                           | 5 UJ                           |
| Benzene U  | JG/L   | 0  | 0%   | 0                                     | 7  | 3.54E-01   |             |  |             | 0.71 U                         | 0.71 U                         | 5 U                            | 5 U                            |
| Bromodichloromethane U   | JG/L   | 0  | 0%   | 0                                     | 7  | 1.81E-01   |             |  |             | 0.73 U                         | 0.73 U                         | 5 U                            | 5 U                            |
| Bromoform U  | JG/L   | 0  | 0%   | 0                                     | 7  | 8.51E+00   |             |  |             | 0.49 U                         | 0.49 U                         | 5 U                            | 5 U                            |
| Carbon disulfide U   | JG/L   | 0  | 0%   | 0                                     | 7  | 1.04E+03   |             |  |             | 0.72 U                         | 0.72 U                         | 5 U                            | 5 U                            |
| Carbon tetrachloride U   | JG/L   | 0  | 0%   | 0                                     | 7  | 1.71E-01   |             |  |             | 0.47 U                         | 0.47 U                         | 5 U                            | 5 U                            |
| Chlorobenzene U  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.06E+02   |             | 5  |             | 0.78 U                         | 0.78 U                         | 5 U                            | 5 U                            |
| Chlorodibromomethane U   | JG/L   | 0  | 0%   | 0                                     | 7  | 1.33E-01   |             |  |             | 0.66 U                         | 0.66 U                         | 5 UJ                           | 5 UJ                           |
| Chloroethane U   | JG/L   | 0  | 0%   | 0                                     | 7  | 4.64E+00   |             |  |             | 2.4 U                          | 2.4 U                          | 5 UJ                           | 5 UJ                           |
| Chloroform U   | JG/L   | 0  | 0%   | 0                                     | 7  | 1.66E-01   |             |  |             | 0.61 U                         | 0.61 U                         | 5 U                            | 5 U                            |
| Cis-1,2-Dichloroethene U   | JG/L   | 0  | 0%   | 0                                     | 7  | 6.08E+01   |             |  |             | 0.62 U                         | 0.62 U                         | 5 U                            | 5 U                            |
| Cis-1,3-Dichloropropene U  | JG/L   | 0  | 0%   | 0                                     | 7  |  |             |  |             | 0.66 U                         | 0.66 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.34E+03   |             |  |             | 0.76 U                         | 0.76 U                         | 5 U                            | 5 U                            |
| Meta/Para Xylene U   | JG/L   | 0  | 0%   | 0                                     | 7  |  |             |  |             | 1.5 U                          | 1.5 U                          | 5 U                            | 5 U                            |
| Methyl bromide U   | JG/L   | 0  | 0%   | 0                                     | 7  | 8.66E+00   |             |  |             | 0.38 U                         | 0.38 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  |  |             |  |             | 0.6 U                          | 0.6 U                          | 5 U                            | 5 U                            |
| Methyl chloride U  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.58E+02   |             |  |             | 0.51 U                         | 0.51 U                         | 5 U                            | 5 U                            |
| 1 -  | JG/L   | 0  | 0%   | 0                                     | 7  | 6.97E+03   |             |  |             | 2.3 U                          | 2.3 U                          | 5 UJ                           | 5 UJ                           |
| 1 3 3  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.99E+03   |             |  |             | 0.81 U                         | 0.81 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 4.28E+00   |             |  |             | 1.8 U                          | 1.8 U                          | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  |  |             |  |             | 0.72 U                         | 0.72 U                         | 5 U                            | 5 U                            |
| 1  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.64E+03   |             |  |             | 0.92 U                         | 0.92 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.04E-01   |             |  |             | 0.7 U                          | 0.7 U                          | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 7.23E+02   |             | 6000                                     |             | 0.71 U                         | 0.71 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.22E+02   |             | 0000                                     |             | 0.81 U                         | 0.81 U                         | 5 U                            | 5 U                            |
|  | JG/L<br>JG/L   | 0  | 0%   | 0                                     | 7  | 1.221.02   |             |  |             | 0.66 U                         | 0.66 U                         | 5 UJ                           | 5 UJ                           |
| 1 1  | JG/L<br>JG/L   | 0  | 0%   | 0                                     | 7  | 2.80E-02   |             | 40                                       |             | 0.72 U                         | 0.72 U                         | 5 U                            | 5 U                            |
|  | JG/L   | 0  | 0%   | 0                                     | 7  | 1.98E-02   |             | 1  |             | 0.72 U                         | 0.72 U<br>0.79 U               | 5 UJ                           | 5 UJ                           |

Seneca Army Depot Activity

|                             | Facility     |         |           |          |            |                    |             |                    |             | SEAD-121I | SEAD-121I | SEAD-121I  | SEAD-121I  |
|-----------------------------|--------------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------|-----------|------------|------------|
|                             | Location ID  |         |           |          |            |                    |             |                    |             | SW121I-5  | SW121I-6  | SW121I-7   | SW121I-7   |
|                             | Matrix       |         |           |          |            |                    |             |                    |             | SW        | SW        | SW         | SW         |
|                             | Sample ID    |         |           |          |            |                    |             |                    |             | 121I-3004 | 121I-3006 | 121I-3007  | 121I-3005  |
| Sample Depth to T           | op of Sample |         |           |          |            |                    |             |                    |             | 0         | 0         | 0          | 0          |
| Sample Depth to Bott        | om of Sample |         |           |          |            |                    |             |                    |             | N/A       | N/A       | N/A        | N/A        |
|                             | Sample Date  |         |           |          |            |                    |             |                    |             | 11/6/2002 | 11/6/2002 | 10/26/2002 | 10/26/2002 |
|                             | QC Code      |         |           |          |            | Region IX          |             |                    |             | SA        | SA        | SA         | SA         |
|                             | Study ID     |         | Frequency | Number   | Number     | PRG                |             | NYSDEC             |             | PID-RI    | PID-RI    | PID-RI     | PID-RI     |
|                             |              | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | 1         | 1         | 1          | 1          |
| Parameter                   | Units        | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  |
| Semivolatile Organic Comp   | ounds        |         |           |          |            |                    |             |                    |             |           |           |            |            |
| 1,2,4-Trichlorobenzene      | UG/L         | 0       | 0%        | 0        | 7          | 7.16E+00           |             | 5                  |             | 10 U      | 10 U      | 10 U       | 10 UJ      |
| 1,2-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 7          | 3.70E+02           |             | 5                  |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 1,3-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 7          | 1.83E+02           |             | 5                  |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 1,4-Dichlorobenzene         | UG/L         | 0       | 0%        | 0        | 7          | 5.02E-01           |             | 5                  |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 2,4,5-Trichlorophenol       | UG/L         | 0       | 0%        | 0        | 4          | 3.65E+03           |             |                    |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 2,4,6-Trichlorophenol       | UG/L         | 0       | 0%        | 0        | 4          | 3.65E+00           |             |                    |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 2,4-Dichlorophenol          | UG/L         | 0       | 0%        | 0        | 4          | 1.09E+02           |             | 1                  |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 2,4-Dimethylphenol          | UG/L         | 0       | 0%        | 0        | 4          | 7.30E+02           |             | 1000               |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 2,4-Dinitrophenol           | UG/L         | 0       | 0%        | 0        | 4          | 7.30E+01           |             | 400                |             | 10 R      | 10 UJ     | 10 UJ      | 10 R       |
| 2,4-Dinitrotoluene          | UG/L         | 0       | 0%        | 0        | 7          | 7.30E+01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 2,6-Dinitrotoluene          | UG/L         | 0       | 0%        | 0        | 7          | 3.65E+01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 2-Chloronaphthalene         | UG/L         | 0       | 0%        | 0        | 7          | 4.87E+02           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 2-Chlorophenol              | UG/L         | 0       | 0%        | 0        | 4          | 3.04E+01           |             |                    |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 2-Methylnaphthalene         | UG/L         | 0       | 0%        | 0        | 7          |                    |             | 4.7                |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 2-Methylphenol              | UG/L         | 0       | 0%        | 0        | 4          | 1.82E+03           |             |                    |             | 10 R      | 10 U      | 10 U       | 10 U       |
| 2-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 7          | 1.09E+02           |             |                    |             | 10 UJ     | 10 UJ     | 10 UJ      | 10 U       |
| 2-Nitrophenol               | UG/L         | 0       | 0%        | 0        | 4          |                    |             |                    |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 3 or 4-Methylphenol         | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 U      | 10 U      | 10 U       | 10 UJ      |
| 3,3'-Dichlorobenzidine      | UG/L         | 0       | 0%        | 0        | 7          | 1.49E-01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 R       |
| 3-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 7          | 3.20E+00           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| 4,6-Dinitro-2-methylphenol  | UG/L         | 0       | 0%        | 0        | 4          | 3.65E+00           |             |                    |             | 10 R      | 10 UJ     | 10 U       | 10 R       |
| 4-Bromophenyl phenyl ether  | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| 4-Chloro-3-methylphenol     | UG/L         | 0       | 0%        | 0        | 4          |                    |             |                    |             | 10 R      | 10 U      | 10 U       | 10 R       |
| 4-Chloroaniline             | UG/L         | 0       | 0%        | 0        | 7          | 1.46E+02           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| 4-Chlorophenyl phenyl ether | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| 4-Nitroaniline              | UG/L         | 0       | 0%        | 0        | 7          | 3.20E+00           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| 4-Nitrophenol               | UG/L         | 0       | 0%        | 0        | 4          |                    |             |                    |             | 10 R      | 10 UJ     | 10 U       | 10 R       |
| Acenaphthene                | UG/L         | 0       | 0%        | 0        | 7          | 3.65E+02           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Acenaphthylene              | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Anthracene                  | UG/L         | 0       | 0%        | 0        | 7          | 1.83E+03           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Benzo(a)anthracene          | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-02           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Benzo(a)pyrene              | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-03           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Benzo(b)fluoranthene        | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-02           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Benzo(ghi)perylene          | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Benzo(k)fluoranthene        | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Bis(2-Chloroethoxy)methane  | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |

Page 7 of 10

#### Seneca Army Depot Activity

|                             | Facility     |         |           |          |            |                    |             |                    |             | SEAD-121I | SEAD-121I | SEAD-121I  | SEAD-121I  |
|-----------------------------|--------------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------|-----------|------------|------------|
|                             | Location ID  |         |           |          |            |                    |             |                    |             | SW121I-5  | SW121I-6  | SW121I-7   | SW121I-7   |
|                             | Matrix       |         |           |          |            |                    |             |                    |             | SW        | SW        | SW         | SW         |
|                             | Sample ID    |         |           |          |            |                    |             |                    |             | 121I-3004 | 121I-3006 | 121I-3007  | 121I-3005  |
| Sample Depth to To          | op of Sample |         |           |          |            |                    |             |                    |             | 0         | 0         | 0          | 0          |
| Sample Depth to Botto       | m of Sample  |         |           |          |            |                    |             |                    |             | N/A       | N/A       | N/A        | N/A        |
|                             | Sample Date  |         |           |          |            |                    |             |                    |             | 11/6/2002 | 11/6/2002 | 10/26/2002 | 10/26/2002 |
|                             | QC Code      |         |           |          |            | Region IX          |             |                    |             | SA        | SA        | SA         | SA         |
|                             | Study ID     |         | Frequency | Number   | Number     | PRG                |             | NYSDEC             |             | PID-RI    | PID-RI    | PID-RI     | PID-RI     |
|                             |              | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | 1         | 1         | 1          | 1          |
| Parameter                   | Units        | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  |
| Bis(2-Chloroethyl)ether     | UG/L         | 0       | 0%        | 0        | 7          | 1.02E-02           |             |                    |             | 10 U      | 10 U      | 10 UJ      | 10 UJ      |
| Bis(2-Chloroisopropyl)ether | UG/L         | 0       | 0%        | 0        | 7          | 2.74E-01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Bis(2-Ethylhexyl)phthalate  | UG/L         | 0       | 0%        | 0        | 7          | 4.80E+00           |             | 0.6                |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Butylbenzylphthalate        | UG/L         | 1.1     | 14%       | 1        | 7          | 7.30E+03           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Carbazole                   | UG/L         | 0       | 0%        | 0        | 7          | 3.36E+00           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Chrysene                    | UG/L         | 0       | 0%        | 0        | 7          | 9.21E+00           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Di-n-butylphthalate         | UG/L         | 0       | 0%        | 0        | 7          | 3.65E+03           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Di-n-octylphthalate         | UG/L         | 0       | 0%        | 0        | 7          | 1.46E+03           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Dibenz(a,h)anthracene       | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-03           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Dibenzofuran                | UG/L         | 0       | 0%        | 0        | 7          | 1.22E+01           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Diethyl phthalate           | UG/L         | 0       | 0%        | 0        | 7          | 2.92E+04           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Dimethylphthalate           | UG/L         | 0       | 0%        | 0        | 7          | 3.65E+05           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Fluoranthene                | UG/L         | 1.1     | 14%       | 1        | 7          | 1.46E+03           |             |                    |             | 10 U      | 1.1 J     | 10 U       | 10 U       |
| Fluorene                    | UG/L         | 0       | 0%        | 0        | 7          | 2.43E+02           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Hexachlorobenzene           | UG/L         | 0       | 0%        | 0        | 7          | 4.20E-02           |             | 0.00003            |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Hexachlorobutadiene         | UG/L         | 0       | 0%        | 0        | 7          | 8.62E-01           |             | 0.01               |             | 10 U      | 10 U      | 10 UJ      | 10 UJ      |
| Hexachlorocyclopentadiene   | UG/L         | 0       | 0%        | 0        | 7          | 2.19E+02           |             | 0.45               |             | 10 UJ     | 10 UJ     | 10 UJ      | 10 UJ      |
| Hexachloroethane            | UG/L         | 0       | 0%        | 0        | 7          | 4.80E+00           |             | 0.6                |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Indeno(1,2,3-cd)pyrene      | UG/L         | 0       | 0%        | 0        | 7          | 9.21E-02           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 UJ      |
| Isophorone                  | UG/L         | 0       | 0%        | 0        | 7          | 7.08E+01           |             |                    |             | 10 U      | 10 U      | 10 UJ      | 10 U       |
| N-Nitrosodiphenylamine      | UG/L         | 0       | 0%        | 0        | 7          | 1.37E+01           |             |                    |             | 10 U      | 10 U      | 10 UJ      | 10 UJ      |
| N-Nitrosodipropylamine      | UG/L         | 0       | 0%        | 0        | 7          | 9.60E-03           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Naphthalene                 | UG/L         | 0       | 0%        | 0        | 7          | 6.20E+00           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Nitrobenzene                | UG/L         | 0       | 0%        | 0        | 7          | 3.40E+00           |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Pentachlorophenol           | UG/L         | 0       | 0%        | 0        | 4          | 5.60E-01           |             | 1                  |             | 10 R      | 10 UJ     | 10 U       | 10 R       |
| Phenanthrene                | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 10 U      | 10 U      | 10 U       | 10 U       |
| Phenol                      | UG/L         | 0       | 0%        | 0        | 4          | 1.09E+04           |             | 5                  |             | 10 R      | 10 U      | 10 U       | 10 R       |
| Pyrene                      | UG/L         | 0       | 0%        | 0        | 7          | 1.83E+02           |             |                    |             | 10 UJ     | 10 UJ     | 10 U       | 10 U       |
| Pesticides/PCBs             |              |         |           |          |            |                    |             |                    |             |           |           |            |            |
| 4,4'-DDD                    | UG/L         | 0       | 0%        | 0        | 7          | 2.80E-01           |             | 0.00008            |             | 0.01 U    | 0.01 U    | 0.01 UJ    | 0.01 UJ    |
| 4,4'-DDE                    | UG/L         | 0       | 0%        | 0        | 7          | 1.98E-01           |             | 0.000007           |             | 0.005 U   | 0.005 U   | 0.005 UJ   | 0.005 UJ   |
| 4,4'-DDT                    | UG/L         | 0       | 0%        | 0        | 7          | 1.98E-01           |             | 0.00001            |             | 0.01 UJ   | 0.01 UJ   | 0.01 UJ    | 0.01 UJ    |
| Aldrin                      | UG/L         | 0       | 0%        | 0        | 7          | 3.95E-03           |             | 0.001              |             | 0.02 U    | 0.02 U    | 0.02 UJ    | 0.02 UJ    |
| Alpha-BHC                   | UG/L         | 0       | 0%        | 0        | 7          | 1.07E-02           |             |                    |             | 0.01 UJ   | 0.01 UJ   | 0.01 UJ    | 0.01 UJ    |
| Alpha-Chlordane             | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.02 U    | 0.02 U    | 0.02 UJ    | 0.02 UJ    |
| Beta-BHC                    | UG/L         | 0       | 0%        | 0        | 7          | 3.74E-02           |             |                    |             | 0.01 U    | 0.01 U    | 0.01 UJ    | 0.01 UJ    |
| Chlordane                   | UG/L         | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.13 U    | 0.13 U    | 0.13 U     | 0.13 U     |

Page 8 of 10

Seneca Army Depot Activity

|                    |             |         |           |          |            |                    |             | ·                  |             |           |           |            |            |
|--------------------|-------------|---------|-----------|----------|------------|--------------------|-------------|--------------------|-------------|-----------|-----------|------------|------------|
|                    | Facility    |         |           |          |            |                    |             |                    |             | SEAD-121I | SEAD-121I | SEAD-121I  | SEAD-121I  |
|                    | Location ID |         |           |          |            |                    |             |                    |             | SW121I-5  | SW121I-6  | SW121I-7   | SW121I-7   |
|                    | Matrix      |         |           |          |            |                    |             |                    |             | SW        | SW        | SW         | SW         |
|                    | Sample ID   |         |           |          |            |                    |             |                    |             | 121I-3004 | 121I-3006 | 121I-3007  | 121I-3005  |
| Sample Depth to    |             |         |           |          |            |                    |             |                    |             | 0         | 0         | 0          | 0          |
| Sample Depth to Bo | •           |         |           |          |            |                    |             |                    |             | N/A       | N/A       | N/A        | N/A        |
|                    | Sample Date |         |           |          |            |                    |             |                    |             | 11/6/2002 | 11/6/2002 | 10/26/2002 | 10/26/2002 |
|                    | QC Code     |         |           |          |            | Region IX          |             |                    |             | SA        | SA        | SA         | SA         |
|                    | Study ID    |         | Frequency | Number   | Number     | PRG                |             | NYSDEC             |             | PID-RI    | PID-RI    | PID-RI     | PID-RI     |
|                    |             | Maximum | of        | of Times | of         | Criteria           |             | Criteria           |             | I         | 1         | 1          | I          |
| Parameter          | Units       | Value   | Detection | Detected | Analyses 1 | Value <sup>2</sup> | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  |
| Delta-BHC          | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.004 U   | 0.004 U   | 0.004 UJ   | 0.004 UJ   |
| Dieldrin           | UG/L        | 0       | 0%        | 0        | 7          | 4.20E-03           |             | 0.0000006          |             | 0.009 U   | 0.009 U   | 0.009 UJ   | 0.009 UJ   |
| Endosulfan I       | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.009              |             | 0.01 U    | 0.01 U    | 0.01 UJ    | 0.01 UJ    |
| Endosulfan II      | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.009              |             | 0.01 UJ   | 0.01 UJ   | 0.01 U     | 0.01 U     |
| Endosulfan sulfate | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.02 U    | 0.02 U    | 0.02 U     | 0.02 U     |
| Endrin             | UG/L        | 0       | 0%        | 0        | 7          | 1.09E+01           |             | 0.002              |             | 0.02 U    | 0.02 U    | 0.02 UJ    | 0.02 UJ    |
| Endrin aldehyde    | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.02 U    | 0.02 U    | 0.02 U     | 0.02 U     |
| Endrin ketone      | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.009 U   | 0.009 U   | 0.009 U    | 0.009 U    |
| Gamma-BHC/Lindane  | UG/L        | 0       | 0%        | 0        | 7          | 5.17E-02           |             |                    |             | 0.009 U   | 0.009 U   | 0.009 UJ   | 0.009 UJ   |
| Gamma-Chlordane    | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.01 U    | 0.01 U    | 0.01 UJ    | 0.01 UJ    |
| Heptachlor         | UG/L        | 0       | 0%        | 0        | 7          | 1.49E-02           |             | 0.0002             |             | 0.007 U   | 0.007 U   | 0.007 UJ   | 0.007 UJ   |
| Heptachlor epoxide | UG/L        | 0       | 0%        | 0        | 7          | 7.39E-03           |             | 0.0003             |             | 0.008 U   | 0.008 U   | 0.008 UJ   | 0.008 UJ   |
| Methoxychlor       | UG/L        | 0       | 0%        | 0        | 7          | 1.82E+02           |             | 0.03               |             | 0.008 U   | 0.008 U   | 0.008 U    | 0.008 U    |
| Toxaphene          | UG/L        | 0       | 0%        | 0        | 7          | 6.11E-02           |             | 0.000006           |             | 0.12 U    | 0.12 U    | 0.12 U     | 0.12 U     |
| Aroclor-1016       | UG/L        | 0       | 0%        | 0        | 7          | 9.60E-01           |             | 0.000001           |             | 0.24 UJ   | 0.24 UJ   | 0.5 UJ     | 0.5 UJ     |
| Aroclor-1221       | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.000001           |             | 0.08 U    | 0.08 U    | 0.5 U      | 0.5 U      |
| Aroclor-1232       | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.000001           |             | 0.09 UJ   | 0.09 UJ   | 0.5 UJ     | 0.5 UJ     |
| Aroclor-1242       | UG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.08 UJ   | 0.08 UJ   | 0.5 U      | 0.5 U      |
| Aroclor-1248       | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.000001           |             | 0.12 U    | 0.12 U    | 0.5 U      | 0.5 U      |
| Aroclor-1254       | UG/L        | 0       | 0%        | 0        | 7          | 3.36E-02           |             | 0.000001           |             | 0.05 U    | 0.05 U    | 0.5 U      | 0.5 U      |
| Aroclor-1260       | UG/L        | 0       | 0%        | 0        | 7          |                    |             | 0.000001           |             | 0.01 UJ   | 0.01 UJ   | 0.5 UJ     | 0.5 UJ     |
| Metals and Cyanide |             |         |           |          |            |                    |             |                    |             |           |           |            |            |
| Aluminum           | UG/L        | 2050    | 100%      | 7        | 7          | 3.65E+04           |             | 100                | 3           | 119       | 2050      | 45.8       | 46.3       |
| Antimony           | UG/L        | 0       | 0%        | 0        | 7          | 1.46E+01           |             |                    |             | 4.7 U     | 4.7 U     | 3.8 U      | 3.8 U      |
| Arsenic            | UG/L        | 0       | 0%        | 0        | 7          | 4.48E-02           |             | 150                |             | 2.8 U     | 2.8 U     | 4.5 U      | 4.5 U      |
| Barium             | UG/L        | 49.2    | 86%       | 6        | 7          | 2.55E+03           |             |                    |             | 29.3      | 22.5      | 9.9 U      | 9.9 U      |
| Beryllium          | UG/L        | 0.28    | 86%       | 6        | 7          | 7.30E+01           |             | 1100               |             | 0.14      | 0.28      | 0.1 U      | 0.1 U      |
| Cadmium            | UG/L        | 0.54    | 14%       | 1        | 7          | 1.82E+01           |             | 3.84               |             | 0.4 U     | 0.4 U     | 0.8 U      | 0.8 U      |
| Calcium            | UG/L        | 74200   | 100%      | 7        | 7          |                    |             |                    |             | 33500     | 67200     | 18300      | 17700      |
| Chromium           | UG/L        | 6       | 71%       | 5        | 7          |                    |             | 139.45             |             | 1.5       | 6         | 1.4 U      | 1.4 U      |
| Cobalt             | UG/L        | 3       | 29%       | 2        | 7          | 7.30E+02           |             | 5                  |             | 0.6 U     | 3         | 0.7 U      | 0.7 U      |
| Copper             | UG/L        | 11.2    | 86%       | 6        | 7          | 1.46E+03           |             | 17.32              |             | 5         | 11.2      | 3.6 U      | 3.6 U      |
| Cyanide, Amenable  | MG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.01 U    | 0.01 U    | 0.01 U     | 0.01 U     |
| Cyanide, Total     | MG/L        | 0       | 0%        | 0        | 7          |                    |             |                    |             | 0.01 U    | 0.01 U    | 0.01 U     | 0.01 U     |
| Iron               | UG/L        | 3410    | 71%       | 5        | 7          | 1.09E+04           |             | 300                | 2           | 90.1 J    | 3410      | 41.8 J     | 41.8 J     |
| Lead               | UG/L        | 26.3    | 57%       | 4        | 7          |                    |             | 1.4624632          | 4           | 6.6 J     | 26.3      | 3 U        | 3 U        |
| Magnesium          | UG/L        | 11100   | 100%      | 7        | 7          |                    |             |                    |             | 4130      | 7290      | 3660       | 3610       |

Page 9 of 10

# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-121I SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

|                              | Facility   |         |           |          |            |           |             |                    |             | SEAD-121I | SEAD-121I | SEAD-121I  | SEAD-121I  |
|------------------------------|------------|---------|-----------|----------|------------|-----------|-------------|--------------------|-------------|-----------|-----------|------------|------------|
| L                            | ocation ID |         |           |          |            |           |             |                    |             | SW121I-5  | SW121I-6  | SW121I-7   | SW121I-7   |
|                              | Matrix     |         |           |          |            |           |             |                    |             | SW        | SW        | SW         | SW         |
|                              | Sample ID  |         |           |          |            |           |             |                    |             | 121I-3004 | 121I-3006 | 121I-3007  | 121I-3005  |
| Sample Depth to Top          | of Sample  |         |           |          |            |           |             |                    |             | 0         | 0         | 0          | 0          |
| Sample Depth to Bottom       | of Sample  |         |           |          |            |           |             |                    |             | N/A       | N/A       | N/A        | N/A        |
| Sa                           | ample Date |         |           |          |            |           |             |                    |             | 11/6/2002 | 11/6/2002 | 10/26/2002 | 10/26/2002 |
|                              | QC Code    |         |           |          |            | Region IX |             |                    |             | SA        | SA        | SA         | SA         |
|                              | Study ID   |         | Frequency | Number   | Number     | PRG       |             | NYSDEC             |             | PID-RI    | PID-RI    | PID-RI     | PID-RI     |
|                              |            | Maximum | of        | of Times | of         | Criteria  |             | Criteria           |             | 1         | 1         | 1          | 1          |
| Parameter                    | Units      | Value   | Detection | Detected | Analyses 1 | Value 2   | Exceedances | Value <sup>3</sup> | Exceedances | Value (Q) | Value (Q) | Value (Q)  | Value (Q)  |
| Manganese                    | UG/L       | 206     | 100%      | 7        | 7          | 8.76E+02  |             |                    |             | 43        | 206       | 5.3        | 3          |
| Mercury                      | UG/L       | 0       | 0%        | 0        | 7          | 1.09E+01  |             | 0.0007             |             | 0.2 U     | 0.2 U     | 0.2 U      | 0.2 U      |
| Nickel                       | UG/L       | 3.6     | 29%       | 2        | 7          | 7.30E+02  |             | 99.92              |             | 1.8 U     | 3.6       | 2 U        | 2 U        |
| Potassium                    | UG/L       | 4640    | 100%      | 7        | 7          |           |             |                    |             | 3050 J    | 4640 J    | 630        | 660        |
| Selenium                     | UG/L       | 2.5 4   | 14%       | 1        | 7          | 1.82E+02  |             | 4.6                |             | 3 U       | 3 U       | 3.1 J      | 1.8 J      |
| Silver                       | UG/L       | 0       | 0%        | 0        | 7          | 1.82E+02  |             | 0.1                |             | 1 U       | 1 U       | 3.7 U      | 3.7 U      |
| Sodium                       | UG/L       | 38500   | 100%      | 7        | 7          |           |             |                    |             | 3400      | 4810      | 2180       | 2300       |
| Thallium                     | UG/L       | 0       | 0%        | 0        | 7          | 2.41E+00  |             | 8                  |             | 5.4 U     | 5.4 U     | 5.3 U      | 5.3 U      |
| Vanadium                     | UG/L       | 3.9     | 43%       | 3        | 7          | 3.65E+01  |             | 14                 |             | 0.7 U     | 3.9       | 1.4 UJ     | 1.4 UJ     |
| Zinc                         | UG/L       | 190     | 100%      | 7        | 7          | 1.09E+04  |             | 159.25             | 1           | 32.9      | 190       | 14.7 J     | 13.8 J     |
| Other                        |            |         |           |          |            |           |             |                    |             |           |           |            |            |
| Total Petroleum Hydrocarbons | MG/L       | 0       | 0%        | 0        | 7          |           |             |                    |             | 1 U       | 1 U       | 0.412 UJ   | 0.408 UJ   |

#### NOTES:

- 1) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 2) The criteria value source is the Region IX Preliminary Remediation Goals for Tap Water (October 2004)
- 3) Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- 4) The maximum detected concentration was obtained from the average of the sample (121I-3007) and its duplicate (121I-3005).

U = compound was not detected

- J = the reported value is an estimated concentration
- UJ = the compound was not detected; the associated reporting limit is approximate
- R = the data was rejected in the data validating process

#### APPENDIX D

#### SENECA SITE-WIDE BACKGROUND DATA

- D-1
- Background Soil Data Background Groundwater Data D-2

| LOC_ID:  | B-8-91    | B-8-91    | B-8-91     | B-8-91    | B-9-91    |     | B-9-91    |     | B-9-91    | BK-1      | BK-2          |
|--|-----------|-----------|------------|-----------|-----------|-----|-----------|-----|-----------|-----------|---------------|
| OC CODE:   | SA        | SA        | SA         | SA        | SA        |     | SA        |     | SA        | SA        | SA            |
| STUDY ID:  | RI PHASE1 | RI PHASE1 | RI PHASE1  | RI PHASE1 | RI PHASE1 |     | RI PHASE1 |     | RI PHASE1 | RI PHASE1 | RI PHASE1     |
| TOP:   | KITHISET  | KITIIKSEI | RETHROLI   | RITINGET  | RITINGET  |     | RITHESET  |     | ROTHINGET | KITIIIOET | KITIMODI      |
| BOTTOM:  |           |           |            |           |           |     |           |     |           |           |               |
| MATRIX:  | SOIL      | SOIL      | SOIL       | SOIL      | SOIL      |     | SOIL      |     | SOIL      | SOIL      | SOIL          |
| SAMPLE DATE:   | 11/05/91  | 11/05/91  | 11/05/91   | 11/05/91  | 11/05/91  |     | 11/05/91  |     | 11/05/91  | 12/16/92  | 12/16/92      |
| SAMI LE DATE.  | S1105-    | S1105-    | S1105-     | S1105-    | S1105-    |     | S1105-    |     | S1105-    | 12/10/72  | 12/10/72      |
| SAMP ID:   | 24SOIL1   | 25SOIL1   | 26(1)SOIL1 | 27SOIL1   | 28SOIL1   |     | 29SOIL1   |     | 30RESOIL1 | BK-1SOIL3 | BK-2RESOIL3   |
| METALs   | VALUE (Q) | VALUE (Q) | VALUE (Q)  | VALUE (Q) | VALUE     | (Q) | VALUE     | (Q) | VALUE     | (Q) VALUE | (Q) VALUE (Q) |
| Aluminum   | 19200     | 20500     | 17700      | 12700     | 14800     |     | 8880      |     | 7160      | 19400     | 14400         |
| Antimony   | 10.3 UJ   | 8.8 UJ    | 8.2 UJ     | 8.4 UJ    | 9.9       | UJ  | 9.9       | UJ  | 7         | UJ 7.9    | U 7.2 U       |
| Arsenic  | 5.1 J     | 6.1 J     | 6 J        | 4.2 J     | 4.3       | J   | 3.8       | J   | 4.4       | J 3       | 2.7           |
| Barium   | 136 J     | 98.9 J    | 86.7 J     | 56.2 J    | 101       | J   | 110       | J   | 39.9      | J 159     | 106           |
| Beryllium  | 1.4       | 1.2       | 1          | 0.78 J    | 1.1       |     | 0.76      |     | 0.52      |           | 0.81          |
| Cadmium  | 2.6       | 2.9       | 2.4        | 1.9       | 2.3       |     | 1.7       |     | 1.5       | 0.45      | U 0.41 U      |
| Calcium  | 5390      | 4870      | 3560       | 85900     | 45600     |     | 104000    |     | 101000    | 4590      | 22500         |
| Chromium   | 27.4 J    | 30.1 J    | 26.9 J     | 19.8 J    | 22.5      | J   | 13.8      | J   | 11.2      | J 30      | 22.3          |
| Cobalt   | 13.8      | 18.4      | 14         | 14.2      | 13.7      |     | 10.7      |     | 8.1       | 14.4      | 12.3          |
| Copper   | 22.3      | 27.6      | 26         | 16.2      | 22.6      |     | 21.6      |     | 19.3      | 26.9      | 18.8          |
| Cyanide  | 0.6 U     | 0.63 U    | 0.67 U     | 0.58 U    | 0.7       | U   | 0.63      | U   | 0.62      | U 0.57    | U 0.61 U      |
| Iron   | 37200     | 36100     | 32500      | 27400     | 31000     |     | 19600     |     | 17300     | 38600     | 26600         |
| Lead   | 14.5      | 11.4      | 13.6       | 10.1      | 10.8      |     | 10.1      |     | 7.8       | 15.8      | 18.9          |
| Magnesium  | 5850      | 7300      | 6490       | 6720      | 8860      |     | 17000     |     | 12600     | 5980      | 7910          |
| Manganese  | 1130      | 956       | 832        | 926       | 903       |     | 532       |     | 514       | 2380      | 800           |
| Mercury  | 0.09      | 0.06 J    | 0.06 J     | 0.05 J    | 0.08      | J   | 0.04      | J   | 0.05      | J 0.13    | J 0.11        |
| Nickel   | 42.3      | 48.7      | 44.4       | 30.4      | 38.4      |     | 23.8      |     | 19        | 47.7      | 31            |
| Potassium  | 1910      | 2110      | 1760       | 1430      | 1320      |     | 1080      |     | 1050      | 1720      | 1210          |
| Selenium   | 0.17 UJ   | 0.21 UJ   | 0.2 UJ     | 0.61 UJ   | 0.21      | UJ  | 0.65      | UJ  | 0.21      | UJ 0.73   | J 0.94        |
| Silver   | 1.6 U     | 1.3 U     | 1.2 U      | 1.3 U     | 1.5       | U   | 1.5       | U   | 1.1       | U 0.47    | U 0.43 U      |
| Sodium   | 79.2 U    | 67.5 U    | 62.6 U     | 75.3 J    | 84.2      | J   | 112       |     | 116       | J 49.1    | J 61.1 J      |
| Thallium   | 0.47 U    | 0.58 U    | 0.57 U     | 0.34 U    | 0.59      | U   | 0.36      | U   | 0.6       | U 0.42    | U 0.38 U      |
| Vanadium   | 32.2      | 25.4      | 26.4       | 15.7      | 19.7      |     | 19.5      |     | 12.9      | 28        | 22.4          |
| Zinc   | 85.1 J    | 94.2 J    | 85 J       | 75 J      | 126       | J   | 84.3      | J   | 74.8      | J 98.6    | 63.7          |
|  |           |           |            |           |           |     |           |     |           |           |               |
| U = compound was not detected                          |           |           |            |           |           |     |           |     |           |           |               |
| J = the reported value is an estimated                 |           |           |            |           |           |     |           |     |           |           |               |
| concentration  UJ = the compound was not detected; the |           |           |            |           |           |     |           |     |           |           |               |
| associated reporting limit is approximate              |           |           |            |           |           |     |           |     |           |           |               |
| R = the data was rejected in the data                  |           |           |            |           |           |     |           |     |           |           |               |
| validating process                                     |           |           |            |           |           |     |           |     |           |           |               |
| NJ = compound was "tentatively identified"             |           |           |            |           |           |     |           |     |           |           |               |
| and the associated numerical value                     |           |           |            |           |           |     |           |     |           |           |               |
| is approximate   |           |           |            |           |           |     |           |     |           |           |               |

| LOC ID:  | GB35       |     | GB35       |     | GB35      |     | GB36       |     | GB36       |     | MW-36             |     | MW-34      |     | SB24-5    | SB24-5    |
|--|------------|-----|------------|-----|-----------|-----|------------|-----|------------|-----|-------------------|-----|------------|-----|-----------|-----------|
| OC CODE:   | SA         |     | SA         |     | DU        |     | SA         |     | SA         |     | SA                |     | SA         |     | SA        | SA        |
| STUDY ID:  | RI PHASE1  |     | RI PHASE1  |     | RI PHASE1 |     | RI PHASE1  |     | RI PHASE1  |     | RI Phase 1 Step 1 |     | RI PHASE1  |     | ESI       | ESI       |
| TOP:   |            |     |            |     |           |     |            |     |            |     | -1                |     |            |     | -1        | -1        |
| BOTTOM:  |            |     |            |     |           |     |            |     |            |     | -1                |     |            |     | -1        | -1        |
| MATRIX:  | SOIL       |     | SOIL       |     | SOIL      |     | SOIL       |     | SOIL       |     | SOIL              |     | SOIL       |     | SOIL      | SOIL      |
| SAMPLE DATE:   | 01/20/93   |     | 01/20/93   |     | 01/20/93  |     | 01/20/93   |     | 01/20/93   |     | 01/11/93          |     | 11/20/91   |     | 12/02/93  | 12/02/93  |
|  | 0.0.000    |     | 00.20.70   |     | GB35-     |     | 0.0.20.70  |     | 02,20,70   |     |                   |     | S2011121MW |     |           |           |
| SAMP ID:   | GB35-1GRID |     | GB35-2GRID |     | 6DUGRID   |     | GB36-1GRID | (   | GB36-2GRID |     | MW36-3GRID        |     | 34GRID     |     | SB24-5-1  | SB24-5-3  |
| METALs   | VALUE      | (Q) | VALUE      | (Q) | VALUE     | (Q) | VALUE (    | (Q) | VALUE      | (Q) | VALUE             | (Q) | VALUE      | (Q) | VALUE (Q) | VALUE (Q) |
| Aluminum   | 18000      |     | 17600      |     | 16200     |     | 18100      |     | 16200      |     | 12700             |     | 16100      |     | 16200     | 10100     |
| Antimony   | 5.8        | UJ  | 6.8        | J   | 6.3       | J   | 5.9 J      | J   | 5.8        | UJ  | 5.7               | UJ  | 5.7        | J   | 12.5 UJ   | 5.8 UJ    |
| Arsenic  | 6.2        |     | 7.7        |     | 5.3       |     | 4.6        |     | 9.7        |     | 2.9               | J   | 6.3        | U   | 4.2       | 3.3       |
| Barium   | 93.6       |     | 61.7       |     | 61.7      |     | 74.8       |     | 50.8       |     | 46.9              | J   | 67.5       |     | 117       | 58.3      |
| Beryllium  | 0.85       |     | 0.74       |     | 0.77      |     | 0.77       |     | 0.65       |     | 0.59              |     | 0.86       |     | 0.98 J    | 0.48 J    |
| Cadmium  | 0.33       | U   | 0.31       | U   | 0.35      | U   | 0.3        | U   | 0.33       | U   | 0.33              | U   | 2.3        |     | 0.78 U    | 0.36 U    |
| Calcium  | 1590       |     | 17700      |     | 1370      |     | 1660       |     | 22900      |     | 4170              |     | 28600      |     | 4540      | 74200     |
| Chromium   | 23.5       |     | 29.3       |     | 25.1      |     | 24.8       |     | 27.4       |     | 23.3              | J   | 26.6       |     | 24.5      | 16.9      |
| Cobalt   | 9.4        |     | 16.3       |     | 10.3      |     | 20.4       |     | 13.2       |     | 18.6              |     | 17         |     | 16        | 8.2       |
| Copper   | 17.5       |     | 24.5       |     | 17.2      |     | 17.7       |     | 17.5       |     | 19.2              | J   | 32.7       |     | 28.4      | 20.9      |
| Cyanide  | 0.78       | U   | 0.71       | U   | 0.82      | U   | 0.7 U      | U   | 0.68       | U   | 0.56              | U   | 0.54       | U   | 0.6 U     | 0.51 U    |
| Iron   | 25200      |     | 34200      |     | 30800     |     | 26100      |     | 30700      |     | 27500             |     | 35000      |     | 33600     | 21300     |
| Lead   | 14.4       |     | 5.4        |     | 19.1      |     | 12.7       |     | 6.2        |     | 20.2              |     | 11.9       |     | 45.5 J    | 8.7 J     |
| Magnesium  | 3850       |     | 7790       |     | 4490      |     | 4490       |     | 7150       |     | 5750              |     | 6850       |     | 5150      | 12100     |
| Manganese  | 701        |     | 646        |     | 775       |     | 426        |     | 507        |     | 540               |     | 803        |     | 1080      | 400       |
| Mercury  | 0.06       | J   | 0.03       | U   | 0.07      | J   | 0.02 J     | J   | 0.02       | J   | 0.02              | J   | 0.07       | R   | 0.07 JR   | 0.06 JR   |
| Nickel   | 26.3       |     | 48.7       |     | 28.3      |     | 28.3       |     | 42.8       |     | 43.3              | J   | 49.3       | J   | 37.3      | 26.4      |
| Potassium  | 1110       |     | 1110       |     | 975       |     | 1400       |     | 1100       |     | 754               |     | 1290       |     | 1170 J    | 993       |
| Selenium   | 0.23       | UJ  | 0.23       | UJ  | 0.21      | UJ  | 0.2 \      | UJ  | 0.18       | UJ  | 0.19              | UJ  | 0.18       | UJ  | 0.15 UJ   | 0.23 UJ   |
| Silver   | 0.34       | U   | 0.32       | U   | 0.36      | U   | 0.31 [     | U   | 0.34       | U   | 0.34              | U   | 0.87       | J   | 1.6 U     | 0.73 U    |
| Sodium   | 35.6       | J   | 77.5       | J   | 34.6      | J   | 46.6 J     | J   | 97.6       | J   | 31.6              | U   | 55.2       | J   | 50.9 J    | 153 J     |
| Thallium   | 0.55       | U   | 0.54       | U   | 0.5       | U   | 0.46 U     | U   | 0.43       | U   | 0.45              | U   | 0.51       | U   | 0.16 U    | 0.25 U    |
| Vanadium   | 27.1       |     | 22.3       |     | 26.1      |     | 27.8       |     | 19.7       |     | 16.2              | J   | 22.3       |     | 29.9      | 14.4      |
| Zinc   | 55         |     | 83.4       |     | 53.1      |     | 59.2       |     | 74.1       |     | 34.7              | J   | 95.7       |     | 85.7      | 62.8      |
|  |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| U = compound was not detected                          |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| J = the reported value is an estimated                 |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| concentration  UJ = the compound was not detected; the |            |     |            | -   |           |     |            | _   |            |     | -                 |     |            |     |           |           |
| associated reporting limit is approximate              |            | -   |            |     |           |     |            | _   |            |     | +                 |     |            |     |           |           |
| R = the data was rejected in the data                  |            |     |            |     |           |     |            | _   |            |     | +                 |     |            |     |           |           |
| validating process                                     |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| NJ = compound was "tentatively identified"             |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| and the associated numerical value                     |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |
| is approximate   |            |     |            |     |           |     |            |     |            |     |                   |     |            |     |           |           |

| LOC_ID:   | SB24-5    | MW25-1    | MW25-1    | MW25-6    |     | MW25-6    |     | MW25-6    |     | MW25-6    | MW64A-   | MW64A-     | 1    |
|---|-----------|-----------|-----------|-----------|-----|-----------|-----|-----------|-----|-----------|----------|------------|------|
| OC CODE:  | SA        | SA        | SA        | SA        |     | SA        |     | SA        |     | DU        | SA       |            | _    |
| STUDY ID:   | ESI       | ESI       | ESI       | RI ROUND1 |     | RI ROUND1 |     | RI ROUND1 |     | RI ROUND1 | ES       |            |      |
| TOP:  | -1        | 0         | 2         | 0         |     | 4         |     | 6         |     | 0         |          |            | 2    |
| BOTTOM:   | -1        | 2         | 4         | 0.17      |     | 6         |     | 8         |     | 0.17      | 0        | + + +      | 4    |
| MATRIX:   | SOIL      | SOIL      | SOIL      | SOIL      |     | SOIL      |     | SOIL      |     | SOIL      | SOI      |            | ī    |
| SAMPLE DATE:  | 12/02/93  | 12/03/93  | 12/03/93  | 09/25/95  |     | 09/25/95  |     | 09/25/95  |     | 09/25/95  | 04/02/9  |            |      |
|   |           |           |           |           |     |           |     |           |     |           |          |            |      |
| SAMP ID:  | SB24-5-5  | SB25-6-01 | SB25-6-02 | SB25-7-00 |     | SB25-7-03 |     | SB25-7-04 |     | SB25-7-10 | MW64A-1- | 1 MW64A-1- | -2   |
| METALs  | VALUE (Q) | VALUE (Q) | VALUE (Q) | VALUE     | (Q) | VALUE     | (Q) | VALUE     | (Q) | VALUE     | (Q) VALU | E(Q) VALU  | E(Q) |
| Aluminum  | 13700     | 10600     | 7070      | 12500     |     | 8020      |     | 7550      |     | 12500     | 1610     | 1980       | 0    |
| Antimony  | 11.3 UJ   | 4.2 U     | 3 U       | 0.4       |     | 0.42      | UJ  | 0.44      | U   | 0.4       |          |            | 2 UJ |
| Arsenic   | 5         | 8.3       | 4.8       | 4.3       |     | 4.1       |     | 3.4       |     | 4.3       | 7.       | 8.1        | 2    |
| Barium  | 67.2      | 59.1      | 35        | 71.3      |     | 58        |     | 52        |     | 71.3      | 83.      |            |      |
| Beryllium   | 0.62 J    | 0.48 J    | 0.35 J    | 0.56      |     | 0.43      |     | 0.39      |     | 0.56      | 0.6      | 3 J 0.7    | 4 J  |
| Cadmium   | 0.7 U     | 0.41 U    | 0.29 U    | 0.05      | U   | 0.06      | U   | 0.06      | U   | 0.05      | U 0.1    | J 0.0      | 2 U  |
| Calcium   | 49000     | 82500     | 122000    | 47400     | J   | 120000    | J   | 133000    | J   | 47400     | J 721    | 430        | 0    |
| Chromium  | 23.1      | 16.9      | 11.3      | 16.9      | J   | 13.7      | J   | 12.4      | J   | 16.9      | J 2:     | 3 2        | 5    |
| Cobalt  | 12        | 11.2      | 6.6 J     | 8         |     | 8.2       |     | 6.9       |     | 8         | 11.3     | 11.3       | 3    |
| Copper  | 22.2      | 20.2 J    | 12 J      | 15.7      |     | 17.7      |     | 16.4      |     | 15.7      | 25.:     | 5 2        | 1    |
| Cyanide   | 0.57 U    | 0.58 U    | 0.64 U    | 0.44      | U   | 0.57      | U   | 0.51      | U   | 0.444     | U 0.6    | 5 U 0.5    | 6 U  |
| Iron  | 26700     | 21400     | 15800     | 20500     |     | 18900     |     | 15400     |     | 20500     | 2850     | 2800       | 0    |
| Lead  | 7.9 J     | 9.5       | 13.8      | 11.1      |     | 7         |     | 6.5       |     | 11.1      | 21.      | 5 13.      | 6    |
| Magnesium   | 11400     | 19600     | 22800     | 11700     |     | 17400     |     | 20700     |     | 11700     | 548      | 501        | 0    |
| Manganese   | 450       | 722 J     | 610 J     | 452       |     | 735       |     | 402       |     | 452       | 55       | 60-        | 4    |
| Mercury   | 0.04 JR   | 0.03 J    | 0.04 U    | 0.03      |     | 0.02      |     | 0.01      |     | 0.03      | 0.0      | 5 J 0.0    | 3 J  |
| Nickel  | 35.2      | 26.8      | 18        | 22.3      |     | 26.4      |     | 22.4      |     | 22.3      | 32.:     | 28.        | 6    |
| Potassium   | 1660      | 1480      | 1060      | 1110      |     | 1280      |     | 1430      |     | 1110      | 259      | J 226      | 0 J  |
| Selenium  | 0.22 UJ   | 0.97 J    | 0.63 J    | 0.63      | U   | 0.7       | U   | 0.74      | U   | 0.66      | U 0.9    | 5 1.       | 7    |
| Silver  | 1.4 U     | 0.82 U    | 0.59 U    | 0.89      | U   | 0.98      | U   | 1         | U   | 0.92      | U 0.11   | 2 U 0.1    | 4 U  |
| Sodium  | 139 J     | 269 J     | 186 J     | 59.9      |     | 89.1      |     | 110       |     | 57.5      | 27       | 5 U 31.    | 8 U  |
| Thallium  | 0.24 U    | 0.24 UJ   | 0.21 UJ   | 1.2       |     | 1.1       |     | 0.6       | U   | 1.2       | 0.4      | 2 J 0.3    | 2 U  |
| Vanadium  | 19.5      | 18.5      | 12        | 21        |     | 13.4      |     | 13.7      |     | 21        | 27.      | 32.        | 2    |
| Zinc  | 63.2      | 71.6 J    | 40.6 J    | 54.1      |     | 64.9      |     | 65.1      |     | 54.1      | 10-      | 87.        | 1    |
| TY 1 1 1 1 1  |           |           |           |           |     |           |     |           |     |           |          |            |      |
| U = compound was not detected  J = the reported value is an estimated         |           |           |           |           |     |           |     |           |     |           |          |            |      |
| concentration   |           |           |           |           |     |           |     |           |     |           |          |            |      |
| UJ = the compound was not detected; the                                       |           |           |           |           |     |           |     |           |     |           |          |            |      |
| associated reporting limit is approximate                                     |           |           |           |           |     |           |     |           |     |           |          |            |      |
| R = the data was rejected in the data   |           |           |           |           |     |           |     |           |     |           |          |            |      |
| validating process  |           |           |           |           |     |           |     |           |     |           |          |            | _    |
| NJ = compound was "tentatively identified" and the associated numerical value |           |           |           |           |     |           |     |           |     |           |          |            | 1    |
| is approximate  |           |           |           |           |     |           |     |           |     |           |          |            | +    |
| 15 аррголинаю   |           |           |           |           |     |           |     |           |     |           |          | 1 1        |      |

| LOC ID:  | MW64A-1   | MW64B-1           | MW64B-1   | MW64B-1   | MW64B-1    |     | MW67-2   |     | MW67-2   | MW67-2    | MW70-     | 1        |
|--|-----------|-------------------|-----------|-----------|------------|-----|----------|-----|----------|-----------|-----------|----------|
| OC CODE:   | SA SA     | SA                | SA        | SA        | SA         |     | SA       |     | SA       | SA        | SA        |          |
|  | ESI       | ESI               | ESI       | ESI       | ESI        |     |          |     |          | ESI       |           | _        |
| STUDY ID:  | 4 ESI     | 0                 | ES1 4     |           | ESI        |     | ESI      |     | ESI      | ESI       |           | 0        |
| TOP:   | 7         |                   |           | 6         | 6          |     | U        |     | 2        | 4         | ,         | <u> </u> |
| BOTTOM:  | 6         | 0.2               | 6         | 8         | - 8        |     | 0.2      |     | 4        | 5         | 0.2       | _        |
| MATRIX:  | SOIL      | SOIL              | SOIL      | SOIL      | SOIL       |     | SOIL     |     | SOIL     | SOIL      | SOI       |          |
| SAMPLE DATE:   | 04/02/94  | 05/13/94          | 05/13/94  | 05/13/94  | 05/13/94   |     | 03/30/94 |     | 03/30/94 | 03/30/94  | 05/11/94  | 4        |
| SAMP ID:   | MW64A-1-3 | MW64B-1-1         | MW64B-1-2 | MW64B-1-3 | MW64B-1-04 |     | MW67-2-1 |     | MW67-2-2 | MW67-2-3  | MW70-1-   | -1       |
| METALs   | VALUE (Q) | VALUE (Q)         | VALUE (Q) | VALUE (Q) | VALUE      | (Q) | VALUE    | (Q) | VALUE    | (Q) VALUE | (Q) VALUI | E(Q)     |
| Aluminum   | 12600     | 13400             | 8870      | 7620      | 7620       |     | 16700    |     | 14900    | 9460      | 12200     | 0        |
| Antimony   | 0.2 UJ    | 0.3 J             | 0.15 UJ   | 0.15 UJ   | 0.15       | UJ  | 0.27     | J   | 0.22     | J 0.2     | UJ 0.23   | 3 UJ     |
| Arsenic  | 5         | 5.5               | 4.3       | 5.5       | 5.5        |     | 4.4      |     | 4.5      | 4.2       | 5.4       | .4       |
| Barium   | 62.3      | 75.5              | 70.8      | 76.7      | 76.7       |     | 114      |     | 105      | 80.8      | 67.5      | .5       |
| Beryllium  | 0.53 J    | 0.56 J            | 0.43 J    | 0.37 J    | 0.37       | J   | 0.67     | J   | 0.61     | J 0.4     | J 0.44    | 4 J      |
| Cadmium  | 0.12 J    | 0.63 J            | 0.64 J    | 0.54 J    | 0.54       | J   | 0.2      | J   | 0.11     | J 0.12    | J 0.57    | 7 J      |
| Calcium  | 72400     | 5530              | 70000     | 75900     | 75900      |     | 3580     |     | 79000    | 77800     | 3600      | 0        |
| Chromium   | 19        | 17.5              | 14.1      | 13.5      | 13.5       |     | 19.5     |     | 22.5     | 14.8      | 13.7      | .7       |
| Cobalt   | 9.1 J     | 7.2 J             | 10        | 7.4 J     | 7.4        | J   | 7.5      | J   | 10.4     |           | J 5.5     | .5 J     |
| Copper   | 23.7      | 18.9              | 20.2      | 17.6      | 17.6       |     | 16.5     |     | 20.3     | 20.5      | 12.4      | _        |
| Cyanide  | 0.55 U    | 0.6 U             | 0.5 U     | 0.48 U    | 0.48       | U   | 0.64     | U   | 0.5      |           | U         |          |
| Iron   | 22600     | 20900             | 18400     | 17100     | 17100      |     | 20500    |     | 24400    | 18700     | 17700     | 10       |
| Lead   | 15.4      | 21.4              | 8.8       | 8.3       | 8.3        |     | 17.5     |     | 9.3      | 8.5       |           | _        |
| Magnesium  | 14800     | 3720              | 18900     | 21500     | 21500      |     |          |     |          |           | 2830      | _        |
| Manganese  | 402       | 207               | 434       | 389       | 389        |     | 438      |     | 528      | 411       | 233       | _        |
| Mercury  | 0.02 J    | 0.05 J            | 0.02 J    | 0.01 U    |            | II  | 0.04     |     | 0.01     |           |           | 1 J      |
| Nickel   | 26.7      | 19.8              | 28.2      | 22.6      | 22.6       |     | 18.7     |     | 32.3     | 25.9      | 12.3      | _        |
| Potassium  | 2700 J    | 1700              | 1630      | 1650      | 1650       |     | 1780     | T   | 3160     |           |           |          |
| Selenium   | 0.34 U    | 0.99 J            | 0.26 U    | 0.57 J    | 0.57       | т   | 0.81     | ,   | 0.36     |           |           | 1 I      |
| Silver   | 0.14 U    | 0.99 J<br>0.16 UJ | 0.20 U    | 0.37 J    | 0.37       |     | 0.81     | TT  | 0.36     |           |           | 1 3      |
| Sodium   | 92.1 J    | 35.9 U            | 96.8 J    | 79.6 J    | 79.6       | _   | 25.1     |     | 112      |           |           | 4 U      |
|  | 0.32 U    | 0.41 J            | 0.24 U    | 0.24 U    | 0.24       | _   | 0.48     |     | 0.34     |           |           | 40       |
| Thallium<br>Vanadium   | 22.8      | 23.3              | 14.8      | 14.2      | 14.2       | U   | 28.2     | J   | 24.8     | 16.5      | 23.3      | 2        |
| Zinc   | 64.9      | 72.2              | 59        | 45.6      | 45.600     |     | 64.8     |     | 62       | 60.1      | 55.4      |          |
| Zilic  | 04.9      | 12.2              | 39        | 43.0      | 43.000     |     | 04.6     |     | 02       | 00.1      | 33.2      | 4        |
| U = compound was not detected                                  |           |                   |           |           |            |     |          |     |          |           |           |          |
| J = the reported value is an estimated                         |           |                   |           |           |            |     |          |     |          |           |           |          |
| concentration  |           |                   |           |           |            |     |          |     |          |           |           |          |
| UJ = the compound was not detected; the                        |           |                   |           |           |            |     |          |     |          |           |           |          |
| associated reporting limit is approximate                      |           |                   |           |           |            |     |          |     |          |           |           |          |
| R = the data was rejected in the data                          |           |                   |           |           |            | _   |          |     |          |           |           | +        |
| validating process  NJ = compound was "tentatively identified" |           |                   |           |           |            |     |          |     |          |           |           | +-       |
| and the associated numerical value                             |           |                   |           |           | +          |     |          |     |          |           |           | +        |
| is approximate   |           |                   |           |           |            |     |          |     |          |           |           | +        |

| LOC ID:   | ) (TV/70 1 | ) W/70 1  | GD11.0           | anu a     | CD 11 2  |     | GD 10 1         | ania i   | GD12.1    | 200010        |
|---|------------|-----------|------------------|-----------|----------|-----|-----------------|----------|-----------|---------------|
|   | MW70-1     | MW70-1    | SB11-3           | SB11-3    | SB11-3   |     | SB13-1          | SB13-1   | SB13-1    | MW13-6        |
| QC CODE:  | SA         | SA        | SA               | SA        | SA       |     | SA              | SA       |           | SA            |
| STUDY ID:   | ESI 2      | ESI       | ESI              | ESI       | ESI      |     | ESI             | ESI      |           |               |
| TOP:  |            | 4         | 0                | 2         | 10       |     | 0               |          | 6         | 0             |
| BOTTOM:   | 4          | 6         | 2                | 4         | 12       |     | 2               |          | 8         | 2             |
| MATRIX:   | SOIL       | SOIL      | SOIL             | SOIL      | SOIL     |     | SOIL            | SOIL     | SOIL      | SOIL          |
| SAMPLE DATE:  | 05/11/94   | 05/11/94  | 11/02/93         | 11/02/93  | 11/03/93 |     | 12/08/93        |          | 12/08/93  | 12/15/93      |
| SAMP ID:  | MW70-1-2   | MW70-1-3  | SB11-3-1         | SB11-3-2  | SB11-3-6 |     | SB13-1-1        | SB13-1-2 | SB13-1-3  | SB13-6-1      |
| METALs  | VALUE (Q)  | VALUE (Q) | VALUE (Q)        | VALUE (Q) | VALUE    | (Q) | VALUE (Ç        | ) VALUE  | (Q) VALUE | (Q) VALUE (Q) |
| Aluminum  | 9480       | 11000     | 17600            | 6330      | 10900    |     | 18300           | 8250     | 11700     | 16000         |
| Antimony  | 0.21 UJ    | 0.19 UJ   | 10.8 UJ          | 8 UJ      | 7.6      | UJ  | 5.1 J           | 3.7      | UJ 2.8    | UJ 3.2 UJ     |
| Arsenic   | 4.1        | 5.7       | 5.6 R            | 3.4 R     | 6        | R   | 7               | 6.2      | 5.7       | 4.6           |
| Barium  | 56.6       | 79.9      | 113              | 57.4      | 62.7     |     | 106             | 88.1     | 33.9      | 103           |
| Beryllium   | 0.41 J     | 0.54 J    | 0.85 J           | 0.34 J    | 0.47     | J   | 0.92 J          | 0.42     | J 0.54    | J 0.92        |
| Cadmium   | 0.43 J     | 0.8 J     | 0.67 U           | 0.5 U     | 0.48     | U   | 0.45 U          | 0.36     | U 0.27    | U 0.31 U      |
| Calcium   | 51600      | 48600     | 4950             | 91300     | 48600    |     | 3570            | 87700    |           | 5140          |
| Chromium  | 14.7       | 17.8      | 24               | 11.1      | 18.6     |     | 29.4            | 13.3     |           | 21.5          |
| Cobalt  | 7.1 J      | 21        | 11.3             | 6.5 J     | 10.1     |     | 12              | 7.2      |           | 10.6          |
| Copper  | 19.7       | 33.5      | 20               | 12.2      | 21.7     |     | 11.6            | 18.4     |           | 16            |
| Cyanide   | 17.7       | 55.5      | 0.57 U           | 0.47 U    | 0.53     | U   | 0.61 U          | 0.5      |           |               |
| Iron  | 16000      | 26400     | 27200            | 13200     | 28300    |     | 32500           | 17400    |           |               |
| Lead  | 9.1        | 13.6      | 27.9             | 11.4      | 10.1     |     | 15 R            |          | R 11.7    |               |
| Magnesium   | 13600      | 7980      | 4160             | 12900     | 10100    |     | 5890            | 20800    |           | 3750          |
| Manganese   | 470        | 1040      | 674              | 356       | 434      |     | 451             | 517      |           | 934           |
| Mercury   | 0.03 J     | 0.02 J    | 0.05 J           | 0.04 U    | 0.03     | TT  | 0.03 J          | 0.07     |           |               |
| Nickel  | 17.6       | 52.4      | 28.3             | 16.7      | 29.5     | U   | 34.9            | 24       |           | 22.7          |
| Potassium   | 1590       | 1350      | 2110             | 1110      | 1230     |     | 2190            | 1390     |           |               |
|   | 0.64 J     | 0.32 U    | 0.24 J           |           | 0.21     | *** | 0.26 J          | 0.56     |           |               |
| Selenium  | 0.64 J     | 0.32 U    | 0.24 J<br>1.4 UJ | 0.13 UJ   | 0.21     |     | 0.26 J<br>0.9 U | 0.56     |           |               |
| Silver  | 10 c x     | 1.55 7    |                  |           |          |     |                 |          |           |               |
| Sodium  | 126 J      | 165 J     | 66.3 J           | 136 J     | 146      |     | 80.6 J          | 155      |           |               |
| Thallium  | 1= 2       |           | 0.19 U           | 1.5 U     | 0.23     | U   | 0.43 J          | 0.43     |           |               |
| Vanadium  | 17.2       | 17.6      | 31.8             | 13.3      | 17       | D   | 32.7            | 13.3     |           | 29.9          |
| Zinc  | 42.4       | 116       | 83.2 R           | 65 R      | 77.3     | K   | 81.9            | 56.2     | 45.8      | 62.5          |
| U = compound was not detected   |            |           |                  |           |          |     |                 |          |           |               |
| J = the reported value is an estimated  |            |           |                  |           |          |     |                 |          |           |               |
| concentration   |            |           |                  |           |          |     |                 |          |           |               |
| UJ = the compound was not detected; the                                       |            |           |                  |           |          |     |                 |          |           |               |
| associated reporting limit is approximate                                     |            |           |                  |           |          |     |                 |          |           |               |
| R = the data was rejected in the data   |            |           |                  |           |          |     |                 |          |           |               |
| validating process  |            |           |                  |           |          |     |                 |          |           |               |
| NJ = compound was "tentatively identified" and the associated numerical value |            |           |                  |           |          |     |                 |          |           |               |
| is approximate  |            |           |                  |           |          |     |                 |          |           |               |
| is approximate  |            |           |                  |           |          |     |                 |          |           |               |

| LOC_ID:   | MW13-6    | MW13-6    | SB17-1    | SB17-1    | SB17-1   |     | SB26-1   |     | SB26-1   | SB4-1     | SB4-1     |     |
|---|-----------|-----------|-----------|-----------|----------|-----|----------|-----|----------|-----------|-----------|-----|
| QC CODE:  | SA        | SA        | SA        | SA        | SA       |     | SA       |     | SA       |           | DU        |     |
| STUDY ID:   | ESI       | ESI       | ESI       | ESI       | ESI      |     | ESI      |     | ESI      |           |           |     |
| TOP:  | 4         | 6         | 0         | 2         | 4        |     | 0        |     | 2        |           | 0         |     |
| BOTTOM:   | 6         | 8         | 2         | 4         | 6        |     | 2        |     | 4        | _         | 2         |     |
| MATRIX:   | SOIL      | SOIL      | SOIL      | SOIL      | SOIL     |     | SOIL     |     | SOIL     | SOIL      | SOIL      |     |
| SAMPLE DATE:  | 12/15/93  | 12/15/93  | 12/01/93  | 12/01/93  | 12/01/93 |     | 11/17/93 |     | 11/17/93 | 12/06/93  | 12/06/93  |     |
| SAMP ID:  | SB13-6-3  | SB13-6-4  | SB17-1-1  | SB17-1-2  | SB17-1-3 |     | SB26-1-1 |     | SB26-1-2 | SB4-1-1   | SB4-1-10  |     |
| METALs  | VALUE (Q) | VALUE (Q) | VALUE (Q) | VALUE (Q) | VALUE    | (Q) | VALUE    | (Q) | VALUE    | (Q) VALUE | (Q) VALUE | (Q) |
| Aluminum  | 13500     | 10200     | 13700     | 18100     | 8700     |     | 5560     |     | 9040     | 14800     | 21000     |     |
| Antimony  | 2.5 UJ    | 2.9 UJ    | 11.7 UJ   | 11.8 UJ   | 9        | UJ  | 7.3      | UJ  | 6.7      | UJ 4.8    | UJ 3.8    | UJ  |
| Arsenic   | 2.7       | 2.3       | 4.3       | 5.2       | 3.4      |     | 3.2      |     | 5.3      | 6.2       | 4.2       |     |
| Barium  | 60.4      | 56.8      | 107       | 114       | 59.4     |     | 73.2     |     | 43.7     | 72        | 97.7      |     |
| Beryllium   | 0.71      | 0.58 J    | 0.7 J     | 0.9 J     | 0.42     | J   | 0.35     | J   | 0.41     | J 0.73    | J 0.64    | J   |
| Cadmium   | 0.25 U    | 0.28 U    | 0.73 U    | 0.74 U    | 0.56     | U   | 0.46     | U   | 0.42     | U 0.47    | U 0.37    | U   |
| Calcium   | 31800     | 45200     | 2870      | 20900     | 72800    |     | 293000   |     | 47300    | 4280      | 2460      |     |
| Chromium  | 23.5      | 17.8      | 17.6      | 25.1      | 13.9     |     | 10.3     |     | 15.7     | 23.2      | 27.9      |     |
| Cobalt  | 15        | 11.3      | 9.9 J     | 13.3      | 8.8      |     | 5.9      | J   | 9.5      | 11.3      | 5.9       | J   |
| Copper  | 27.4      | 14.5      | 46.4      | 26.9      | 20       | _   | 9.7      |     | 14.3     | 14.1      | 15.1      |     |
| Cyanide   | 0.53 U    | 0.51 U    | 0 NA      | 0 NA      | 0        | NA  | 0.48     | U   | 0.57     | U 0.52    | U 0.53    | U   |
| Iron  | 26900     | 20700     | 25100     | 29900     | 18800    |     | 8770     |     | 19100    | 27500     | 19500     |     |
| Lead  | 11.6      | 11.7      | 266       | 11.4 J    | 7.5      | J   | 6.33     |     | 8.5      | 17.7      | J 9.8     | J   |
| Magnesium   | 6640      | 5220      | 3330      | 8490      | 18100    |     | 29100    |     | 9160     | 4270      | 4460      |     |
| Manganese   | 508       | 556       | 547       | 487       | 391      |     | 309      |     | 551      | 615       | JR 119    | JR  |
| Mercury   | 0.01 U    | 0.01 U    | 0.05 J    | 0.06 J    | 0.03     | UJ  | 0.02     | U   | 0.02     | U 0.05    | J 0.04    | J   |
| Nickel  | 41.9      | 33        | 19.1      | 42        | 25.2     |     | 31.6     | R   | 23.9     |           | 25.1      |     |
| Potassium   | 1120      | 1000      | 628 J     | 1560      | 1090     |     | 1710     |     | 901      | 1250      |           |     |
| Selenium  | 0.11 J    | 0.24 J    | 0.25 UJ   | 0.24 UJ   | 0.14     | UJ  | 0.13     | UJ  | 0.26     |           |           | J   |
| Silver  | 0.49 U    | 0.56 U    | 1.5 U     | 1.5 U     | 1.1      |     | 0.92     |     | 0.85     |           |           |     |
| Sodium  | 116 J     | 141 J     | 46.2 J    | 74.6 J    | 137      | J   | 192      | J   | 108      |           |           | _   |
| Thallium  | 0.14 U    | 0.23 U    | 0.28 UJ   | 0.26 UJ   | 0.15     |     | 0.73     | _   | 0.17     |           |           | _   |
| Vanadium  | 18.5      | 13.8      | 23.1      | 27        | 13.9     |     | 12.7     |     | 14.4     |           | 31        |     |
| Zinc  | 64.7      | 39.3      | 93.4      | 80.2      | 57.1     |     | 283      | R   | 90.6     |           | 72.1      |     |
|   |           |           |           |           |          |     |          |     |          |           |           |     |
| U = compound was not detected   |           |           |           |           |          |     |          |     |          |           |           |     |
| J = the reported value is an estimated  |           |           |           |           |          |     |          |     |          |           |           |     |
| concentration   |           |           |           |           |          |     |          |     |          |           |           |     |
| UJ = the compound was not detected; the associated reporting limit is approximate |           |           |           |           |          |     |          |     |          |           |           |     |
| R = the data was rejected in the data   |           |           |           |           |          |     |          |     |          |           |           |     |
| validating process  |           |           |           |           |          |     |          |     |          |           |           |     |
| NJ = compound was "tentatively identified"  |           |           |           |           |          |     |          |     |          |           |           |     |
| and the associated numerical value  |           |           |           |           |          |     |          |     |          |           |           |     |
| is approximate  |           |           |           |           |          |     |          |     |          |           |           |     |

| LOC_ID:  | SB4-1    |       | SB4-1          |         | TP57-11        |     |
|--|----------|-------|----------------|---------|----------------|-----|
| QC CODE:   | SA       |       | SA             |         | SA             |     |
| STUDY ID:  | ESI      |       | ESI            |         | ESI            |     |
| TOP:   | 4        |       | 8              |         | 3              |     |
| BOTTOM:  | 6        |       | 10             |         | 3              |     |
| MATRIX:  | SOIL     |       | SOIL           |         | SOIL           |     |
| SAMPLE DATE:   | 12/06/93 |       | 12/06/93       |         | 11/08/93       |     |
| GAAME.   | CD 4 1 2 |       | GD4 1 2        |         | TD57 11        |     |
| SAMP ID:   | SB4-1-2  | (0)   | SB4-1-3        |         | TP57-11        | (0) |
| METALs<br>Aluminum   | VALUE    | (Q)   | VALUE<br>19200 | (Q)     | VALUE<br>14600 | (Q) |
|  | 15300    | T 1 T |                | * * * * |                | *** |
| Antimony<br>Arsenic  | 3.9      | UJ    | 2.8            | UJ      | 11.3<br>5.9    | UJ  |
|  |          | ·     |                |         |                |     |
| Barium   | 40.4     |       | 81.2           |         | 120            | T   |
| Beryllium  | 0.74     | _     | -              | * *     | 0.81           | _   |
| Cadmium  | 0.49     | U     | 0.27           | U       | 0.71           | U   |
| Calcium  | 30900    |       | 14400          |         | 22300          |     |
| Chromium   | 27.6     |       | 32.7           |         | 20.1           |     |
| Cobalt   | 16.5     |       | 29.1           |         | 8.8            | J   |
| Copper   | 62.8     | * *   | 21.6           | * *     | 21.7           | * * |
| Cyanide  | 0.53     | U     | 0.47           | U       | 0.54           | U   |
| Iron   | 34300    |       | 37900          |         | 24900          |     |
| Lead   | 7.5      | J     | 9.1            | J       | 11.3           |     |
| Magnesium  | 7130     | n     | 8040           | D       | 5360           |     |
| Manganese  | 337      |       | 795            | _       | 329            |     |
| Mercury  | 0.04     | J     | 0.04           | J       | 0.04           | J   |
| Nickel   | 47.6     |       | 62.3           |         | 25.7           |     |
| Potassium  | 1300     |       | 2030           |         | 1430           |     |
| Selenium   | 0.09     | _     | 0.14           | _       | 0.46           |     |
| Silver   | 0.98     | _     | 0.64           | _       | 1.4            | _   |
| Sodium   | 105      | _     | 91.6           |         | 93             | _   |
| Thallium   | 0.16     | U     | 0.24           | U       | 0.17           | U   |
| Vanadium   | 22.2     |       | 29.3           |         | 27.8           |     |
| Zinc   | 102      |       | 115            |         | 57.9           |     |
| II – compound was not detected   |          |       |                |         |                |     |
| U = compound was not detected  J = the reported value is an estimated            |          | _     |                |         |                |     |
| concentration  |          |       |                |         | +              |     |
| UJ = the compound was not detected; the  |          |       |                |         | 1              |     |
| associated reporting limit is approximate  |          |       |                |         |                |     |
| R = the data was rejected in the data  |          |       |                |         |                |     |
| validating process   |          |       |                |         |                |     |
| NJ = compound was "tentatively identified"<br>and the associated numerical value |          |       |                |         |                |     |
| is approximate   |          |       |                |         |                |     |
| 13 аррголинате   |          |       | 1              |         |                |     |

## TABLE D-2 BACKGROUND GROUNDWATER DATA SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

| STUDY ID:                             |      | RI PHASE1   |    | 3093        | RI PHASE1   |    | ESI         | ESI    |          |
|---------------------------------------|------|-------------|----|-------------|-------------|----|-------------|--------|----------|
| LOC ID:                               |      | MW-21       |    | MW-35       | MW-35       |    | MW11-1      | MW1    | 3-1      |
| QC CODE:                              |      | SA          |    | SA          | SA          |    | SA          | SA     | J 1      |
| SAMP. DETH TOP:                       |      | NONE        |    | NONE        | NONE        |    | NONE        | NON    | E        |
| SAMP. DEPTH BOT:                      |      | NONE        |    | NONE        | NONE        |    | NONE        | NON    |          |
| MATRIX:                               |      | GROUNDWATER |    | GROUNDWATER | GROUNDWATER |    | GROUNDWATER |        | UNDWATER |
| SAMP. DATE:                           |      | 8-Jan-92    |    | NONE        | 8-Jan-92    |    | 18-Jan-94   | - Onto | 3-Feb-94 |
| SAMP ID:                              |      | MW-21GW     |    | MW35OB3Q93M | MW-35GW     |    | MW11-1-1    | MW1    |          |
| PARAMETER                             | UNIT | VALUE       | 0  | VALUE Q     | VALUE       | 0  | VALUE       |        | VALUE O  |
| METALS                                |      |             | _  |             | -           |    |             |        |          |
| Aluminum                              | UG/L | 1880        | J  | 207         | 7550        | J  | 53.7        | J      | 42400    |
| Antimony                              | UG/L | 55.9        |    | 16.8 U      | 55.5        |    | 21.4        |        | 33.9 J   |
| Arsenic                               | UG/L | 3.5         |    | 1 B         | 3.5         |    | 0.8         | U      | 9.3 J    |
| Barium                                | UG/L | 47.5        |    | 97.3 B      | 103         | J  | 25.2        |        | 337      |
| Beryllium                             | UG/L | 1.6         |    | 0.3 U       | 1.8         | R  | 0.4         | U      | 2.2 J    |
| Cadmium                               | UG/L | 2.9         | U  | 2.4 U       | 2.9         | U  | 2.1         | U      | 2.1 U    |
| Calcium                               | UG/L | 94100       |    | 108000      | 94700       |    | 97500       |        | 181000   |
| Chromium                              | UG/L | 6.2         | U  | 3.3 U       | 15.3        | R  | 2.6         | U      | 69.4     |
| Cobalt                                | UG/L | 20          | U  | 2.7 U       | 19.9        |    | 4.4         | U      | 34.6 J   |
| Copper                                | UG/L | 14.5        |    | 2.1 U       | 14.4        | U  | 3.1         |        | 23.3 J   |
| Cyanide                               | UG/L | 10          | UJ | 2.8 B       | 10          | UJ | 5           | U      | 5 U      |
| Iron                                  | UG/L | 2720        |    | 321         | 10500       |    | 41.4        | J      | 69400    |
| Lead                                  | UG/L | 1.8         | J  | 2.8 B       | 3.3         |    | 1.1         | J      | 34.8     |
| Magnesium                             | UG/L | 12200       |    | 15600       | 14600       |    | 29700       |        | 50300    |
| Manganese                             | UG/L | 232         | J  | 23.4        | 557         | J  | 278         |        | 1120     |
| Mercury                               | UG/L | 0.15        | R  | 0.1 U       | 0.18        | R  | 0.04        | U      | 0.05 J   |
| Nickel                                | UG/L | 16          | U  | 8.3 U       | 15.9        | U  | 4           | U      | 99.8     |
| Potassium                             | UG/L | 3050        | J  | 1400 B      | 4180        | J  | 7100        |        | 10100    |
| Selenium                              | UG/L | 1           | U  | 1.2 B       | 1.1         | J  | 0.7         | U      | 3.6 J    |
| Silver                                | UG/L | 9.1         | U  | 2.6 U       | 9           | U  | 4.2         | U      | 4.2 U    |
| Sodium                                | UG/L | 18400       |    | 13400       | 44100       |    | 4860        | J      | 9350     |
| Thallium                              | UG/L | 3.2         | U  | 1.2 U       | 3.2         | U  | 1.2         |        | 1.2 U    |
| Vanadium                              | UG/L | 30.6        | U  | 3 U         | 30.3        | U  | 3.7         | U      | 70.8     |
| Zinc                                  | UG/L | 15.1        | R  | 72.7        | 58.2        |    | 21.4        |        | 143      |
|                                       |      |             |    |             |             |    |             |        |          |
| U = compound was not detected         |      |             |    |             |             |    |             |        |          |
| J = the reported value is an estimate | d    |             |    |             |             |    |             |        |          |
| concentration                         |      |             |    |             |             |    |             |        |          |
| UJ = the compound was not detected    |      |             |    |             |             |    |             |        |          |
| associated reporting limit is appr    |      |             |    |             |             |    |             |        |          |
| R = the data was rejected in the data |      |             |    |             |             |    |             |        |          |
| validating process                    |      |             |    |             |             |    |             |        |          |
| NJ = compound was "tentatively ide    |      |             |    |             |             |    |             |        |          |
| and the associated numerical va       | lue  |             |    |             |             |    |             |        |          |
| is approximate                        |      |             |    |             |             |    |             |        |          |

| STUDY ID:                              |         | ESI         |   | RI ROUND1   |   | RI ROUND2   |    | RI ROUND1   |   | RI ROUND2   | ٦      |
|--|---------|-------------|---|-------------|---|-------------|----|-------------|---|-------------|--------|
| LOC ID:                                |         | MW13-4      |   | MW16-1      |   | MW16-1      |    | MW17-1      |   | MW17-1      | ┪      |
| QC CODE:                               |         | SA          |   | SA          |   | SA          |    | SA          |   | SA          | ┪      |
| SAMP. DETH TOP:                        |         | NONE        |   | 3.3         |   | 731.5       |    | 3.4         |   | 731.1       | ┪      |
| SAMP. DEPTH BOT:                       |         | NONE        |   | 5.3         |   | 728.4       |    | 7.4         |   | 727.1       | ┪      |
| MATRIX:                                |         | GROUNDWATER |   | GROUNDWATER |   | GROUNDWATER |    | GROUNDWATER |   | GROUNDWATER | ┨      |
| SAMP. DATE:                            |         | 4-Feb-94    |   | 27-Aug-96   |   | 7-Dec-96    |    | 29-Aug-96   |   | 11-Dec-96   | ┪      |
| SAMP ID:                               |         | MW13-4-1    |   | 16101       |   | 16152       |    | 16108       |   | 16171       | ┪      |
| PARAMETER                              | UNIT    | VALUE       | 0 | VALUE       | 0 | VALUE       | 0  | VALUE       | 0 | VALUE Q     | ┪      |
| METALS                                 |         |             |   |             |   |             |    |             |   |             | ヿ      |
| Aluminum                               | UG/L    | 5540        |   | 1850        |   | 143         | U  | 90.4        |   | 386         | 1      |
| Antimony                               | UG/L    | 31.5        | J | 2           | U | 3           | U  | 2           | U | 3 U         | 7      |
| Arsenic                                | UG/L    | 1.4         | U | 2.7         | U | 4.4         | U  | 2.7         | U | 4.4 U       | 7      |
| Barium                                 | UG/L    | 71.2        | J | 74.2        |   | 48.2        | U  | 85          |   | 90.4 U      | ٦      |
| Beryllium                              | UG/L    | 0.4         | U | 0.23        |   | 0.2         | U  | 0.26        |   | 0.2 U       | 1      |
| Cadmium                                | UG/L    | 2.1         | U | 0.3         | U | 0.6         | U  | 0.3         | U | 0.6 U       | 7      |
| Calcium                                | UG/L    | 182000      |   | 157000      |   | 116000      |    | 108000      |   | 104000      | ٦      |
| Chromium                               | UG/L    | 9.9         | J | 2.7         |   | 1           | U  |             | U | 1 U         | 7      |
| Cobalt                                 | UG/L    | 6.7         | J | 2.1         |   | 1.3         | U  | 1.2         | U | 2 U         | ٦      |
| Copper                                 | UG/L    | 3.3         | J | 4.9         |   | 1.9         | U  | 3.1         |   | 1.1 U       | ٦      |
| Cyanide                                | UG/L    | 5           | U | 5           | U | 5           | UJ | 5           | U | 5 UJ        | 7      |
| Iron                                   | UG/L    | 8010        |   | 2400        |   | 296         |    | 119         |   | 572 J       | 7      |
| Lead                                   | UG/L    | 3.1         |   | 1.7         | U | 1.5         | U  | 1.7         | U | 1.5 U       | 7      |
| Magnesium                              | UG/L    | 44900       |   | 23300       |   | 17600       |    | 22600       |   | 22900       | $\Box$ |
| Manganese                              | UG/L    | 299         |   | 210         |   | 64.2        |    | 21.3        |   | 9.7 U       | $\Box$ |
| Mercury                                | UG/L    | 0.04        |   | 0.1         | U | 0.1         |    | 0.1         | U | 0.1 U       |        |
| Nickel                                 | UG/L    | 17.5        |   | 4.7         |   | 2.5         |    | 1.8         |   | 2.5 U       |        |
| Potassium                              | UG/L    | 4460        |   | 1670        |   | 998         |    | 472         |   | 843 U       | ╝      |
| Selenium                               | UG/L    | 1.2         |   | 2.4         |   | 4.7         |    | 2.4         |   | 4.7 UJ      |        |
| Silver                                 | UG/L    | 4.2         | U | 1.3         | U | 1.5         |    | 1.3         | U | 1.5 U       |        |
| Sodium                                 | UG/L    | 9340        |   | 8750        |   | 3870        |    | 9290        |   | 8190        |        |
| Thallium                               | UG/L    | 1.2         |   | 4.2         | U | 5.9         |    | 4.4         |   | 4.1 U       |        |
| Vanadium                               | UG/L    | 8.8         | J | 3.3         |   | 1.6         |    | 1.2         |   | 1.6 U       |        |
| Zinc                                   | UG/L    | 138         |   | 15.6        | R | 5.8         | U  | 2.5         | R | 14.4 U      | _      |
|  |         |             |   |             |   |             |    |             |   |             | _      |
| U = compound was not detected          |         |             |   |             |   |             |    |             |   |             | 4      |
| J = the reported value is an estimated |         |             |   |             |   |             |    |             |   |             | 4      |
| concentration                          |         |             |   |             |   |             |    |             |   |             | 4      |
| UJ = the compound was not detected     |         |             |   |             |   |             |    |             |   |             | 4      |
| associated reporting limit is appre    | oximate |             |   |             |   |             |    |             |   |             | 4      |
| R = the data was rejected in the data  |         |             |   |             |   |             |    |             |   |             | 4      |
| validating process                     | 101 411 |             |   |             |   |             |    |             |   |             | 4      |
| NJ = compound was "tentatively iden    |         |             |   |             |   |             |    |             |   |             | 4      |
| and the associated numerical val       | ue      |             |   |             |   |             |    |             |   |             | _      |
| is approximate                         |         |             |   |             |   |             |    |             |   |             |        |

| STUDY ID:                              |         | RI ROUND1   | RI ROUND2   | RI ROUND1   |   | RI ROUND2   | ESI         | RI ROUND1   |
|--|---------|-------------|-------------|-------------|---|-------------|-------------|-------------|
| LOC ID:                                |         | MW25-1      | MW25-1      | MW25-6      |   | MW25-6      | MW26-1      | MW26-1      |
| QC CODE:                               |         | SA          | SA          | SA          |   | SA          | SA          | SA          |
| SAMP. DETH TOP:                        |         | NONE        | NONE        | NONE        |   | NONE        | NONE        | NONE        |
| SAMP. DEPTH BOT:                       |         | NONE        | NONE        | NONE        |   | NONE        | NONE        | NONE        |
| MATRIX:                                |         | GROUNDWATER | GROUNDWATER | GROUNDWATER |   | GROUNDWATER | GROUNDWATER | GROUNDWATER |
| SAMP. DATE:                            |         | 22-Nov-95   | 10-Apr-96   | 21-Nov-95   |   | 31-Mar-96   | 21-Jan-94   | 13-Nov-95   |
| SAMP ID:                               |         | MW25-1      | 25001       | MW25-6      |   | 25008       | MW26-1-1    | MW26-1      |
| PARAMETER                              | UNIT    | VALUE O     | VALUE       |             | 0 | VALUE O     | VALUE O     | VALUE O     |
| METALS                                 |         |             |             |             |   |             |             |             |
| Aluminum                               | UG/L    | 18          | 34.5        | U 162       |   | 529         | 188 J       | 457         |
| Antimony                               | UG/L    | 2.2 U       | 1.4         | 2.2         | U | 2.3 U       | 21.5 U      | 2.2 U       |
| Arsenic                                | UG/L    | 2.1 U       | 4 1         | U 2.1       | U | 3.5 U       | 0.8 U       | 2.1 U       |
| Barium                                 | UG/L    | 77.1        | 71.2        | 85.6        |   | 72.3        | 31.9 J      | 33.2        |
| Beryllium                              | UG/L    | 0.27 U      | 0.1         | U 0.27      | U | 0.13 U      | 0.4 U       | 0.27 U      |
| Cadmium                                | UG/L    | 0.3 U       | 0.3         | U 0.3       | U | 0.32 U      | 2.1 U       | 0.3 U       |
| Calcium                                | UG/L    | 128000      | 122000      | 133000      |   | 118000      | 115000      | 121000      |
| Chromium                               | UG/L    | 0.68        | 0.7         | U 2.2       |   | 1.3 U       | 2.6 U       | 4.7         |
| Cobalt                                 | UG/L    | 0.99 U      | 0.9         | U 1.3       |   | 1.1 U       | 4.4 U       | 1.1         |
| Copper                                 | UG/L    | 2           | 1 1         | U 0.99      |   | 1.1         | 3.1 U       | 5.7         |
| Cyanide                                | UG/L    | 5 U         | 5 1         | U 5         | U | 5 UJ        | 5 U         | 5 U         |
| Iron                                   | UG/L    | 27.3        | 21.7        | U 308       |   | 623         | 286         | 867         |
| Lead                                   | UG/L    | 3.4         | 1.9         | U 4.4       |   | 1.1 U       | 0.5 U       | 7.8         |
| Magnesium                              | UG/L    | 23100       | 22800       | 35900       |   | 32900       | 16700       | 16600       |
| Manganese                              | UG/L    | 31.2        | 21.8        | 56          |   | 22          | 529         | 27.5        |
| Mercury                                | UG/L    | 0.02 U      | 0.2         | U 0.02      | U | 0.1 U       | 0.05 J      | 0.02 U      |
| Nickel                                 | UG/L    | 0.99 U      | 1.6         | U 2.6       |   | 1.7 U       | 4 U         | 6.2         |
| Potassium                              | UG/L    | 1030        | 861         | 1840        | J | 1420        | 10200       | 3620        |
| Selenium                               | UG/L    | 3.7 U       | 3.4         | U 3.7       | U | 3.4 U       | 0.7 U       | 3.7 U       |
| Silver                                 | UG/L    | 0.8 U       | 1.3         | U 0.8       | U | 1.1 U       | 4.2 U       | 0.8 U       |
| Sodium                                 | UG/L    | 64700 J     | 53100       | 20400       | J | 16500       | 30300       | 24600       |
| Thallium                               | UG/L    | 3 U         | 4.7         | U 3         | U | 3.5 U       | 1.2 U       | 4.3         |
| Vanadium                               | UG/L    | 1.1 U       | 1.1         | U 1.4       |   | 1.2 U       | 3.7 U       | 1.3 J       |
| Zinc                                   | UG/L    | 6.3         | 1.7         | 7.5         |   | 2.2         | 26.7        | 20.5        |
|  |         |             |             |             |   |             |             |             |
| U = compound was not detected          |         |             |             |             |   |             |             |             |
| J = the reported value is an estimated | 1       |             |             |             |   |             |             |             |
| concentration                          |         |             |             |             |   |             |             |             |
| UJ = the compound was not detected     |         |             |             |             |   |             |             |             |
| associated reporting limit is appr     | oximate |             |             |             |   |             |             |             |
| R = the data was rejected in the data  |         |             |             |             |   |             |             |             |
| validating process                     |         |             |             |             |   |             |             |             |
| NJ = compound was "tentatively ide     |         |             |             |             |   |             |             |             |
| and the associated numerical val       | lue     |             |             |             |   |             |             |             |
| is approximate                         |         |             |             |             |   |             |             |             |

| STUDY ID:                              |          | RI ROUND2   |   | ESI         | 1 | ESI         | ESI         | ESI         | ESI         |
|--|----------|-------------|---|-------------|---|-------------|-------------|-------------|-------------|
| LOC ID:                                |          | MW26-1      |   | MW4-1       |   | MW44A-1     | MW44B-1     | MW5-1       | MW57-1      |
| QC CODE:                               |          | SA          |   | SA          |   | SA          | SA          | SA          | SA          |
| SAMP. DETH TOP:                        |          | NONE        |   | NONE        |   | NONE        | NONE        | NONE        | NONE        |
| SAMP. DEPTH BOT:                       |          | NONE        |   | NONE        |   | NONE        | NONE        | NONE        | NONE        |
| MATRIX:                                |          | GROUNDWATER |   | GROUNDWATER |   | GROUNDWATER | GROUNDWATER | GROUNDWATER | GROUNDWATER |
| SAMP. DATE:                            |          | 11-Apr-96   |   | 21-Jan-94   |   | 12-Jul-94   | 12-Jul-94   | 11-Jul-94   | 3-Feb-94    |
| SAMP ID:                               |          | 26001       |   | MW4-1-1     | 1 | MW44A-1-1   | MW44B-1-1   | MW5-1-1     | MW57-1-1    |
| PARAMETER                              | UNIT     | VALUE       | 0 | VALUE C     |   | VALUE O     | VALUE O     | VALUE O     | VALUE O     |
| METALS                                 |          |             |   |             |   |             |             |             |             |
| Aluminum                               | UG/L     | 38.7        |   | 41.9 U      | J | 69 J        | 288 J       | 1310        | 4200        |
| Antimony                               | UG/L     | 1.4         |   | 21.6 U      |   | 1.3 U       | 1.3 U       | 1.3 U       | 44.7 J      |
| Arsenic                                | UG/L     | 4 [         | U | 2.2 J       |   | 2 U         | 2 U         | 2 U         | 1.4 U       |
| Barium                                 | UG/L     | 29.9        |   | 19.6 J      |   | 102 J       | 72.6 J      | 42.2 J      | 36.5 J      |
| Beryllium                              | UG/L     | 0.1         | U | 0.4 U       | J | 0.1 U       | 0.1 U       | 0.1 U       | 0.4 U       |
| Cadmium                                | UG/L     | 0.3 [       |   | 2.1 U       |   | 0.2 U       | 0.2 U       | 0.2 U       | 2.1 U       |
| Calcium                                | UG/L     | 110000      |   | 137000      |   | 92200       | 120000      | 240000      | 82000       |
| Chromium                               | UG/L     | 0.73        |   | 2.6 U       | J | 0.4 U       | 0.4 U       | 2.5 J       | 7.7 J       |
| Cobalt                                 | UG/L     | 0.9 1       | U | 4.6 J       |   | 0.5 U       | 0.91 J      | 2.8 J       | 4.4 U       |
| Copper                                 | UG/L     | 1 1         | U | 3.1 U       | J | 0.5 U       | 0.5 U       | 2.2 J       | 3.1 U       |
| Cyanide                                | UG/L     | 5 1         | U | 5 U         |   | 5 U         | 5 U         | 5 U         | 5 U         |
| Iron                                   | UG/L     | 58.4 J      | J | 332         |   | 114 J       | 666         | 2670        | 6360        |
| Lead                                   | UG/L     | 1.9 1       |   | 0.5 U       | J | 0.9 U       | 0.9 U       | 0.89 U      | 2.1 J       |
| Magnesium                              | UG/L     | 15500       |   | 57600       |   | 19000       | 31800       | 43200       | 11400       |
| Manganese                              | UG/L     | 2.5         |   | 346         |   | 18.2        | 219         | 450         | 245         |
| Mercury                                | UG/L     | 0.2         | U | 0.04 U      | J | 0.04 U      | 0.04 U      | 0.04 U      | 0.04 U      |
| Nickel                                 | UG/L     | 1.6 U       | U | 4 U         | J | 0.7 U       | 0.73 J      | 5.3 J       | 8.2 J       |
| Potassium                              | UG/L     | 3860 J      | J | 7380        |   | 1050 J      | 2150 J      | 4650 J      | 3860 J      |
| Selenium                               | UG/L     | 3.4 [       | U | 2.1 J       |   | 2.7 U       | 2.7 U       | 2.7 U       | 0.69 U      |
| Silver                                 | UG/L     | 1.3 U       | U | 4.2 U       | J | 0.5 U       | 0.68 J      | 0.5 U       | 4.2 U       |
| Sodium                                 | UG/L     | 34800       |   | 11700       |   | 2310 J      | 7190        | 73500       | 4080 J      |
| Thallium                               | UG/L     | 4.7 U       | U | 1.2 U       | J | 1.9 U       | 4.7 J       | 1.9 U       | 1.2 U       |
| Vanadium                               | UG/L     | 1.1 U       | U | 3.7 U       | J | 0.5 U       | 0.5 U       | 2.6 J       | 7.6 J       |
| Zinc                                   | UG/L     | 3.1 J       | J | 19.1 J      |   | 3.8 J       | 2.2 U       | 11.5 J      | 57.4        |
|  |          |             |   |             |   |             |             |             |             |
| U = compound was not detected          |          |             |   |             |   |             |             |             |             |
| J = the reported value is an estimated | 1        |             |   |             |   |             |             |             |             |
| concentration                          |          |             |   |             |   |             |             |             |             |
| UJ = the compound was not detected     | l; the   |             |   |             |   |             |             |             |             |
| associated reporting limit is appr     |          |             |   |             |   |             |             |             |             |
| R = the data was rejected in the data  |          |             |   |             |   |             |             |             |             |
| validating process                     |          |             |   |             |   |             |             |             |             |
| NJ = compound was "tentatively ide     | ntified" |             |   |             |   |             |             |             |             |
| and the associated numerical va        | lue      |             |   |             |   |             |             |             |             |
| is approximate                         |          |             |   |             |   |             |             |             |             |

| STUDY ID:                              |      | ESI         |   | ESI         |    | ESI         |   | ESI         | ESI         | RI PHASE2   |
|--|------|-------------|---|-------------|----|-------------|---|-------------|-------------|-------------|
| LOC ID:                                |      | MW58-1      |   | MW64A-1     |    | MW64B-1     |   | MW64C-9     | MW64D-1     | PT-10       |
| QC CODE:                               |      | SA          |   | SA          |    | SA          |   | SA          | SA          | SA          |
| SAMP. DETH TOP:                        |      | NONE        |   | NONE        |    | NONE        |   | NONE        | NONE        | NONE        |
| SAMP. DEPTH BOT:                       |      | NONE        |   | NONE        |    | NONE        |   | NONE        | NONE        | NONE        |
| MATRIX:                                |      | GROUNDWATER |   | GROUNDWATER |    | GROUNDWATER |   | GROUNDWATER | GROUNDWATER | GROUNDWATER |
| SAMP. DATE:                            |      | 11-Jul-94   |   | 19-Jul-94   |    | 10-Jul-94   |   | 10-Jul-94   | 8-Jul-94    | 23-Jun-93   |
| SAMP ID:                               |      | MW58-1-1    |   | MW64A-1-1G  |    | MW64B-1-1G  |   | MW64C-9-1   | MW64D-1-1   | PT10GW1     |
| PARAMETER                              | UNIT | VALUE       | 0 | VALUE       | )  | VALUE       | 0 | VALUE O     | VALUE O     | VALUE O     |
| METALS                                 |      |             |   |             |    |             |   |             |             |             |
| Aluminum                               | UG/L | 440         |   | 398         |    | 198         | J | 38.2 J      | 177 J       | 72 U        |
| Antimony                               | UG/L | 1.3         |   | 1.3 1       | IJ | 1.3         |   | 1.3 U       | 1.3 U       | 49.5 UJ     |
| Arsenic                                | UG/L |             | U | 2 1         |    | 2           |   | 2 U         | 2 U         | 1.4 UJ      |
| Barium                                 | UG/L | 71.9        |   | 42 J        | ſ  | 104         | J | 20.4 J      | 88.6 J      | 193 J       |
| Beryllium                              | UG/L | 0.1         | U | 0.1         | IJ | 0.1         | U | 0.1 U       | 0.1 U       | 0.89 U      |
| Cadmium                                | UG/L | 0.2         |   | 0.2         |    | 0.2         |   | 0.2 U       | 0.2 U       | 2.8 U       |
| Calcium                                | UG/L | 113000      |   | 109000      |    | 138000      |   | 121000      | 142000      | 79100       |
| Chromium                               | UG/L | 0.82        | J | 0.49 J      | ſ  | 0.41        | J | 0.4 U       | 0.4 U       | 2.7 UJ      |
| Cobalt                                 | UG/L | 0.64        | J | 0.5 1       | IJ | 1.1         | J | 0.5 U       | 0.69 J      | 5.4 U       |
| Copper                                 | UG/L | 1.5         | J | 0.61        | ſ  | 1           | J | 0.55 J      | 0.5 U       | 4.7 U       |
| Cyanide                                | UG/L |             | U | 5 1         | IJ | 5           | U | 5 U         | 5 U         | 10 UJ       |
| Iron                                   | UG/L | 678         |   | 773 J       | ſ  | 400         |   | 681         | 440         | 85.6 J      |
| Lead                                   | UG/L | 0.89        | U | 0.89 1      | IJ | 0.9         | U | 0.9 U       | 0.9 U       | 0.79 U      |
| Magnesium                              | UG/L | 17300       |   | 16800       |    | 45600       |   | 49400       | 14800       | 34200       |
| Manganese                              | UG/L | 84          |   | 28.3        |    | 98.9        |   | 96          | 223         | 124         |
| Mercury                                | UG/L | 0.04        | U | 0.04 J      | ſ  | 0.04        | U | 0.04 U      | 0.04 U      | 0.09 UJ     |
| Nickel                                 | UG/L | 1.6         | J | 1 3         | ſ  | 1.4         | J | 1.2 J       | 1.4 J       | 7.4 UJ      |
| Potassium                              | UG/L | 1460        | J | 1790 J      | ſ  | 4780        | J | 1670 J      | 3340 J      | 2870 J      |
| Selenium                               | UG/L | 2.7         | U | 2.7         | IJ | 2.7         | U | 2.7 U       | 2.7 U       | 0.99 UJ     |
| Silver                                 | UG/L | 0.5         | U | 0.5         | IJ | 0.5         | U | 0.5 U       | 0.5 U       | 5.4 U       |
| Sodium                                 | UG/L | 4180        | J | 2180 J      | ſ  | 8140        |   | 6420        | 12300       | 41100       |
| Thallium                               | UG/L | 1.9         | U | 1.9         | IJ | 1.9         | U | 1.9 U       | 2.2 J       |             |
| Vanadium                               | UG/L | 0.81        | J | 1.3         | ſ  | 0.73        | J | 0.61 J      | 0.69 J      | 6.7 UJ      |
| Zinc                                   | UG/L | 7.1         | J | 3.9         | ſ  | 3.9         | J | 3.9 J       | 3.8 J       | 8.8 J       |
|  |      |             |   |             |    |             |   |             |             |             |
| U = compound was not detected          |      |             |   |             |    |             |   |             |             |             |
| J = the reported value is an estimated | d    |             |   |             |    |             |   |             |             |             |
| concentration                          |      |             |   |             |    |             |   |             |             |             |
| UJ = the compound was not detected     |      |             |   |             |    |             |   |             |             |             |
| associated reporting limit is appr     |      |             |   |             |    |             |   |             |             |             |
| R = the data was rejected in the data  |      |             |   |             |    |             |   |             |             |             |
| validating process                     |      |             |   |             |    |             |   |             |             |             |
| NJ = compound was "tentatively ide     |      |             |   |             |    |             |   |             |             |             |
| and the associated numerical va        | lue  |             |   |             |    |             |   |             |             |             |
| is approximate                         |      |             |   |             |    |             |   |             |             |             |

#### APPENDIX E

#### SEAD-121C HUMAN HEALTH RISK ASSESSMENT CALCULATION TABLES

| E-1A | Calculation of Intake and Risk from the Ingestion of Soil – RME                         |
|------|---|
| E-1B | Calculation of Intake and Risk from the Ingestion of Soil – CT                          |
| E-2A | Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – RME                 |
| E-2B | Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – CT                  |
| E-3A | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – RME      |
| E-3B | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil - CT       |
| E-4A | Calculation of Intake and Risk from the Ingestion of Ditch Soil – RME                   |
| E-4B | Calculation of Intake and Risk from the Ingestion of Ditch Soil – CT                    |
| E-5A | Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – RME           |
| E-5B | Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – CT            |
| E-6A | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Ditch Soil      |
|      | RME   |
| E-6B | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Ditch Soil - CT |
| E-7A | Calculation of Absorbed Dose and Risk from Dermal Contact to Surface Water – RME        |
| E-7B | Calculation of Absorbed Dose and Risk from Dermal Contact to Surface Water – CT         |
| E-8A | Calculation of Blood Lead Concentration – Surface Soil – Industrial Worker              |
| E-8B | Calculation of Blood Lead Concentration – Surface Soil – Residential Child              |
| E-9A | Calculation of Blood Lead Concentration – Ditch Soil – Industrial Worker                |
| E-9B | Calculation of Blood Lead Concentration – Ditch Soil – Residential Child                |

#### TABLE E-1A

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg IR = Ingestion Rate

CF = Conversion Factor FI = Fraction Ingested

EF = Exposure Frequency ED = Exposure Duration

BW = Bodyweight AT = Averaging Time Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|  | Oral        | Carc. Slope   | EPC          | EPC         |              | Industria        | al Worker       |        |              | Construct       | ion Worker     | v.     |              | Adolescent      | Trespasser      |        |
|--|-------------|---------------|--------------|-------------|--------------|------------------|-----------------|--------|--------------|-----------------|----------------|--------|--------------|-----------------|-----------------|--------|
| Analyte                                  | RfD         | Oral          | Surface Soil | Total Soils | In           | take             | Hazard          | Cancer | In           | take            | Hazard         | Cancer | Int          | ake             | Hazard          | Cancer |
|  |             |               |              |             |              | (g-day)          | Quotient        | Risk   |              | (g-day)         | Quotient       | Risk   |              | g-day)          | Quotient        | Risk   |
|  | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)      | (mg/kg)     | (Nc)         | (Car)            |                 |        | (Nc)         | (Car)           |                |        | (Nc)         | (Car)           |                 |        |
| Volatile Organic Compounds               |             |               |              |             |              |                  |                 |        |              |                 |                |        |              |                 |                 |        |
| Benzene                                  | 4E-03       | 5.5E-02       | N/A          | 1.9E-01     |              |                  |                 |        | 6.27E-07     | 8.96E-09        | 2E-04          | 5E-10  |              |                 |                 |        |
| Semivolatile Organic Compounds           |             |               |              |             |              |                  |                 |        |              |                 |                |        |              |                 |                 |        |
| Benzo(a)anthracene                       | N/A         | 7.3E-01       | 3.1E+00      | 1.8E+00     |              | 1.08E-06         |                 | 8E-07  |              | 8.09E-08        |                | 6E-08  |              | 1.69E-08        |                 | 1E-08  |
| Benzo(a)pyrene                           | N/A         | 7.3E+00       | 3.4E+00      | 1.8E+00     |              | 1.20E-06         |                 | 9E-06  |              | 8.36E-08        |                | 6E-07  |              | 1.88E-08        |                 | 1E-07  |
| Benzo(b)fluoranthene                     | N/A         | 7.3E-01       | 4.5E+00      | 2.4E+00     |              | 1.58E-06         |                 | 1E-06  |              | 1.09E-07        |                | 8E-08  |              | 2.48E-08        |                 | 2E-08  |
| Benzo(k)fluoranthene                     | N/A         | 7.3E-02       | 2.4E+00      | 1.3E+00     |              | 8.41E-07         |                 | 6E-08  |              | 5.94E-08        |                | 4E-09  |              | 1.32E-08        |                 | 1E-09  |
| Chrysene                                 | N/A         | 7.3E-03       | 2.9E+00      | 1.7E+00     |              | 1.02E-06         |                 | 7E-09  |              | 7.72E-08        |                | 6E-10  |              | 1.60E-08        |                 | 1E-10  |
| Dibenz(a,h)anthracene                    | N/A         | 7.3E+00       | 2.2E-01      | 2.1E-01     |              | 7.74E-08         |                 | 6E-07  |              | 9.54E-09        |                | 7E-08  |              | 1.21E-09        |                 | 9E-09  |
| Indeno(1,2,3-cd)pyrene                   | N/A         | 7.3E-01       | 3.6E-01      | 3.0E-01     |              | 1.25E-07         |                 | 9E-08  |              | 1.38E-08        |                | 1E-08  |              | 1.96E-09        |                 | 1E-09  |
| Pesticides/PCBs                          |             |               |              |             |              |                  |                 |        |              |                 |                |        |              |                 |                 |        |
| Dieldrin                                 | 5E-05       | 1.6E+01       | 1.4E-02      | 7.3E-03     | 1.36E-08     | 4.86E-09         | 3E-04           | 8E-08  | 2.34E-08     | 3.34E-10        | 5E-04          | 5E-09  | 1.07E-09     | 7.63E-11        | 2E-05           | 1E-09  |
| Aroclor-1242                             | N/A         | 2.0E+00       | 1.6E-02      | 1.4E-02     |              | 5.49E-09         |                 | 1E-08  |              | 6.64E-10        |                | 1E-09  |              | 8.60E-11        |                 | 2E-10  |
| Aroclor-1254                             | 2E-05       | 2.0E+00       | 2.8E-01      | 1.4E-01     | 2.74E-07     | 9.78E-08         | 1E-02           | 2E-07  | 4.61E-07     | 6.58E-09        | 2E-02          | 1E-08  | 2.15E-08     | 1.53E-09        | 1E-03           | 3E-09  |
| Aroclor-1260                             | N/A         | 2.0E+00       | 3.0E-02      | 3.3E-02     |              | 1.05E-08         |                 | 2E-08  |              | 1.54E-09        |                | 3E-09  |              | 1.65E-10        |                 | 3E-10  |
| Metals                                   |             |               |              |             |              |                  |                 |        |              |                 |                |        |              |                 |                 |        |
| Antimony                                 | 4E-04       | N/A           | 6.04E+01     | 3.0E+01     | 5.91E-05     |                  | 1E-01           |        | 9.67E-05     |                 | 2E-01          |        | 4.63E-06     |                 | 1E-02           |        |
| Arsenic                                  | 3E-04       | 1.5E+00       | 5.79E+00     | 5.7E+00     | 5.67E-06     | 2.02E-06         | 2E-02           | 3E-06  | 1.85E-05     | 2.64E-07        | 6E-02          | 4E-07  | 4.45E-07     | 3.18E-08        | 1E-03           | 5E-08  |
| Copper                                   | 4E-02       | N/A           | 2.868E+03    | 1.5E+03     | 2.81E-03     |                  | 7E-02           |        | 4.77E-03     |                 | 1E-01          |        | 2.20E-04     |                 | 5E-03           |        |
| Iron                                     | 3E-01       | N/A           | 2.6903E+04   | 2.8E+04     | 2.63E-02     |                  | 9E-02           |        | 8.88E-02     |                 | 3E-01          |        | 2.06E-03     |                 | 7E-03           |        |
| Total Hazard Quotient and Cancer         | Risk:       |               |              |             |              |                  | 3E-01           | 1E-05  |              |                 | 7E-01          | 1E-06  |              |                 | 3E-02           | 2E-07  |
| _  |             |               |              |             | A            | ssumptions for l | Industrial Worl | ker    | Ass          | sumptions for C | onstruction Wo | rker   | Assı         | imptions for Ac | lolescent Tresp | asser  |
|  |             |               |              |             | CIT.         | 15.00            |                 |        | lor.         | 15.00           |                |        | OT.          | 15.00           |                 |        |
|  |             |               |              |             | CF =<br>EPC= | EPC Surface On   | kg/mg           |        | CF =<br>EPC= | EPC Surface at  | kg/mg          |        | CF =<br>EPC= | EPC Surface O   | kg/mg           |        |
|  |             |               |              |             | BW =         |                  | niy<br>kg       |        | BW =         |                 | kg             |        | BW =         |                 | niy<br>kg       |        |
|  |             |               |              |             | IR =         |                  | mg/day          |        | IR =         |                 | mg/day         |        | IR =         |                 | mg/day          |        |
|  |             |               |              |             | FI =         |                  | unitless        |        | FI =         |                 | unitless       |        | FI =         |                 | unitless        |        |
|  |             |               |              |             | EF =         | 250              | days/year       |        | EF =         | 250             | days/year      |        | EF =         | 14              | days/year       |        |
|  |             |               |              |             | ED =         |                  | years           |        | ED =         |                 | years          |        | ED =         |                 | years           |        |
|  |             |               |              |             | AT (Nc) =    | 9,125            |                 |        | AT (Nc) =    |                 | days           |        | AT (Nc) =    | 1,825           |                 |        |
| Note: Cells in this table were intention |             |               |              |             | AT (Car) =   | 25,550           | days            |        | AT (Car) =   | 25,550          | days           |        | AT (Car) =   | 25,550          | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE E-1B

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL CENTRAL TENDENCY (CT) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg

EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight IR = Ingestion Rate CF = Conversion Factor FI = Fraction Ingested AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|  | Oral        | Carc. Slope   | EPC          | EPC         | _          | Industria       | l Worker        |        |            | Constructi      | on Worker      |        |            | Adolescent     | Trespasser      |        |
|--|-------------|---------------|--------------|-------------|------------|-----------------|-----------------|--------|------------|-----------------|----------------|--------|------------|----------------|-----------------|--------|
| Analyte                                  | RfD         | Oral          | Surface Soil | Total Soils |            | ake             | Hazard          | Cancer | 1          | take            | Hazard         | Cancer |            | ake            | Hazard          | Cancer |
|  |             |               |              |             |            | g-day)          | Quotient        | Risk   |            | (g-day)         | Quotient       | Risk   | (mg/k      | 0 0            | Quotient        | Risk   |
|  | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)      | (mg/kg)     | (Nc)       | (Car)           |                 |        | (Nc)       | (Car)           |                |        | (Nc)       | (Car)          |                 |        |
| Volatile Organic Compounds               |             |               |              |             |            |                 |                 |        |            |                 |                |        |            |                |                 |        |
| Benzene                                  | 4.0E-03     | 5.5E-02       | N/A          | 1.9E-01     |            |                 |                 |        | 1.67E-07   | 2.38E-09        | 4E-05          | 1E-10  |            |                |                 |        |
| Semivolatile Organic Compounds           |             |               |              |             |            |                 |                 |        |            |                 |                |        |            |                |                 |        |
| Benzo(a)anthracene                       | N/A         | 7.3E-01       | 3.1E+00      | 1.8E+00     |            | 1.70E-07        |                 | 1E-07  |            | 2.15E-08        |                | 2E-08  |            | 8.46E-09       |                 | 6E-09  |
| Benzo(a)pyrene                           | N/A         | 7.3E+00       | 3.4E+00      | 1.8E+00     |            | 1.89E-07        |                 | 1E-06  |            | 2.22E-08        |                | 2E-07  |            | 9.38E-09       |                 | 7E-08  |
| Benzo(b)fluoranthene                     | N/A         | 7.3E-01       | 4.5E+00      | 2.4E+00     |            | 2.50E-07        |                 | 2E-07  |            | 2.90E-08        |                | 2E-08  |            | 1.24E-08       |                 | 9E-09  |
| Benzo(k)fluoranthene                     | N/A         | 7.3E-02       | 2.4E+00      | 1.3E+00     |            | 1.33E-07        |                 | 1E-08  |            | 1.58E-08        |                | 1E-09  |            | 6.59E-09       |                 | 5E-10  |
| Chrysene                                 | N/A         | 7.3E-03       | 2.9E+00      | 1.7E+00     |            | 1.61E-07        |                 | 1E-09  |            | 2.05E-08        |                | 1E-10  |            | 8.01E-09       |                 | 6E-11  |
| Dibenz(a,h)anthracene                    | N/A         | 7.3E+00       | 2.2E-01      | 2.1E-01     |            | 1.22E-08        |                 | 9E-08  |            | 2.53E-09        |                | 2E-08  |            | 6.07E-10       |                 | 4E-09  |
| Indeno(1,2,3-cd)pyrene                   | N/A         | 7.3E-01       | 3.6E-01      | 3.0E-01     |            | 1.97E-08        |                 | 1E-08  |            | 3.67E-09        |                | 3E-09  |            | 9.78E-10       |                 | 7E-10  |
| Pesticides/PCBs                          |             |               |              |             |            |                 |                 |        |            |                 |                |        |            |                |                 |        |
| Dieldrin                                 | 5.0E-05     | 1.6E+01       | 1.4E-02      | 7.3E-03     | 5.97E-09   | 7.67E-10        | 1E-04           | 1E-08  | 6.21E-09   | 8.88E-11        | 1E-04          | 1E-09  | 5.34E-10   | 3.81E-11       | 1E-05           | 6E-10  |
| Aroclor-1242                             | N/A         | 2.0E+00       | 1.6E-02      | 1.4E-02     |            | 8.65E-10        |                 | 2E-09  |            | 1.76E-10        |                | 4E-10  |            | 4.30E-11       |                 | 9E-11  |
| Aroclor-1254                             | 2.0E-05     | 2.0E+00       | 2.8E-01      | 1.4E-01     | 1.20E-07   | 1.54E-08        | 6E-03           | 3E-08  | 1.22E-07   | 1.75E-09        | 6E-03          | 3E-09  | 1.07E-08   | 7.67E-10       | 5E-04           | 2E-09  |
| Aroclor-1260                             | N/A         | 2.0E+00       | 3.0E-02      | 3.3E-02     |            | 1.66E-09        |                 | 3E-09  |            | 4.10E-10        |                | 8E-10  |            | 8.27E-11       |                 | 2E-10  |
| Metals                                   |             |               |              |             |            |                 |                 |        |            |                 |                |        |            |                |                 |        |
| Antimony                                 | 4.0E-04     | N/A           | 6.04E+01     | 3.0E+01     | 2.59E-05   |                 | 6E-02           |        | 2.57E-05   |                 | 6E-02          |        | 2.32E-06   |                | 6E-03           |        |
| Arsenic                                  | 3.0E-04     | 1.5E+00       | 5.79E+00     | 5.7E+00     | 2.48E-06   | 3.19E-07        | 8E-03           | 5E-07  | 4.91E-06   | 7.01E-08        | 2E-02          | 1E-07  | 2.22E-07   | 1.59E-08       | 7E-04           | 2E-08  |
| Copper                                   | 4.0E-02     | N/A           | 2.868E+03    | 1.5E+03     | 1.23E-03   |                 | 3E-02           |        | 1.27E-03   |                 | 3E-02          |        | 1.10E-04   |                | 3E-03           |        |
| Iron                                     | 3.0E-01     | N/A           | 2.6903E+04   | 2.8E+04     | 1.15E-02   |                 | 4E-02           |        | 2.36E-02   |                 | 8E-02          |        | 1.03E-03   |                | 3E-03           |        |
| Total Hazard Quotient and Cancer         | Risk:       |               |              |             |            |                 | 1E-01           | 2E-06  |            |                 | 2E-01          | 3E-07  |            |                | 1E-02           | 1E-07  |
| ·  |             |               |              |             | As         | sumptions for I | Industrial Worl | ker    | Assu       | umptions for Co | onstruction Wo | rker   | Assu       | mptions for Ad | lolescent Tresp | asser  |
|  |             |               |              |             | CF =       | 1E 06           | kg/mg           |        | CF =       | 1E 06           | kg/mg          |        | CF =       | 1E 06          | kg/mg           |        |
|  |             |               |              |             | EPC=       | EPC Surface O   |                 |        | EPC=       | EPC Surface ar  |                |        | 1.         | EPC Surface O  |                 |        |
|  |             |               |              |             | BW =       |                 | kg              |        | BW =       |                 | kg             |        | BW =       |                | kg              |        |
|  |             |               |              |             | IR =       |                 | mg/day          |        | IR =       |                 | mg/day         |        | IR =       |                | mg/day          |        |
|  |             |               |              |             | FI =       |                 | unitless        |        | FI =       |                 | unitless       |        | FI =       |                | unitless        |        |
|  |             |               |              |             | EF =       |                 | days/year       |        | EF =       |                 | days/year      |        | EF =       |                | days/year       |        |
|  |             |               |              |             | ED =       |                 | years           |        | ED =       |                 | years          |        | ED =       |                | years           |        |
|  |             |               |              |             | AT (Nc) =  | 3,285           |                 |        | AT (Nc) =  |                 | days           |        | AT (Nc) =  | 1,825          |                 |        |
| Note: Cells in this table were intention | 11 1 6 1 1  |               | C 1 .        |             | AT (Car) = | 25,550          | days            |        | AT (Car) = | 25,550          | days           |        | AT (Car) = | 25,550         | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE E-2A

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

EPC x CF x SA x AF x ABS x EV x EF x ED Equation for Intake (mg/kg-day) =

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):  $EV = Event \ Frequency$ EPC = Exposure Point Concentration in Soil, mg/kg CF = Conversion Factor EF = Exposure Frequency SA = Surface Area Contact ED = Exposure Duration AF = Adherence Factor BW = Bodyweight ABS = Absorption Factor AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                  | Dermal      | Carc. Slope   | Absorption         | EPC                | EPC                |            | Industrie            | l Worker                  |                |            | Constant             | ction Worker              |                | 1          | Adolescent      | Тиссиосом                 |                |
|----------------------------------|-------------|---------------|--------------------|--------------------|--------------------|------------|----------------------|---------------------------|----------------|------------|----------------------|---------------------------|----------------|------------|-----------------|---------------------------|----------------|
| Analyte                          | RfD         |               |                    | Surface Soil       | Total Soils        | 43         | ed Dose              | Hazard                    | Cancer         | About      | ed Dose              | Hazard                    | Cancer         | 43         | ped Dose        | Hazard                    | C              |
| Analyte                          | KID         | Dermal        | Factor*            | Surface Soil       | 1 otai Sons        |            | g-day)               | Quotient                  | Risk           |            | g-day)               | Quotient                  | Risk           |            | g-day)          | Quotient                  | Cancer<br>Risk |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (unitless)         | (mg/kg)            | (mg/kg)            | (Nc)       | (Car)                | Quotient                  | KISK           | (Nc)       | (Car)                | Quotient                  | KISK           | (Nc)       | (Car)           | Quotient                  | Kisk           |
| Volatile Organic Compounds       |             |               |                    |                    |                    |            |                      |                           |                |            |                      |                           |                |            |                 |                           |                |
| Benzene                          | 4E-03       | 5.5E-02       | 1.0E-02            | N/A                | 1.9E-01            |            |                      |                           |                | 1.88E-08   | 2.69E-10             | 5E-06                     | 1E-11          |            |                 |                           |                |
| Semivolatile Organic Compounds   |             |               |                    |                    |                    |            |                      |                           |                |            |                      |                           |                |            |                 |                           |                |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 1.3E-01            | 3.1E+00            | 1.8E+00            |            | 9.25E-07             |                           | 7E-07          |            | 3.16E-08             |                           | 2E-08          |            | 9.03E-09        |                           | 7E-09          |
|                                  |             | 7.3E+00       | 1.3E-01<br>1.3E-01 | 3.1E+00<br>3.4E+00 | 1.8E+00<br>1.8E+00 |            | 9.23E-07<br>1.03E-06 |                           | 7E-07<br>7E-06 |            | 3.16E-08<br>3.26E-08 |                           | 2E-08<br>2E-07 |            | 1.00E-08        |                           | 7E-09<br>7E-08 |
| Benzo(a)pyrene                   | N/A         |               |                    |                    |                    |            |                      |                           |                |            |                      |                           |                |            |                 |                           |                |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 1.3E-01            | 4.5E+00            | 2.4E+00            |            | 1.36E-06             |                           | 1E-06          |            | 4.27E-08             |                           | 3E-08          |            | 1.33E-08        |                           | 1E-08          |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 1.3E-01            | 2.4E+00            | 1.3E+00            |            | 7.22E-07             |                           | 5E-08          |            | 2.32E-08             |                           | 2E-09          |            | 7.04E-09        |                           | 5E-10          |
| Chrysene                         | N/A         | 7.3E-03       | 1.3E-01            | 2.9E+00            | 1.7E+00            |            | 8.77E-07             |                           | 6E-09          |            | 3.01E-08             |                           | 2E-10          |            | 8.55E-09        |                           | 6E-11          |
| Dibenz(a,h)anthracene            | N/A         | 7.3E+00       | 1.3E-01            | 2.2E-01            | 2.1E-01            |            | 6.64E-08             |                           | 5E-07          |            | 3.72E-09             |                           | 3E-08          |            | 6.48E-10        |                           | 5E-09          |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 1.3E-01            | 3.6E-01            | 3.0E-01            |            | 1.07E-07             |                           | 8E-08          |            | 5.39E-09             |                           | 4E-09          |            | 1.04E-09        |                           | 8E-10          |
| Pesticides/PCBs                  |             |               |                    |                    |                    |            |                      |                           |                |            |                      |                           |                |            |                 |                           |                |
| Dieldrin                         | 5E-05       | 1.6E+01       | 1.0E-01            | 1.4E-02            | 7.3E-03            | 8.99E-09   | 3.21E-09             | 2E-04                     | 5E-08          | 7.02E-09   | 1.00E-10             | 1E-04                     | 2E-09          | 4.39E-10   | 3.13E-11        | 9E-06                     | 5E-10          |
| Aroclor-1242                     | N/A         | 2.0E+00       | 1.4E-01            | 1.6E-02            | 1.4E-02            |            | 5.07E-09             |                           | 1E-08          |            | 2.79E-10             |                           | 6E-10          |            | 4.95E-11        |                           | 1E-10          |
| Aroclor-1254                     | 2E-05       | 2.0E+00       | 1.4E-01            | 2.8E-01            | 1.4E-01            | 2.53E-07   | 9.04E-08             | 1E-02                     | 2E-07          | 1.93E-07   | 2.76E-09             | 1E-02                     | 6E-09          | 1.23E-08   | 8.82E-10        | 6E-04                     | 2E-09          |
| Aroclor-1260                     | N/A         | 2.0E+00       | 1.4E-01            | 3.0E-02            | 3.3E-02            |            | 9.74E-09             |                           | 2E-08          |            | 6.48E-10             |                           | 1E-09          |            | 9.51E-11        |                           | 2E-10          |
| Metals                           |             |               |                    |                    |                    |            |                      |                           |                |            |                      |                           |                |            |                 |                           |                |
| Antimony                         | 6E-05       | N/A           | 1.0E-03            | 6.0E+01            | 3.0E+01            | 3.90E-07   |                      | 7E-03                     |                | 2.90E-07   |                      | 5E-03                     |                | 1.90E-08   |                 | 3E-04                     |                |
| Arsenic                          | 3E-04       | 1.5E+00       | 3.0E-02            | 5.8E+00            | 5.7E+00            | 1.12E-06   | 4.01E-07             | 4E-03                     | 6E-07          | 1.66E-06   | 2.38E-08             | 6E-03                     | 4E-08          | 5.48E-08   | 3.91E-09        | 2E-04                     | 6E-09          |
| Copper                           | 4E-02       | N/A           | 1.0E-03            | 2.9E+03            | 1.5E+03            | 1.85E-05   |                      | 5E-04                     |                | 1.43E-05   |                      | 4E-04                     |                | 9.03E-07   |                 | 2E-05                     |                |
| Iron                             | 3E-01       | N/A           | 1.0E-03            | 2.7E+04            | 2.8E+04            | 1.74E-04   |                      | 6E-04                     |                | 2.66E-04   |                      | 9E-04                     |                | 8.48E-06   |                 | 3E-05                     |                |
| Total Hazard Quotient and Cancer | Risk:       | •             |                    |                    | •                  |            |                      | 2E-02                     | 1E-05          |            |                      | 2E-02                     | 4E-07          |            |                 | 1E-03                     | 1E-07          |
|                                  |             |               |                    |                    |                    | As         | sumptions for        | Industrial Wor            | ker            | A          | ssumptions for       | Construction We           | orker          | Assu       | imptions for Ac | olescent Tresp            | asser          |
|                                  |             |               |                    |                    |                    | CF =       | 1E 06                | kg/mg                     |                | CF =       | 1E-06                | ka/ma                     |                | CF =       | 1E-06           | ka/ma                     |                |
|                                  |             |               |                    |                    |                    |            | EPC Surface C        |                           |                |            | EPC Surface an       |                           |                | EPC =      | EPC Surface O   |                           |                |
|                                  |             |               |                    |                    |                    | BW =       |                      | kg                        |                | BW =       | 70                   |                           |                | BW =       | 50              |                           |                |
|                                  |             |               |                    |                    |                    | SA =       | 3,300                | _                         |                | SA =       | 3,300                |                           |                | SA =       | 5,867           | -                         |                |
|                                  |             |               |                    |                    |                    | AF =       | - ,                  | mg/cm <sup>2</sup> -event |                | AF =       |                      | mg/cm <sup>2</sup> -event |                | AF =       | . ,             | mg/cm <sup>2</sup> -event |                |
|                                  |             |               |                    |                    |                    | EV =       |                      | event/day                 |                | EV =       |                      | event/day                 |                | EV =       |                 | event/day                 |                |
|                                  |             |               |                    |                    |                    | EF =       |                      | days/year                 |                | EF =       |                      | days/year                 |                | EF =       |                 | days/year                 |                |
|                                  |             |               |                    |                    |                    | ED =       |                      | years                     |                | ED =       |                      | years                     |                | ED =       |                 | years                     |                |
|                                  |             |               |                    |                    |                    | AT (Nc) =  | 9,125                |                           |                | AT (Nc) =  |                      | days                      |                | AT (Nc) =  | 1,825           |                           |                |
|                                  |             |               |                    |                    |                    | AT (Car) = | 25,550               |                           |                | AT (Car) = | 25,550               |                           |                | AT (Car) = | 25,550          |                           |                |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Absorption factor for benzene was assumed to be 0.01 in accordance with the USEPA Region 4 (2000) guidance for VOCs.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Absorption factors for antimony, copper, and iron were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

#### TABLE E-2B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg

EV = Event FrequencyEF = Exposure Frequency

ED = Exposure Duration

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

AF = Adherence Factor ABS = Absorption Factor

SA = Surface Area Contact

BW = Bodyweight AT = Averaging Time

|                                  | Dermal      | Carc. Slope   | Absorption | EPC          | EPC         |           | Industria        | al Worker                 |        |           | Constru        | ction Worker              |        | 100       | Adolescent     | Trespasser                |          |
|----------------------------------|-------------|---------------|------------|--------------|-------------|-----------|------------------|---------------------------|--------|-----------|----------------|---------------------------|--------|-----------|----------------|---------------------------|----------|
| Analyte                          | RfD         | Dermal        | Factor*    | Surface Soil | Total Soils |           | oed Dose         | Hazard                    | Cancer |           | oed Dose       | Hazard                    | Cancer |           | bed Dose       | Hazard                    | Cancer   |
|                                  |             |               |            |              |             |           | (g-day)          | Quotient                  | Risk   |           | (g-day)        | Quotient                  | Risk   |           | (g-day)        | Quotient                  | Risk     |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)      | (mg/kg)     | (Nc)      | (Car)            |                           |        | (Nc)      | (Car)          |                           |        | (Nc)      | (Car)          |                           |          |
| Volatile Organic Compounds       |             |               |            |              |             |           |                  |                           |        |           |                |                           |        |           |                |                           |          |
| Benzene                          | 4.00E-03    | 5.5E-02       | 1.0E-02    | N/A          | 1.9E-01     |           |                  |                           |        | 1.65E-08  | 2.35E-10       | 4E-06                     | 1E-11  |           |                |                           |          |
| Semivolatile Organic Compounds   |             |               |            |              |             |           |                  |                           |        |           |                |                           |        |           |                |                           |          |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 1.3E-01    | 3.1E+00      | 1.8E+00     |           | 2.92E-08         |                           | 2E-08  |           | 2.76E-08       |                           | 2E-08  |           | 1.29E-09       |                           | 9.42E-10 |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 1.3E-01    | 3.4E+00      | 1.8E+00     |           | 3.24E-08         |                           | 2E-07  |           | 2.85E-08       |                           | 2E-07  |           | 1.43E-09       |                           | 1.04E-08 |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 1.3E-01    | 4.5E+00      | 2.4E+00     |           | 4.29E-08         |                           | 3E-08  |           | 3.74E-08       |                           | 3E-08  |           | 1.90E-09       |                           | 1.38E-09 |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 1.3E-01    | 2.4E+00      | 1.3E+00     |           | 2.28E-08         |                           | 2E-09  |           | 2.03E-08       |                           | 1E-09  |           | 1.01E-09       |                           | 7.34E-11 |
| Chrysene                         | N/A         | 7.3E-03       | 1.3E-01    | 2.9E+00      | 1.7E+00     |           | 2.76E-08         |                           | 2E-10  |           | 2.64E-08       |                           | 2E-10  |           | 1.22E-09       |                           | 8.92E-12 |
| Dibenz(a,h)anthracene            | N/A         | 7.3E+00       | 1.3E-01    | 2.2E-01      | 2.1E-01     |           | 2.09E-09         |                           | 2E-08  |           | 3.26E-09       |                           | 2E-08  |           | 9.25E-11       |                           | 6.75E-10 |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 1.3E-01    | 3.6E-01      | 3.0E-01     |           | 3.37E-09         |                           | 2E-09  |           | 4.72E-09       |                           | 3E-09  |           | 1.49E-10       |                           | 1.09E-10 |
| Pesticides/PCBs                  |             |               |            |              |             |           |                  |                           |        |           |                |                           |        |           |                |                           |          |
| Dieldrin                         | 5.00E-05    | 1.6E+01       | 1.0E-01    | 1.4E-02      | 7.3E-03     | 7.87E-10  | 1.01E-10         | 2E-05                     | 2E-09  | 6.15E-09  | 8.79E-11       | 1E-04                     | 1E-09  | 6.27E-11  | 4.48E-12       | 1.25E-06                  | 7.16E-11 |
| Aroclor-1242                     | N/A         | 2.0E+00       | 1.4E-01    | 1.6E-02      | 1.4E-02     |           | 1.60E-10         |                           | 3E-10  |           | 2.44E-10       |                           | 5E-10  |           | 7.07E-12       |                           | 1.41E-11 |
| Aroclor-1254                     | 2.00E-05    | 2.0E+00       | 1.4E-01    | 2.8E-01      | 1.4E-01     | 2.22E-08  | 2.85E-09         | 1E-03                     | 6E-09  | 1.69E-07  | 2.42E-09       | 8E-03                     | 5E-09  | 1.76E-09  | 1.26E-10       | 8.82E-05                  | 2.52E-10 |
| Aroclor-1260                     | N/A         | 2.0E+00       | 1.4E-01    | 3.0E-02      | 3.3E-02     |           | 3.07E-10         |                           | 6E-10  |           | 5.68E-10       |                           | 1E-09  |           | 1.36E-11       |                           | 2.72E-11 |
| Metals                           |             |               |            |              |             |           |                  |                           |        |           |                |                           |        |           |                |                           |          |
| Antimony                         | 6.00E-05    | N/A           | 1.0E-03    | 6.0E+01      | 3.0E+01     | 3.42E-08  |                  | 6E-04                     |        | 2.54E-07  |                | 4E-03                     |        | 2.72E-09  |                | 4.53E-05                  |          |
| Arsenic                          | 3.00E-04    | 1.5E+00       | 3.0E-02    | 5.8E+00      | 5.7E+00     | 9.83E-08  | 1.26E-08         | 3E-04                     | 2E-08  | 1.46E-06  | 2.08E-08       | 5E-03                     | 3E-08  | 7.82E-09  | 5.59E-10       | 2.61E-05                  | 8.38E-10 |
| Copper                           | 4.00E-02    | N/A           | 1.0E-03    | 2.9E+03      | 1.5E+03     | 1.62E-06  |                  | 4E-05                     |        | 1.25E-05  |                | 3E-04                     |        | 1.29E-07  |                | 3.23E-06                  |          |
| Iron                             | 3.00E-01    | N/A           | 1.0E-03    | 2.7E+04      | 2.8E+04     | 1.52E-05  |                  | 5E-05                     |        | 2.33E-04  |                | 8E-04                     |        | 1.21E-06  |                | 4.04E-06                  |          |
| Total Hazard Quotient and Cancer | Risk:       |               |            |              |             |           |                  | 2E-03                     | 3E-07  |           |                | 2E-02                     | 3E-07  |           |                | 2E-04                     | 1E-08    |
|                                  |             |               |            |              |             | As        | ssumptions for l | Industrial Work           | er     | A         | ssumptions for | Construction Wo           | orker  | Assi      | umptions for A | dolescent Trespa          | asser    |
|                                  |             |               |            |              |             | CF =      | 1E-06            | kg/mg                     |        | CF =      | 1E-06          | kg/mg                     |        | CF =      | 1E-06          | kg/mg                     |          |
|                                  |             |               |            |              |             | CS =      | EPC Surface O    | nly                       |        | EPC =     | EPC Surface an | d Subsurface              |        | EPC =     | EPC Surface O  | nly                       |          |
|                                  |             |               |            |              |             | BW =      | 70               | kg                        |        | BW =      | 70             | kg                        |        | BW =      | 50             | kg                        |          |
|                                  |             |               |            |              |             | SA =      | 3,300            | cm <sup>2</sup>           |        | SA =      | 3,300          | cm <sup>2</sup>           |        | SA =      | 5,867          | cm <sup>2</sup>           |          |
|                                  |             |               |            |              |             | AF =      | 0.02             | mg/cm <sup>2</sup> -event |        | AF =      | 0.3            | mg/cm <sup>2</sup> -event |        | AF =      | 0.01           | mg/cm <sup>2</sup> -event |          |
|                                  |             |               |            |              |             | EV =      | 1                | event/day                 |        | EV =      | 1              | event/day                 |        | EV =      | 1              | event/day                 |          |
|                                  |             |               |            |              |             | EF =      |                  | days/year                 |        | EF =      |                | days/year                 |        | EF =      |                | days/year                 |          |
|                                  |             |               |            |              |             | ED =      |                  | years                     |        | ED =      |                | years                     |        | ED =      |                | years                     |          |
|                                  |             |               |            |              |             | ATT OUT N |                  |                           |        | ATT (NT-) |                |                           |        | ATT OUT N |                |                           |          |

3,285 days

25,550 days

AT (Nc) =

365 days

25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

AT (Nc) =

AT (Car) =

Absorption factors for antimony, copper, and iron were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

Absorption factor for benzene was assumed to be 0.01 in accordance with the USEPA Region 4 (2000) guidance for VOCs.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

AT (Nc) =

1,825 days

25,550 days

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

#### TABLE E-3A

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SOIL

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m³

EQUation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

EPC = EPC in Air, mg/m³

EQUation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EQUation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EPC = EPC in Air, mg/m³

EQUATION FOR EXAMPLE OF THE CARREST OF THE CARR

|  | Inhalation      | Carc. Slope        | Air EPC from         | Air EPC from         |            | Industria      | ıl Worker           |        |            | Constru         | ction Worker        |        |            | Adolescent      | Trespasser          |        |
|--|-----------------|--------------------|----------------------|----------------------|------------|----------------|---------------------|--------|------------|-----------------|---------------------|--------|------------|-----------------|---------------------|--------|
| Analyte                                  | RfD             | Inhalation         | Surface Soil         | Total Soils          | In         | take           | Hazard              | Cancer | In         | take            | Hazard              | Cancer | Int        | ake             | Hazard              | Cancer |
|  |                 |                    | (1)                  | (2)                  | (mg/l      | kg-day)        | Quotient            | Risk   | (mg/k      | kg-day)         | Quotient            | Risk   | (mg/k      | g-day)          | Quotient            | Risk   |
|  | (mg/kg-day)     | (mg/kg-day)-1      | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)           |                     |        | (Nc)       | (Car)           |                     |        |
| Volatile Organic Compounds               |                 |                    |                      |                      |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzene                                  | 8.57E-03        | 2.73E-02           | N/A                  | 1.9E-07              |            |                |                     |        | 3.63E-08   | 5.18E-10        | 4E-06               | 1E-11  |            |                 |                     |        |
| Semivolatile Organic Compounds           |                 |                    |                      |                      |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(a)anthracene                       | N/A             | N/A                | 5.2E-08              | 1.7E-06              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(a)pyrene                           | N/A             | 3.10E+00           | 5.8E-08              | 1.7E-06              |            | 4.07E-09       |                     | 1E-08  |            | 4.83E-09        |                     | 1E-08  |            | 5.10E-12        |                     | 2E-11  |
| Benzo(b)fluoranthene                     | N/A             | N/A                | 7.7E-08              | 2.3E-06              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(k)fluoranthene                     | N/A             | N/A                | 4.1E-08              | 1.2E-06              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Chrysene                                 | N/A             | N/A                | 5.0E-08              | 1.6E-06              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Dibenz(a,h)anthracene                    | N/A             | N/A                | 3.8E-09              | 2.0E-07              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Indeno(1,2,3-cd)pyrene                   | N/A             | N/A                | 6.1E-09              | 2.9E-07              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Pesticides/PCBs                          |                 |                    |                      |                      |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Dieldrin                                 | N/A             | 1.61E+01           | 2.4E-10              | 6.9E-09              |            | 1.65E-11       |                     | 3E-10  |            | 1.93E-11        |                     | 3E-10  |            | 2.07E-14        |                     | 3E-13  |
| Aroclor-1242                             | N/A             | 2.00E+00           | 2.7E-10              | 1.4E-08              |            | 1.87E-11       |                     | 4E-11  |            | 3.84E-11        |                     | 8E-11  |            | 2.34E-14        |                     | 5E-14  |
| Aroclor-1254                             | N/A             | 2.00E+00           | 4.8E-09              | 1.4E-07              |            | 3.33E-10       |                     | 7E-10  |            | 3.80E-10        |                     | 8E-10  |            | 4.17E-13        |                     | 8E-13  |
| Aroclor-1260                             | N/A             | 2.00E+00           | 5.1E-10              | 3.2E-08              |            | 3.58E-11       |                     | 7E-11  |            | 8.93E-11        |                     | 2E-10  |            | 4.50E-14        |                     | 9E-14  |
| Metals                                   |                 |                    |                      |                      |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Antimony                                 | N/A             | N/A                | 1.0E-06              | 2.9E-05              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Arsenic                                  | N/A             | 1.51E+01           | 9.9E-08              | 5.5E-06              |            | 6.88E-09       |                     | 1E-07  |            | 1.53E-08        |                     | 2E-07  |            | 8.64E-12        |                     | 1E-10  |
| Copper                                   | N/A             | N/A                | 4.9E-05              | 1.4E-03              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Iron                                     | N/A             | N/A                | 4.6E-04              | 2.6E-02              |            |                |                     |        |            |                 |                     |        |            |                 |                     |        |
| Total Hazard Quotient and Cancer I       | Risk:           |                    |                      |                      |            |                |                     | 1E-07  |            |                 | 4E-06               | 2E-07  |            |                 |                     | 1E-10  |
|  |                 |                    |                      |                      | A          | ssumptions for | Industrial Wor      | ker    | A          | Assumptions for | Construction Wor    | ker    | Asst       | imptions for Ad | olescent Tresp      | asser  |
|  |                 |                    |                      |                      | EPC =      | EPC Surface O  | nlv                 |        | EPC =      | EPC Surface an  | d Subsurface        |        | EPC =      | EPC Surface Or  | nlv                 |        |
|  |                 |                    |                      |                      | BW =       |                | kg                  |        | BW =       | 70              | kg                  |        | BW =       | 50              |                     |        |
|  |                 |                    |                      |                      | IR =       | 20             | m <sup>3</sup> /day |        | IR =       | 20              | m <sup>3</sup> /day |        | IR =       | 1.6             | m <sup>3</sup> /day |        |
|  |                 |                    |                      |                      | EF =       | 250            | days/year           |        | EF =       | 250             | days/year           |        | EF =       | 14              | days/year           |        |
|  |                 |                    |                      |                      | ED =       |                | years               |        | ED =       |                 | year                |        | ED =       |                 | years               |        |
|  |                 |                    |                      |                      | AT (Nc) =  | 9,125          |                     |        | AT (Nc) =  |                 | days                |        | AT (Nc) =  | 1,825           |                     |        |
|  |                 |                    |                      |                      | AT (Car) = | 25,550         |                     |        | AT (Car) = | 25,550          |                     |        | AT (Car) = | 25,550          |                     |        |
| Note: Cells in this table were intention | ally left blank | due to a lack of t | tovicity data        |                      | ,          | -,             |                     |        |            | -,              |                     |        | /          | .,              |                     |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### TABLE E-3B

#### CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR

#### CENTRAL TENDENCY (CT) - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT
Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m<sup>3</sup>
ED = Exposure Duration

ED = Exposure Duration
BW = Bodyweight
EF = Exposure Frequency
BW = Bodyweight
AT = Averaging Time

|                                    | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |            | Industria     | l Worker            |        |            | Constructi      | on Worker           |        |            | Adolescent      | Trespasser          |        |
|------------------------------------|-------------|---------------|----------------------|----------------------|------------|---------------|---------------------|--------|------------|-----------------|---------------------|--------|------------|-----------------|---------------------|--------|
| Analyte                            | RfD         | Inhalation    | Surface Soil         | Total Soils          | Int        | ake           | Hazard              | Cancer | Int        | ake             | Hazard              | Cancer | Int        | take            | Hazard              | Cancer |
|                                    |             |               | (1)                  | (2)                  | (mg/k      | g-day)        | Quotient            | Risk   | (mg/k      | g-day)          | Quotient            | Risk   | (mg/k      | (g-day)         | Quotient            | Risk   |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)       | (Car)         |                     |        | (Nc)       | (Car)           |                     |        | (Nc)       | (Car)           |                     |        |
| Volatile Organic Compounds         |             |               |                      |                      |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzene                            | 8.57E-03    | 2.73E-02      | N/A                  | 1.9E-07              |            |               |                     |        | 3.18E-08   | 4.54E-10        | 4E-06               | 1E-11  |            |                 |                     |        |
| Semivolatile Organic Compounds     |             |               |                      |                      |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(a)anthracene                 | N/A         | N/A           | 5.2E-08              | 1.7E-06              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(a)pyrene                     | N/A         | 3.10E+00      | 5.8E-08              | 1.7E-06              |            | 6.67E-10      |                     | 2E-09  |            | 4.23E-09        |                     | 1E-08  |            | 5.10E-12        |                     | 2E-11  |
| Benzo(b)fluoranthene               | N/A         | N/A           | 7.7E-08              | 2.3E-06              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Benzo(k)fluoranthene               | N/A         | N/A           | 4.1E-08              | 1.2E-06              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Chrysene                           | N/A         | N/A           | 5.0E-08              | 1.6E-06              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Dibenz(a,h)anthracene              | N/A         | N/A           | 3.8E-09              | 2.0E-07              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Indeno(1,2,3-cd)pyrene             | N/A         | N/A           | 6.1E-09              | 2.9E-07              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Pesticides/PCBs                    |             |               |                      |                      |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Dieldrin                           | N/A         | 1.61E+01      | 2.4E-10              | 6.9E-09              |            | 2.71E-12      |                     | 4E-11  |            | 1.69E-11        |                     | 3E-10  |            | 2.07E-14        |                     | 3E-13  |
| Aroclor-1242                       | N/A         | 2.00E+00      | 2.7E-10              | 1.4E-08              |            | 3.06E-12      |                     | 6E-12  |            | 3.36E-11        |                     | 7E-11  |            | 2.34E-14        |                     | 5E-14  |
| Aroclor-1254                       | N/A         | 2.00E+00      | 4.8E-09              | 1.4E-07              |            | 5.45E-11      |                     | 1E-10  |            | 3.33E-10        |                     | 7E-10  |            | 4.17E-13        |                     | 8E-13  |
| Aroclor-1260                       | N/A         | 2.00E+00      | 5.1E-10              | 3.2E-08              |            | 5.88E-12      |                     | 1E-11  |            | 7.82E-11        |                     | 2E-10  |            | 4.50E-14        |                     | 9E-14  |
| Metals                             |             |               |                      |                      |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Antimony                           | N/A         | N/A           | 1.0E-06              | 2.9E-05              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Arsenic                            | N/A         | 1.51E+01      | 9.9E-08              | 5.5E-06              |            | 1.13E-09      |                     | 2E-08  |            | 1.34E-08        |                     | 2E-07  |            | 8.64E-12        |                     | 1E-10  |
| Copper                             | N/A         | N/A           | 4.9E-05              | 1.4E-03              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Iron                               | N/A         | N/A           | 4.6E-04              | 2.6E-02              |            |               |                     |        |            |                 |                     |        |            |                 |                     |        |
| Total Hazard Quotient and Cancer F | Risk:       |               |                      |                      |            |               |                     | 2E-08  |            |                 | 4E-06               | 2E-07  |            |                 |                     | 1E-10  |
|                                    |             |               |                      |                      | As         | sumptions for | Industrial Wor      | ker    | Assi       | umptions for Co | onstruction We      | orker  | Assı       | umptions for Ac | lolescent Tresp     | asser  |
|                                    |             |               |                      |                      | EPC =      | EPC Surface O | nlv                 |        | EPC =      | EPC Surface an  | nd Subsurface       |        | EPC =      | EPC Surface O   | nlv                 |        |
|                                    |             |               |                      |                      | BW =       | 70            |                     |        | BW =       | 70              |                     |        | BW =       |                 | kg                  |        |
|                                    |             |               |                      |                      | IR =       | 10.4          | m <sup>3</sup> /day |        | IR =       | 20              | m <sup>3</sup> /day |        | IR =       | 1.6             | m <sup>3</sup> /day |        |
|                                    |             |               |                      |                      | EF =       | 219           | days/year           |        | EF =       | 219             | days/year           |        | EF =       | 14              | days/year           |        |
|                                    |             |               |                      |                      | ED =       | 9             | years               |        | ED =       | 1               | year                |        | ED =       |                 | years               |        |
|                                    |             |               |                      |                      | AT (Nc) =  | 3,285         | days                |        | AT (Nc) =  | 365             | days                |        | AT (Nc) =  | 1,825           | days                |        |
|                                    |             |               |                      |                      | AT (Car) = | 25,550        | m <sup>3</sup> /day |        | AT (Car) = | 25,550          | m <sup>3</sup> /day |        | AT (Car) = | 25,550          | m <sup>3</sup> /day |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

This EPC was used for the industrial worker and the adolescent trespasser.

(2) This EPC was used for the construction worker.

#### TABLE E-4A

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom); EPC = Exposure Point Concentration in Ditch Soil, mg/kg EF = Exposure Frequency ED = Exposure Duration IR = Ingestion Rate CF = Conversion Factor BW = Bodyweight FI = Fraction Ingested AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                 |             |               | nna -      |                      |               |                |        |            |               |                 |        |            |                | _               |        |
|---------------------------------|-------------|---------------|------------|----------------------|---------------|----------------|--------|------------|---------------|-----------------|--------|------------|----------------|-----------------|--------|
|                                 | Oral        | Carc. Slope   | EPC        |                      |               | l Worker       |        | _          |               | ction Worker    |        |            |                | Trespasser      | -      |
| Analyte                         | RfD         | Oral          | Ditch Soil |                      | ake           | Hazard         | Cancer |            | ake           | Hazard          | Cancer |            | take           | Hazard          | Cancer |
|                                 |             |               |            |                      | g-day)        | Quotient       | Risk   | (mg/k      |               | Quotient        | Risk   |            | g-day)         | Quotient        | Risk   |
|                                 | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)    | (Nc)                 | (Car)         |                |        | (Nc)       | (Car)         |                 |        | (Nc)       | (Car)          |                 |        |
| Semivolatile Organic Compounds  |             |               |            |                      |               |                |        |            |               |                 |        |            |                |                 |        |
| Benzo(a)anthracene              | N/A         | 7.3E-01       | 6.8E-01    |                      | 4.73E-08      |                | 3E-08  |            | 3.12E-08      |                 | 2E-08  |            | 3.71E-09       |                 | 3E-09  |
| Benzo(a)pyrene                  | N/A         | 7.3E+00       | 6.3E-01    |                      | 4.42E-08      |                | 3E-07  |            | 2.91E-08      |                 | 2E-07  |            | 3.46E-09       |                 | 3E-08  |
| Benzo(b)fluoranthene            | N/A         | 7.3E-01       | 6.7E-01    |                      | 4.71E-08      |                | 3E-08  |            | 3.11E-08      |                 | 2E-08  |            | 3.69E-09       |                 | 3E-09  |
| Benzo(k)fluoranthene            | N/A         | 7.3E-02       | 5.8E-01    |                      | 4.07E-08      |                | 3E-09  |            | 2.68E-08      |                 | 2E-09  |            | 3.19E-09       |                 | 2E-10  |
| Chrysene                        | N/A         | 7.3E-03       | 7.0E-01    |                      | 4.89E-08      |                | 4E-10  |            | 3.23E-08      |                 | 2E-10  |            | 3.83E-09       |                 | 3E-11  |
| Indeno(1,2,3-cd)pyrene          | N/A         | 7.3E-01       | 5.8E-01    |                      | 4.07E-08      |                | 3E-08  |            | 2.69E-08      |                 | 2E-08  |            | 3.19E-09       |                 | 2E-09  |
| Metals                          |             |               |            |                      |               |                |        |            |               |                 |        |            |                |                 |        |
| Arsenic                         | 3E-04       | 1.5E+00       | 4.3E+00    | 8.34E-07             | 2.98E-07      | 3E-03          | 4E-07  | 1.38E-05   | 1.97E-07      | 5E-02           | 3E-07  | 3.27E-07   | 2.34E-08       | 1E-03           | 4E-08  |
| Iron                            | 3E-01       | N/A           | 2.2E+04    | 4.25E-03             |               | 1E-02          |        | 7.02E-02   |               | 2E-01           |        | 1.67E-03   |                | 6E-03           |        |
| Total Hazard Quotient and Cance | r Risk:     |               |            |                      |               | 2E-02          | 9E-07  |            |               | 3E-01           | 6E-07  |            |                | 7E-03           | 7E-08  |
|                                 |             |               |            | As                   | sumptions for | Industrial Wor | ker    | As         | sumptions for | Construction Wo | rker   | Assı       | amptions for A | dolescent Tresp | asser  |
|                                 |             |               |            | CF =                 | 1E-06         | kg/mg          |        | CF =       | 1E-06         | kg/mg           |        | CF =       | 1E-06          | kg/mg           |        |
|                                 |             |               |            | BW =                 | 70            | kg             |        | BW =       | 70            | kg              |        | BW =       |                | kg              |        |
|                                 |             |               |            | IR =                 |               | mg/day         |        | IR =       |               | mg/day          |        | IR =       |                | mg/day          |        |
|                                 |             |               |            | FI =                 |               | unitless       |        | FI =       |               | unitless        |        | FI =       |                | unitless        |        |
| 1                               |             |               |            | EF =                 |               | days/year      |        | EF =       |               | days/year       |        | EF =       |                | days/year       |        |
| 1                               |             |               |            | ED =                 |               | years          |        | ED =       |               | years           |        | ED =       |                | years           |        |
| 1                               |             |               |            | AT (Nc) = 9,125 days |               |                |        | AT (Nc) =  |               | days            |        | AT (Nc) =  | 1,825          | •               |        |
|                                 |             |               |            | AT (Car) =           | 25,550        | days           |        | AT (Car) = | 25,550        | days            |        | AT (Car) = | 25,550         | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data

NA= Information not available

#### **TABLE E-4B**

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Ditch Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested

EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                  | Oral        | Carc. Slope   | EPC        |            | Industria      | al Worker      |        |            | Constru        | ction Worker    |        |            | Adolescent     | Trespasser       |        |
|----------------------------------|-------------|---------------|------------|------------|----------------|----------------|--------|------------|----------------|-----------------|--------|------------|----------------|------------------|--------|
| Analyte                          | RfD         | Oral          | Ditch Soil | Int        | take –         | Hazard         | Cancer | Int        | ake            | Hazard          | Cancer | In         | take           | Hazard           | Cancer |
|                                  |             |               |            | (mg/k      | (g-day)        | Quotient       | Risk   | (mg/k      | g-day)         | Quotient        | Risk   | (mg/k      | g-day)         | Quotient         | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)    | (Nc)       | (Car)          |                |        | (Nc)       | (Car)          |                 |        | (Nc)       | (Car)          |                  |        |
| Semivolatile Organic Compounds   |             |               |            |            |                |                |        |            |                |                 |        |            |                |                  |        |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 6.8E-01    |            | 8.51E-09       |                | 6E-09  |            | 8.28E-09       |                 | 6E-09  |            | 1.85E-09       |                  | 1E-09  |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 6.3E-01    |            | 7.95E-09       |                | 6E-08  |            | 7.74E-09       |                 | 6E-08  |            | 1.73E-09       |                  | 1E-08  |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 6.7E-01    |            | 8.48E-09       |                | 6E-09  |            | 8.26E-09       |                 | 6E-09  |            | 1.85E-09       |                  | 1E-09  |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 5.8E-01    |            | 7.32E-09       |                | 5E-10  |            | 7.13E-09       |                 | 5E-10  |            | 1.59E-09       |                  | 1E-10  |
| Chrysene                         | N/A         | 7.3E-03       | 7.0E-01    |            | 8.80E-09       |                | 6E-11  |            | 8.57E-09       |                 | 6E-11  |            | 1.92E-09       |                  | 1E-11  |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 5.8E-01    |            | 7.33E-09       |                | 5E-09  |            | 7.14E-09       |                 | 5E-09  |            | 1.60E-09       |                  | 1E-09  |
| Metals                           |             |               |            |            |                |                |        |            |                |                 |        |            |                |                  |        |
| Arsenic                          | 3.0E-04     | 1.5E+00       | 4.3E+00    | 4.17E-07   | 5.36E-08       | 1E-03          | 8E-08  | 3.65E-06   | 5.22E-08       | 1E-02           | 8E-08  | 1.64E-07   | 1.17E-08       | 5E-04            | 2E-08  |
| Iron                             | 3.0E-01     | N/A           | 2.2E+04    | 2.13E-03   |                | 7E-03          |        | 1.86E-02   |                | 6E-02           |        | 8.33E-04   |                | 3E-03            |        |
| Total Hazard Quotient and Cancer | Risk:       |               |            |            |                | 8E-03          | 2E-07  |            |                | 7E-02           | 2E-07  |            |                | 3E-03            | 3E-08  |
|                                  |             |               |            | A          | ssumptions for | Industrial Wor | ker    | A          | ssumptions for | Construction Wo | orker  | Ass        | umptions for A | lolescent Trespa | asser  |
|                                  |             |               |            | CF =       |                | kg/mg          |        | CF =       | 1E-06          | kg/mg           |        | CF =       | 1E-06          | kg/mg            |        |
|                                  |             |               |            | BW =       |                | kg             |        | BW =       |                | kg              |        | BW =       | 50             |                  |        |
|                                  |             |               |            | IR =       |                | mg/day         |        | IR =       |                | mg/day          |        | IR =       |                | mg/day           |        |
|                                  |             |               |            | FI =       |                | unitless       |        | FI =       |                | unitless        |        | FI =       |                | unitless         |        |
|                                  |             |               |            | EF =       |                | days/year      |        | EF =       |                | days/year       |        | EF =       |                | days/year        |        |
|                                  |             |               |            | ED =       |                | years          |        | ED =       |                | years           |        | ED =       |                | years            |        |
|                                  |             |               |            | AT (Nc) =  | 3,285          |                |        | AT (Nc) =  |                | days            |        | AT (Nc) =  | 1,825          |                  |        |
|                                  |             |               |            | AT (Car) = | 25,550         | days           |        | AT (Car) = | 25,550         | days            |        | AT (Car) = | 25,550         | days             |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE E-5A

### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Ditch Soil, mg/kg

CF = Conversion Factor

SA = Surface Area Contact

EV = Event Frequency

EF = Exposure Frequency

ED = Exposure Duration

AF = Adherence Factor BW = Bodyweight
ABS = Absorption Factor AT = Averaging Time

 $Equation \ for \ Hazard \ Quotient = Chronic \ Daily \ Intake \ (Nc)/Reference \ Dose$ 

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

365 days

25,550 days

AT (Nc) = AT (Car) = 1,825 days

25,550 days

|                                  | Dermal      | Carc. Slope   | Absorption | EPC        |          | Industria      | al Worker                 |        |          | Constru         | ction Worker              |        | Yi.      | Adolescent     | Trespasser                |        |
|----------------------------------|-------------|---------------|------------|------------|----------|----------------|---------------------------|--------|----------|-----------------|---------------------------|--------|----------|----------------|---------------------------|--------|
| Analyte                          | RfD         | Dermal        | Factor*    | Ditch Soil | Absorb   | ed Dose        | Hazard                    | Cancer | Absorb   | oed Dose        | Hazard                    | Cancer | Absorb   | ed Dose        | Hazard                    | Cancer |
|                                  |             |               |            |            | (mg/k    | (g-day)        | Quotient                  | Risk   | (mg/k    | (g-day)         | Quotient                  | Risk   | (mg/k    | g-day)         | Quotient                  | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)    | (Nc)     | (Car)          |                           |        | (Nc)     | (Car)           |                           |        | (Nc)     | (Car)          |                           |        |
| Semivolatile Organic Compounds   |             |               |            |            |          |                |                           |        |          |                 |                           |        |          |                |                           |        |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 1.3E-01    | 6.8E-01    |          | 4.06E-08       |                           | 3E-08  |          | 1.22E-08        |                           | 9E-09  |          | 1.98E-09       |                           | 1E-09  |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 1.3E-01    | 6.3E-01    |          | 3.79E-08       |                           | 3E-07  |          | 1.14E-08        |                           | 8E-08  |          | 1.85E-09       |                           | 1E-08  |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 1.3E-01    | 6.7E-01    |          | 4.04E-08       |                           | 3E-08  |          | 1.21E-08        |                           | 9E-09  |          | 1.97E-09       |                           | 1E-09  |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 1.3E-01    | 5.8E-01    |          | 3.49E-08       |                           | 3E-09  |          | 1.05E-08        |                           | 8E-10  |          | 1.70E-09       |                           | 1E-10  |
| Chrysene                         | N/A         | 7.3E-03       | 1.3E-01    | 7.0E-01    |          | 4.20E-08       |                           | 3E-10  |          | 1.26E-08        |                           | 9E-11  |          | 2.05E-09       |                           | 1E-11  |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 1.3E-01    | 5.8E-01    |          | 3.49E-08       |                           | 3E-08  |          | 1.05E-08        |                           | 8E-09  |          | 1.70E-09       |                           | 1E-09  |
| Metals                           |             |               |            |            |          |                |                           |        |          |                 |                           |        |          |                |                           |        |
| Arsenic                          | 3E-04       | 1.5E+00       | 3.0E-02    | 4.3E+00    | 1.65E-07 | 5.90E-08       | 6E-04                     | 9E-08  | 1.24E-06 | 1.77E-08        | 4E-03                     | 3E-08  | 4.03E-08 | 2.88E-09       | 1E-04                     | 4E-09  |
| Iron                             | 3E-01       | N/A           | 1.0E-03    | 2.2E+04    | 2.81E-05 |                | 9E-05                     |        | 2.10E-04 |                 | 7E-04                     |        | 6.85E-06 |                | 2E-05                     |        |
| Total Hazard Quotient and Cancer | Risk:       |               |            |            |          |                | 6E-04                     | 5E-07  |          |                 | 5E-03                     | 1E-07  |          |                | 2E-04                     | 2E-08  |
|                                  |             |               |            |            | A        | ssumptions for | Industrial Wor            | ke     | A        | Assumptions for | Construction Wo           | orke   | Ass      | umptions for A | dolescent Tresp           | assei  |
|                                  |             |               |            |            | CF =     | 1E-06          | kg/mg                     |        | CF =     | 1E-06           | kg/mg                     |        | CF =     | 1E-06          | kg/mg                     |        |
|                                  |             |               |            |            | BW =     | 70             | kg                        |        | BW =     | 70              | kg                        |        | BW =     | 50             | kg                        |        |
|                                  |             |               |            |            | SA =     | 3,300          | cm <sup>2</sup>           |        | SA =     | 3,300           | cm <sup>2</sup>           |        | SA =     | 5,867          | cm <sup>2</sup>           |        |
|                                  |             |               |            |            | AF =     | 0.2            | mg/cm <sup>2</sup> -event |        | AF =     | 0.3             | mg/cm <sup>2</sup> -event |        | AF =     | 0.07           | mg/cm <sup>2</sup> -event |        |
|                                  |             |               |            |            | EV =     | 1              | event/day                 |        | EV =     | 1               | event/day                 |        | EV =     | 1              | event/day                 |        |
|                                  |             |               |            |            | EF =     |                | days/year                 |        | EF =     | 250             | days/year                 |        | EF =     |                | days/year                 |        |
|                                  |             |               |            |            | ED =     | 25             | years                     |        | ED =     | 1               | years                     |        | ED =     | 5              | years                     |        |

9,125 days

25,550 days

AT (Nc) =

AT (Car) =

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

AT (Nc) =

AT (Car) =

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Absorption factor for iron was assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

#### TABLE E-5B

## CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL CENTRAL TENDENCY (CT) - SEAD-121C

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Ditch Soil, mg/kg

CF = Conversion Factor

SA = Surface Area Contact

AF = Adherence Factor

BW = Bodyweight

ABS = Absorption Factor

AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                  | Dermal      | Carc. Slope   | Absorption | EPC        |            | Industria         | ıl Worker          |                |            | Constru             | ction Worker              |                |            | Adolescent      | Trespasser                |                |
|----------------------------------|-------------|---------------|------------|------------|------------|-------------------|--------------------|----------------|------------|---------------------|---------------------------|----------------|------------|-----------------|---------------------------|----------------|
| Analyte                          | RfD         | Dermal        | Factor*    | Ditch Soil |            | ed Dose<br>g-day) | Hazard<br>Ouotient | Cancer<br>Risk |            | oed Dose<br>(g-day) | Hazard<br>Ouotient        | Cancer<br>Risk |            | ed Dose         | Hazard<br>Quotient        | Cancer<br>Risk |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)    | (Nc)       | (Car)             | Quouent            | RISK           | (Nc)       | (Car)               | Quotient                  | RISK           | (Nc)       | g-day)<br>(Car) | Quotient                  | KISK           |
| Semivolatile Organic Compounds   |             |               |            |            |            |                   |                    |                |            |                     |                           |                |            |                 |                           |                |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 1.3E-01    | 6.8E-01    |            | 1.46E-09          |                    | 1E-09          | 1          | 1.07E-08            |                           | 8E-09          |            | 2.83E-10        |                           | 2.06E-10       |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 1.3E-01    | 6.3E-01    |            | 1.36E-09          |                    | 1E-08          | 1          | 9.96E-09            |                           | 7E-08          |            | 2.64E-10        |                           | 1.93E-09       |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 1.3E-01    | 6.7E-01    |            | 1.46E-09          |                    | 1E-09          | 1          | 1.06E-08            |                           | 8E-09          |            | 2.82E-10        |                           | 2.06E-10       |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 1.3E-01    | 5.8E-01    |            | 1.26E-09          |                    | 9E-11          |            | 9.17E-09            |                           | 7E-10          |            | 2.43E-10        |                           | 1.78E-11       |
| Chrysene                         | N/A         | 7.3E-03       | 1.3E-01    | 7.0E-01    |            | 1.51E-09          |                    | 1E-11          |            | 1.10E-08            |                           | 8E-11          |            | 2.92E-10        |                           | 2.13E-12       |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 1.3E-01    | 5.8E-01    |            | 1.26E-09          |                    | 9E-10          | 1          | 9.18E-09            |                           | 7E-09          |            | 2.44E-10        |                           | 1.78E-10       |
| Metals                           |             |               |            |            |            |                   |                    |                |            |                     |                           |                |            |                 |                           |                |
| Arsenic                          | 3.00E-04    | 1.5E+00       | 3.0E-02    | 4.3E+00    | 1.65E-08   | 2.12E-09          | 6E-05              | 3E-09          | 1.09E-06   | 1.55E-08            | 4E-03                     | 2E-08          | 5.76E-09   | 4.11E-10        | 1.92E-05                  | 6.17E-10       |
| Iron                             | 3.00E-01    | N/A           | 1.0E-03    | 2.2E+04    | 2.81E-06   |                   | 9E-06              |                | 1.84E-04   |                     | 6E-04                     |                | 9.78E-07   |                 | 3.26E-06                  |                |
| Fotal Hazard Quotient and Cancer | Risk:       |               |            |            |            |                   | 6E-05              | 2E-08          |            |                     | 4E-03                     | 1E-07          |            |                 | 2E-05                     | 3E-09          |
|                                  |             |               |            |            | As         | ssumptions for    | Industrial Wor     | ker            | A          | ssumptions for      | Construction Wo           | orker          | Assu       | imptions for A  | lolescent Tresp           | asser          |
|                                  |             |               |            |            | CF =       | 1E-06             | kg/mg              |                | CF =       | 1E-06               | kg/mg                     |                | CF =       | 1E-06           | kg/mg                     |                |
|                                  |             |               |            |            | BW =       | 70                | kg                 |                | BW =       | 70                  | kg                        |                | BW =       | 50              | kg                        |                |
|                                  |             |               |            |            | SA =       | 3,300             | cm <sup>2</sup>    |                | SA =       | 3,300               | cm <sup>2</sup>           |                | SA =       | 5,867           | cm <sup>2</sup>           |                |
|                                  |             |               |            |            | AF =       | 0.02              | mg/cm2-event       |                | AF =       | 0.3                 | mg/cm <sup>2</sup> -event |                | AF =       | 0.01            | mg/cm <sup>2</sup> -event |                |
|                                  |             |               |            |            | EV =       |                   | event/day          |                | EV =       |                     | event/day                 |                | EV =       |                 | event/day                 |                |
|                                  |             |               |            |            | EF =       |                   | days/year          |                | EF =       |                     | days/year                 |                | EF =       |                 | days/year                 |                |
|                                  |             |               |            |            | ED =       |                   | years              |                | ED =       |                     | years                     |                | ED =       |                 | years                     |                |
|                                  |             |               |            |            | AT (Nc) =  | 3,285             |                    |                | AT (Nc) =  |                     | days                      |                | AT (Nc) =  | 1,825           | •                         |                |
|                                  |             |               |            |            | AT (Car) = | 25,550            | days               |                | AT (Car) = | 25,550              | days                      |                | AT (Car) = | 25,550          | days                      |                |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Absorption factor for iron was assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

#### TABLE E-6A

# CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C DITCH SOIL

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) =                                   | EPC x IR x EF x ED     |   |
|---|------------------------|---|
|   | BW x AT                | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                        |   |
| $EPC = EPC \text{ in Air, } mg/m^3$                                 | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate  | BW = Bodyweight        |   |
| EF = Exposure Frequency   | AT = Averaging Time    |   |

|                                      | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |            | Industria      | al Worker      |        |            | Constru        | ction Worker        |        |            | Adolescent     | Trespasser     |        |
|--------------------------------------|-------------|---------------|----------------------|----------------------|------------|----------------|----------------|--------|------------|----------------|---------------------|--------|------------|----------------|----------------|--------|
| Analyte                              | RfD         | Inhalation    | Ditch Soil           | Ditch Soil           | In         | take           | Hazard         | Cancer | Int        | ake            | Hazard              | Cancer | Int        | ake            | Hazard         | Cancer |
|                                      |             |               | (1)                  | Const. Worker (2)    | (mg/l      | (g-day         | Quotient       | Risk   | (mg/k      | g-day)         | Quotient            | Risk   | (mg/k      | g-day)         | Quotient       | Risk   |
|                                      | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)       | (Car)          |                |        | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)          |                |        |
|                                      |             |               |                      |                      |            |                |                |        |            |                |                     |        |            |                |                |        |
| Semivolatile Organic Compounds       |             |               |                      |                      |            |                |                |        |            |                |                     |        |            |                |                |        |
| Benzo(a)anthracene                   | N/A         | N/A           | 1.1E-08              | 7.4E-08              |            |                |                |        |            |                |                     |        |            |                |                |        |
| Benzo(a)pyrene                       | N/A         | 3.10E+00      | 1.1E-08              | 6.9E-08              |            | 7.51E-10       |                | 2E-09  |            | 1.94E-10       |                     | 6E-10  |            | 9.42E-13       |                | 3E-12  |
| Benzo(b)fluoranthene                 | N/A         | N/A           | 1.1E-08              | 7.4E-08              |            | 1              |                |        |            |                |                     |        | 1          |                |                |        |
| Benzo(k)fluoranthene                 | N/A         | N/A           | 9.9E-09              | 6.4E-08              |            |                |                |        |            |                |                     |        |            |                |                |        |
| Chrysene                             | N/A         | N/A           | 1.2E-08              | 7.7E-08              |            |                |                |        |            |                |                     |        |            |                |                |        |
| Indeno(1,2,3-cd)pyrene               | N/A         | N/A           | 9.9E-09              | 6.4E-08              |            |                |                |        |            |                |                     |        |            |                |                |        |
| Metals                               |             |               |                      |                      |            |                |                |        |            |                |                     |        |            |                |                |        |
| Arsenic                              | N/A         | 1.51E+01      | 7.2E-08              | 4.7E-07              |            | 5.07E-09       |                | 8E-08  |            | 1.31E-09       |                     | 2E-08  |            | 6.35E-12       |                | 1E-10  |
| Iron                                 | N/A         | N/A           | 3.7E-04              | 2.4E-03              |            |                |                |        |            |                |                     |        |            |                |                |        |
| Total Hazard Quotient and Cancer Ris | k:          |               |                      |                      |            |                |                | 8E-08  |            |                |                     | 2E-08  |            |                |                | 1E-10  |
|                                      |             |               |                      |                      | A          | ssumptions for | Industrial Wor | ker    | A          | ssumptions for | Construction Wor    | ker    | Assu       | mptions for Ad | olescent Tresp | asser  |
|                                      |             |               |                      |                      | BW =       | 70             | kg             |        | BW =       | 70             | kg                  |        | BW =       | 50             | kg             |        |
|                                      |             |               |                      |                      | IR =       |                | m³/day         |        | IR =       |                | m <sup>3</sup> /day |        | IR =       |                | m³/day         |        |
|                                      |             |               |                      |                      | EF =       |                | days/year      |        | EF =       |                | days/year           |        | EF =       |                | days/year      |        |
|                                      |             |               |                      |                      | ED =       |                | years          |        | ED =       |                | year                |        | ED =       |                | years          |        |
|                                      |             |               |                      |                      | AT (Nc) =  | 9,125          |                |        | AT (Nc) =  |                | days                |        | AT (Nc) =  | 1,825          |                |        |
|                                      |             |               |                      |                      | AT (Car) = | 25,550         |                |        | AT (Car) = | 25,550         |                     |        | AT (Car) = | 25,550         |                |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### TABLE E-6B

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR CENTRAL TENDENCY (CT) - SEAD-121C DITCH SOIL

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m³

ED = Exposure Duration
BW = Bodyweight
EF = Exposure Frequency

ED = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

AT = Averaging Time

|                                  | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         | -          | Industria      | ıl Worker           |        |            | Construct      | ion Worker          |        |            | Adolescent     | Trespasser          |        |
|----------------------------------|-------------|---------------|----------------------|----------------------|------------|----------------|---------------------|--------|------------|----------------|---------------------|--------|------------|----------------|---------------------|--------|
| Analyte                          | RfD         | Inhalation    | Ditch Soil           | Ditch Soil           | Int        | take           | Hazard              | Cancer | Int        | ake            | Hazard              | Cancer | Int        | ake            | Hazard              | Cancer |
|                                  |             |               | (1)                  | Const. Worker (2)    | (mg/k      | g-day)         | Quotient            | Risk   | (mg/k      | g-day)         | Quotient            | Risk   | (mg/k      | g-day)         | Quotient            | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)          |                     |        |
| Semivolatile Organic Compounds   |             |               |                      |                      |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Benzo(a)anthracene               | N/A         | N/A           | 1.1E-08              | 7.4E-08              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Benzo(a)pyrene                   | N/A         | 3.10E+00      | 1.1E-08              | 6.9E-08              |            | 1.23E-10       |                     | 4E-10  |            | 1.70E-10       |                     | 5E-10  |            | 9.42E-13       |                     | 3E-12  |
| Benzo(b)fluoranthene             | N/A         | N/A           | 1.1E-08              | 7.4E-08              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Benzo(k)fluoranthene             | N/A         | N/A           | 9.9E-09              | 6.4E-08              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Chrysene                         | N/A         | N/A           | 1.2E-08              | 7.7E-08              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Indeno(1,2,3-cd)pyrene           | N/A         | N/A           | 9.9E-09              | 6.4E-08              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Metals                           |             |               |                      |                      |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Arsenic                          | N/A         | 1.51E+01      | 7.2E-08              | 4.7E-07              |            | 8.31E-10       |                     | 1E-08  |            | 1.15E-09       |                     | 2E-08  |            | 6.35E-12       |                     | 1E-10  |
| Iron                             | N/A         | N/A           | 3.7E-04              | 2.4E-03              |            |                |                     |        |            |                |                     |        |            |                |                     |        |
| Total Hazard Quotient and Cancer | Risk:       |               |                      |                      |            |                |                     | 1E-08  |            |                |                     | 2E-08  |            |                |                     | 1E-10  |
|                                  |             |               |                      |                      | As         | ssumptions for | Industrial Wor      | ker    | Ass        | umptions for C | onstruction Wo      | orker  | Asst       | imptions for A | lolescent Trespa    | asser  |
|                                  |             |               |                      |                      | BW =       | 70             | kg                  |        | BW =       | 70             | kg                  |        | BW =       | 50             | kg                  |        |
|                                  |             |               |                      |                      | IR =       |                | m <sup>3</sup> /day |        | IR =       |                | m <sup>3</sup> /day |        | IR =       |                | m <sup>3</sup> /day |        |
|                                  |             |               |                      |                      | EF =       | 219            | days/year           |        | EF =       | 219            | days/year           |        | EF =       | 14             | days/year           |        |
|                                  |             |               |                      |                      | ED =       |                | years               |        | ED =       |                | year                |        | ED =       |                | years               |        |
|                                  |             |               |                      |                      | AT (Nc) =  | 3,285          |                     |        | AT (Nc) =  |                | days                |        | AT (Nc) =  | 1,825          |                     |        |
|                                  |             |               |                      |                      | AT (Car) = | 25,550         | days                |        | AT (Car) = | 25,550         |                     |        | AT (Car) = | 25,550         | days                |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### TABLE E-7A

### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER

#### REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Equation for Dermal (mg/kg-day) =  | DA x SA x EF x ED x EV<br>BW x AT                                   | Equation for Absorbed Dose per Event (DA):  For inorganics: $DA = Kp \times EPC \times t_{event} \times C$ | $K_p$ = Permeability Coefficient, cm/hr<br>EPC = EPC in Groundwater, mg/L<br>$C$ = Conversion Factor, $10^3$ L/cm <sup>3</sup> |  |
|--|---|--|--|--|
| Variables (Assumptions for Each Receptor are Listed at the B  DA = Absorbed Dose per Event, mg/cm²-event  SA = Surface Area Contact  EF = Exposure Frequency  EV = Event Frequency | ottom):  ED = Exposure Duration BW = Bodyweight AT = Averaging Time |  |  | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RfD)  Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Facto |

|                           | Dermal       | Carc. Slope   | Permeability | EPC       | Absorbed                    |      | Industr   | rial Worker                      |        |                      | Constructi    | on Worker       |        |                      | Adolescent T   | respasser       | _     |
|---------------------------|--------------|---------------|--------------|-----------|-----------------------------|------|-----------|----------------------------------|--------|----------------------|---------------|-----------------|--------|----------------------|----------------|-----------------|-------|
| Analyte                   | RfD          | Dermal        | Coefficient  | Surface   | Dose/Event                  | I    | ntake     | Hazard                           | Cancer | In                   | take          | Hazard          | Cancer | Inta                 | ake            | Hazard          | Cance |
|                           |              |               | Kp           | Water     |                             | (mg  | /kg-day)  | Quotient                         | Risk   | (mg/l                | g-day)        | Quotient        | Risk   | (mg/kg               | g-day)         | Quotient        | Risk  |
|                           | (mg/kg-day)  | (mg/kg-day)-1 | (cm/hr)      | (mg/L)    | (mg/cm <sup>2</sup> -event) | (Nc) | (Car)     |                                  |        | (Nc)                 | (Car)         |                 |        | (Nc)                 | (Car)          |                 |       |
| Metals                    |              |               |              |           |                             |      |           |                                  |        |                      |               |                 |        |                      |                |                 |       |
| Arsenic                   | 3.0.E-04     | 1.5E+00       | 1.0.E-03     | 5.03.E-02 | 2.52E-08                    |      |           |                                  |        | 2.45E-07             | 3.50E-09      | 8E-04           | 5E-09  | 1.13E-07             | 8.09E-09       | 4E-04           | 1E-08 |
| Cadmium                   | 2.5.E-05     | N/A           | 1.0.E-03     | 1.95.E-02 | 9.75E-09                    |      |           |                                  |        | 9.50E-08             |               | 4E-03           |        | 4.39E-08             |                | 2E-03           |       |
| Chromium                  | 7.5.E-05     | N/A           | 2.0.E-03     | 1.29.E-01 | 1.29E-07                    |      |           | ct to Surface Wate<br>Applicable | r      | 1.26E-06             |               | 2E-02           |        | 5.81E-07             |                | 8E-03           |       |
| Iron                      | 3.0.E-01     | N/A           | 1.0.E-03     | 1.10.E+02 | 5.50E-05                    |      |           | strial Worker                    |        | 5.36E-04             |               | 2E-03           |        | 2.48E-04             |                | 8E-04           |       |
| Manganese                 | 9.3.E-04     | N/A           | 1.0.E-03     | 2.38.E+00 | 1.19E-06                    |      | TOT IIIdu | striar worker                    |        | 1.16E-05             |               | 1E-02           |        | 5.36E-06             |                | 6E-03           |       |
| Thallium                  | 6.5.E-04     | N/A           | 1.0.E-03     | 6.30.E-03 | 3.15E-09                    |      |           |                                  |        | 3.07E-08             |               | 5E-05           |        | 1.42E-08             |                | 2E-05           |       |
| Vanadium                  | 1.8.E-04     | N/A           | 1.0.E-03     | 2.33.E-01 | 1.17E-07                    |      |           |                                  |        | 1.14E-06             |               | 6E-03           |        | 5.24E-07             |                | 3E-03           |       |
| Total Hazard Quotient and | Cancer Risk: |               |              | 1         |                             |      |           |                                  |        |                      |               | 4E-02           | 5E-09  |                      |                | 2E-02           | 1E-08 |
|                           |              |               |              |           |                             | •    |           |                                  |        | Assum                | ptions for Co | nstruction V    |        | Assum                | ptions for Ado |                 |       |
|                           |              |               |              |           |                             |      |           |                                  |        | BW =                 | 70            | kg              |        | BW =                 | 50             | kg              |       |
|                           |              |               |              |           |                             |      |           |                                  |        | SA =                 | 2,490         | cm <sup>2</sup> |        | SA =                 | 5,867          | cm <sup>2</sup> |       |
|                           |              |               |              |           |                             |      |           |                                  |        | EV=                  | 1             | event/day       |        | EV=                  | 1              | event/day       |       |
|                           |              |               |              |           |                             |      |           |                                  |        | EF =                 | 100           | days/year       |        | EF =                 | 14             | days/year       |       |
|                           |              |               |              |           |                             |      |           |                                  |        | ED =                 |               | year            |        | ED =                 |                | year            |       |
|                           |              |               |              |           |                             |      |           |                                  |        | t <sub>event</sub> = | 0.5           | hr/event        |        | t <sub>event</sub> = | 0.5            | hr/event        |       |
|                           |              |               |              |           |                             |      |           |                                  |        | AT (Nc) =            | 365           | days            |        | AT (Nc) =            | 1,825          | days            |       |
|                           |              |               |              |           |                             |      |           |                                  |        | AT (Car) =           | 25,550        | days            |        | AT (Car) =           | 25,550         | days            |       |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

Kp value from Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used.

Kp for Cr(VI) was used for chromium.

#### TABLE E-7B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER

#### CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Equation for Dermal (mg/kg-day) =   | <u>DA x SA x EF x ED x EV</u><br>BW x AT                         | Equation for Absorbed Dose per Event (DA):  For inorganics: DA = Kp x EPC x t <sub>event</sub> x C | $K_p$ = Permeability Coefficient, cm/hr<br>EPC = EPC in Groundwater, mg/L<br>C = Conversion Factor, $10^{-3}$ L/cm <sup>3</sup> |   |
|---|--|--|---|---|
| Variables (Assumptions for Each Receptor are Listed at  | t the Bottom):   |  |   | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RfD) |
| DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event<br>SA = Surface Area Contact<br>EF = Exposure Frequency<br>EV = Event Frequency | ED = Exposure Duration<br>BW = Bodyweight<br>AT = Averaging Time |  |   | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor          |

|                           | Dermal         | Carc. Slope   | Permeability | EPC       | Absorbed                    |      | Industr    | al Worker                     |        | -                    | Construction     | Worker       | /      |                   | Adolescen       | t Trespasser    |        |
|---------------------------|----------------|---------------|--------------|-----------|-----------------------------|------|------------|-------------------------------|--------|----------------------|------------------|--------------|--------|-------------------|-----------------|-----------------|--------|
| Analyte                   | RfD            | Dermal        | Coefficient  | Surface   | Dose/Event                  |      | Intake     | Hazard                        | Cancer | , I                  | Intake           | Hazard       | Cancer | In                | take            | Hazard          | Cancer |
|                           |                |               | Кр           | Water     |                             | (m   | g/kg-day)  | Quotient                      | Risk   | (mg                  | g/kg-day)        | Quotient     | Risk   | (mg/              | kg-day)         | Quotient        | Risk   |
|                           | (mg/kg-day)    | (mg/kg-day)-1 | (cm/hr)      | (mg/L)    | (mg/cm <sup>2</sup> -event) | (Nc) | (Car)      |                               |        | (Nc)                 | (Car)            |              |        | (Nc)              | (Car)           |                 |        |
| Metals                    |                |               |              |           |                             |      |            |                               |        |                      |                  |              |        |                   |                 |                 |        |
| Arsenic                   | 3.0.E-04       | 1.5E+00       | 1.0.E-03     | 5.03.E-02 | 2.52E-08                    |      |            |                               |        | 1.95E-07             | 2.78E-09         | 6E-04        | 4E-09  | 1.13E-07          | 8.09E-09        | 4E-04           | 1E-08  |
| Cadmium                   | 2.5.E-05       | N/A           | 1.0.E-03     | 1.95.E-02 | 9.75E-09                    |      | D 10 .     | t to Surface Water            |        | 7.56E-08             |                  | 3E-03        |        | 4.39E-08          |                 | 2E-03           |        |
| Chromium                  | 7.5.E-05       | N/A           | 2.0.E-03     | 1.29.E-01 | 1.29E-07                    |      |            | to Surrace water<br>pplicable |        | 1.00E-06             |                  | 1E-02        |        | 5.81E-07          |                 | 8E-03           |        |
| Iron                      | 3.0.E-01       | N/A           | 1.0.E-03     | 1.10.E+02 | 5.50E-05                    |      |            | trial Worker                  |        | 4.26E-04             |                  | 1E-03        |        | 2.48E-04          |                 | 8E-04           |        |
| Manganese                 | 9.3.E-04       | N/A           | 1.0.E-03     | 2.38.E+00 | 1.19E-06                    |      | TOT IIIdus | iriai Worker                  |        | 9.22E-06             |                  | 1E-02        |        | 5.36E-06          |                 | 6E-03           |        |
| Thallium                  | 6.5.E-04       | N/A           | 1.0.E-03     | 6.30.E-03 | 3.15E-09                    |      |            |                               |        | 2.44E-08             |                  | 4E-05        |        | 1.42E-08          |                 | 2E-05           |        |
| Vanadium                  | 1.8.E-04       | N/A           | 1.0.E-03     | 2.33.E-01 | 1.17E-07                    |      |            |                               |        | 9.03E-07             |                  | 5E-03        |        | 5.24E-07          |                 | 3E-03           |        |
| Total Hazard Quotient and | d Cancer Risk: | l             |              |           |                             |      |            |                               |        |                      |                  | 3E-02        | 4E-09  |                   | <u> </u>        | 2E-02           | 1E-08  |
|                           |                |               |              |           |                             |      |            |                               |        | Assur                | nptions for Cons | truction Wor | ker    | Ass               | sumptions for A | dolescent Tresp | asser  |
|                           |                |               |              |           |                             |      |            |                               |        | BW =                 | 70               | ) kg         |        | BW =              | 50              | kg              |        |
|                           |                |               |              |           |                             |      |            |                               |        | SA =                 | 1,980            | cm2          |        | SA =              | 5,867           | cm2             |        |
|                           |                |               |              |           |                             |      |            |                               |        | EV=                  | 1                | event/day    |        | EV=               | 1               | event/day       |        |
|                           |                |               |              |           |                             |      |            |                               |        | EF =                 | 100              | days/year    |        | EF =              | 14              | days/year       |        |
|                           |                |               |              |           |                             |      |            |                               |        | ED =                 | 1                | year         |        | ED =              | 5               | year            |        |
|                           |                |               |              |           |                             |      |            |                               |        | t <sub>event</sub> = | 0.5              | hr/event     |        | $t_{\rm event} =$ | 0.33            | hr/event        |        |
|                           |                |               |              |           |                             |      |            |                               |        | AT (Nc) =            | 365              | days         |        | AT (Nc) =         | 1,825           | days            |        |
|                           |                |               |              |           |                             |      |            |                               |        | AT (Car) =           | 25,550           | days         |        | AT (Car) =        | 25,550          | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

Kp value from Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used. Kp for Cr(VI) was used for chromium.

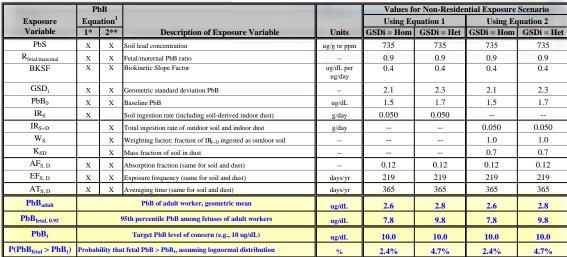
#### Table E-8A

# Calculation of Blood Lead Concentration - Industrial Worker Exposed to Surface Soil at SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

#### Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03



Equation 1 does not apportion exposure between soil and dust ingestion (excludes W, K<sub>SD</sub>).

When  $IR_S = IR_{S+D}$  and  $W_S = 1.0$ , the equations yield the same PbB<sub>tetal.0.95</sub>

#### \*Equation 1, based on Eq. 1, 2 in USEPA (1996).

| PbB <sub>adult</sub> =       | $(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_{S}/AT_{S,D}) + PbB_{0}$ |
|------------------------------|--|
| PbB <sub>fetal, 0.95</sub> = | $PbB_{adult} * (GSD_i^{1.645} * R)$                      |

#### \*\*Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).

| PbB <sub>adult</sub> =       | $PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S] + [K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365 + PbB_0$ |
|------------------------------|---|
| PbB <sub>fetal, 0.95</sub> = | $PbB_{adult}*(GSD_i^{1.645}*R)$   |

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

#### TABLE E-8B

# CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

LEAD MODEL FOR WINDOWS Version 1.0

\_\_\_\_\_\_

Model Version: 1.0 Build 261

User Name:
Date:

Site Name: Operable Unit: Run Mode: Research

-----

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.

Other Air Parameters:

| Age  | Time<br>Outdoors<br>(hours) | Ventilation<br>Rate<br>(m^3/day) | Lung<br>Absorption<br>(%) | Outdoor Air<br>Pb Conc<br>(ug Pb/m^3) |
|------|-----------------------------|----------------------------------|---------------------------|---------------------------------------|
| .5-1 | 1.000                       | 2.000                            | 32.000                    | 0.100                                 |
| 1-2  | 2.000                       | 3.000                            | 32.000                    | 0.100                                 |
| 2-3  | 3.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 3-4  | 4.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 4-5  | 4.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 5-6  | 4.000                       | 7.000                            | 32.000                    | 0.100                                 |
| 6-7  | 4.000                       | 7.000                            | 32.000                    | 0.100                                 |

\*\*\*\*\* Diet \*\*\*\*\*

| Age  | Diet Intake(ug/day) |
|------|---------------------|
| .5-1 | 5.530               |
| 1-2  | 5.780               |
| 2-3  | 6.490               |
| 3-4  | 6.240               |
| 4-5  | 6.010               |
| 5-6  | 6.340               |
| 6-7  | 7.000               |

\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

Age Water (L/day)
----.5-1 0.200
1-2 0.500

#### TABLE E-8B

# CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

| EAD-121C AND SEAD-1211 KI KEI ON | • |
|----------------------------------|---|
| SENECA ARMY DEPOT ACTIVITY       |   |

| 2-3 | 0.520 |
|-----|-------|
| 3-4 | 0.530 |
| 4-5 | 0.550 |
| 5-6 | 0.580 |
| 6-7 | 0.590 |

Drinking Water Concentration: 4.000 ug Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used

Average multiple source concentration: 524.500 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700 Outdoor airborne lead to indoor household dust lead concentration: 100.000 Use alternate indoor dust Pb sources? No

| Age        | Soil (ug Pb/g)     | House Dust (ug Pb/g) |
|------------|--------------------|----------------------|
| .5-1       | 735.000            | 524.500              |
| 1-2<br>2-3 | 735.000<br>735.000 | 524.500<br>524.500   |
| 3-4        | 735.000            | 524.500              |
| 4-5<br>5-6 | 735.000<br>735.000 | 524.500<br>524.500   |
| 6-7        | 735.000            | 524.500              |

\*\*\*\*\* Alternate Intake \*\*\*\*\*

| Age  | Alternate (ug Pb/day)                              |
|--|--|
| .5-1<br>1-2<br>2-3<br>3-4<br>4-5<br>5-6<br>6-7 | 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000 |
|  |  |

\*\*\*\*\* Maternal Contribution: Infant Model \*\*\*\*\*

Maternal Blood Concentration: 2.500 ug Pb/dL

| Year | Air      | Diet     | Alternate | Water    |
|------|----------|----------|-----------|----------|
|      | (ug/day) | (ug/day) | (ug/day)  | (ug/day) |
|      |          |          |           |          |

### TABLE E-8B CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C

### SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

| .5-1   | 0.021   | 2.301  | 0.000   | 0.333 |
|--|---|--|---------|-------|
| 1-2  | 0.034   | 2.340  | 0.000   | 0.810 |
| 2-3  | 0.062   | 2.694  | 0.000   | 0.863 |
| 3-4  | 0.067   | 2.654  | 0.000   | 0.902 |
| 4-5  | 0.067   | 2.685  | 0.000   | 0.983 |
| 5-6  | 0.093   | 2.885  | 0.000   | 1.056 |
| 6-7  | 0.093   | 3.216  | 0.000   | 1.084 |
| <br>.5-1<br>1-2<br>2-3<br>3-4<br>4-5<br>5-6<br>6-7 | (ug/day) 13.140 20.302 20.821 21.335 16.598 15.217 14.509 | (ug/day)  15.795 23.485 24.441 24.958 20.333 19.251 18.902 | (ug/dL) | -     |

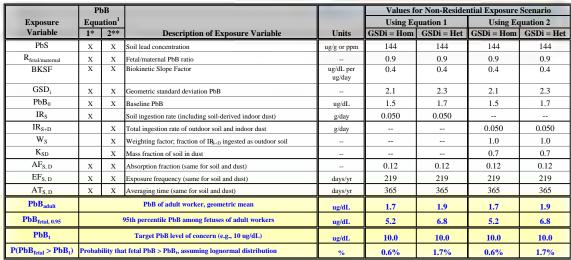
#### Table E-9A

# Calculation of Blood Lead Concentration - Industrial Worker Exposed to Ditch Soil at SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

#### Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03



Equation 1 does not apportion exposure between soil and dust ingestion (excludes W, K<sub>SD</sub>).

When  $IR_S = IR_{S+D}$  and  $W_S = 1.0$ , the equations yield the same PbB<sub>fetal.0.95</sub>

#### \*Equation 1, based on Eq. 1, 2 in USEPA (1996).

| PbB <sub>adult</sub> =       | $(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_{S}/AT_{S,D}) + PbB_{0}$ |
|------------------------------|--|
| PbB <sub>fetal, 0.95</sub> = | $PbB_{adult} * (GSD_i^{1.645} * R)$                      |

#### \*\*Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).

| PbB <sub>adult</sub> =       | $PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S] + [K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365 + PbB_0$ |
|------------------------------|---|
| PbB <sub>fetal, 0.95</sub> = | $PbB_{adult}*(GSD_i^{1.645}*R)$   |

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

#### TABLE E-9B

# CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

LEAD MODEL FOR WINDOWS Version 1.0

\_\_\_\_\_\_

Model Version: 1.0 Build 261

User Name:

Date:

Site Name:
Operable Unit:
Run Mode: Research

\_\_\_\_\_\_

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.

Other Air Parameters:

| Age  | Time<br>Outdoors<br>(hours) | Ventilation<br>Rate<br>(m^3/day) | Lung<br>Absorption<br>(%) | Outdoor Air<br>Pb Conc<br>(ug Pb/m^3) |
|------|-----------------------------|----------------------------------|---------------------------|---------------------------------------|
| .5-1 | 1.000                       | 2.000                            | 32.000                    | 0.100                                 |
| 1-2  | 2.000                       | 3.000                            | 32.000                    | 0.100                                 |
| 2-3  | 3.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 3-4  | 4.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 4-5  | 4.000                       | 5.000                            | 32.000                    | 0.100                                 |
| 5-6  | 4.000                       | 7.000                            | 32.000                    | 0.100                                 |
| 6-7  | 4.000                       | 7.000                            | 32.000                    | 0.100                                 |

\*\*\*\*\* Diet \*\*\*\*\*

| Diet Intake(ug/day) |  |
|---------------------|--|
| 5.530               |  |
| 5.780               |  |
| 6.490               |  |
| 6.240               |  |
| 6.010               |  |
| 6.340               |  |
| 7.000               |  |
|                     | 5.530<br>5.780<br>6.490<br>6.240<br>6.010<br>6.340 |

\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

| Age  | Water (L/day) |   |
|------|---------------|---|
| .5-1 | 0.200         | - |
| 1-2  | 0.500         |   |

#### TABLE E-9B

# CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

# SENECA ARMY DEPOT ACTIVITY

| 2-3 | 0.520 |
|-----|-------|
| 3-4 | 0.530 |
| 4-5 | 0.550 |
| 5-6 | 0.580 |
| 6-7 | 0.590 |

Drinking Water Concentration: 4.000 ug Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used

Average multiple source concentration: 110.800 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700 Outdoor airborne lead to indoor household dust lead concentration: 100.000 Use alternate indoor dust Pb sources? No

| Age  | Soil (ug Pb/g) | House Dust (ug Pb/g) |
|------|----------------|----------------------|
| .5-1 | 144.000        | 110.800              |
| 1-2  | 144.000        | 110.800              |
| 2-3  | 144.000        | 110.800              |
| 3-4  | 144.000        | 110.800              |
| 4-5  | 144.000        | 110.800              |
| 5-6  | 144.000        | 110.800              |
| 6-7  | 144.000        | 110.800              |

\*\*\*\*\* Alternate Intake \*\*\*\*\*

| Age  | Alternate (ug Pb/day) |
|------|-----------------------|
| .5-1 | 0.000                 |
| 1-2  | 0.000                 |
| 2-3  | 0.000                 |
| 3-4  | 0.000                 |
| 4-5  | 0.000                 |
| 5-6  | 0.000                 |
| 6-7  | 0.000                 |
|      |                       |

\*\*\*\*\* Maternal Contribution: Infant Model \*\*\*\*\*

Maternal Blood Concentration: 2.500 ug Pb/dL

| Year | Air      | Diet     | Alternate | Water    |
|------|----------|----------|-----------|----------|
|      | (ug/day) | (ug/day) | (ug/day)  | (ug/day) |
|      |          |          |           |          |

### TABLE E-9B CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C

### SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

| .5-1<br>1-2<br>2-3<br>3-4<br>4-5<br>5-6 | 0.021<br>0.034<br>0.062<br>0.067<br>0.067 | 2.584<br>2.686<br>3.039<br>2.951<br>2.883<br>3.057 | 0.000<br>0.000<br>0.000<br>0.000<br>0.000 | 0.374<br>0.929<br>0.974<br>1.003<br>1.055 |
|---|---|--|---|---|
| 6-7                                     | 0.093                                     | 3.383  | 0.000                                     | 1.141                                     |
| Year                                    | Soil+Dust<br>(ug/day)                     | Total<br>(ug/day)                                  | Blood<br>(ug/dL)                          | _   |
| .5-1                                    | 2.996                                     | 5.974  | 3.3                                       |   |
| 1-2                                     | 4.732                                     | 8.382  | 3.5                                       |   |
| 2-3                                     | 4.770                                     | 8.845  | 3.3                                       |   |
| 3-4                                     | 4.816                                     | 8.836  | 3.1                                       |   |
| 4-5                                     | 3.619                                     | 7.625  | 2.7                                       |   |
| 5-6                                     | 3.274                                     | 7.544  | 2.4                                       |   |
| 6-7                                     | 3.099                                     | 7.717  | 2.2                                       |   |
|   |   |  |   |   |

#### APPENDIX F

#### SEAD-121I HUMAN HEALTH RISK ASSESSMENT CALCULATION TABLES

| F-1A | Calculation of Intake and Risk from the Ingestion of Soil – RME                      |
|------|--|
| F-1B | Calculation of Intake and Risk from the Ingestion of Soil – CT                       |
| F-2A | Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – RME              |
| F-2B | Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – CT               |
| F-3A | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – RME   |
| F-3B | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – CT    |
| F-4A | Calculation of Intake and Risk from the Ingestion of Ditch Soil – RME                |
| F-4B | Calculation of Intake and Risk from the Ingestion of Ditch Soil – CT                 |
| F-5A | Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – RME        |
| F-5B | Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – CT         |
| F-6A | Calculation of Intake and Risk from Inhalation of Dust in Ambient Air - Ditch Soil - |
|      | DME  |

F-6B Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Ditch Soil – CT

#### TABLE F-1A

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

EPC x IR x CF x F1 x EF x ED BW x AT Equation for Intake (mg/kg-day) =

EF = Exposure Frequency

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg

IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested ED = Exposure Duration BW = Bodyweight
AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|  | Oral        | Carc. Slope   | EPC          |            |                  | ıl Worker      |        |  |                 | ion Worker                                     |        | Adolescent Trespasser |                 |                 |        |
|--|-------------|---------------|--------------|------------|------------------|----------------|--------|--|-----------------|--|--------|-----------------------|-----------------|-----------------|--------|
| Analyte                                  | RfD         | Oral          | Surface Soil | In         | ake              | Hazard         | Cancer | Int  | take            | Hazard   | Cancer | Int                   | take            | Hazard          | Cancer |
|  |             |               |              |            | g-day)           | Quotient       | Risk   |  | (g-day)         | Quotient                                       | Risk   |                       | g-day)          | Quotient        | Risk   |
|  | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)      | (Nc)       | (Car)            |                |        | (Nc)   | (Car)           |  |        | (Nc)                  | (Car)           |                 |        |
| Semivolatile Organic Compounds           |             |               |              |            |                  |                |        |  |                 |  |        |                       |                 |                 |        |
| Benzo(a)anthracene                       | N/A         | 7.3E-01       | 1.0E+01      |            | 3.48E-06         |                | 3E-06  |  | 4.60E-07        |  | 3E-07  |                       | 5.46E-08        |                 | 4E-08  |
| Benzo(a)pyrene                           | N/A         | 7.3E+00       | 8.5E+00      |            | 2.98E-06         |                | 2E-05  |  | 3.93E-07        |  | 3E-06  |                       | 4.67E-08        |                 | 3E-07  |
| Benzo(b)fluoranthene                     | N/A         | 7.3E-01       | 1.0E+01      |            | 3.50E-06         |                | 3E-06  |  | 4.62E-07        |  | 3E-07  |                       | 5.49E-08        |                 | 4E-08  |
| Benzo(k)fluoranthene                     | N/A         | 7.3E-02       | 8.7E+00      |            | 3.03E-06         |                | 2E-07  |  | 4.01E-07        |  | 3E-08  |                       | 4.76E-08        |                 | 3E-09  |
| Chrysene                                 | N/A         | 7.3E-03       | 1.2E+01      |            | 4.20E-06         |                | 3E-08  |  | 5.55E-07        |  | 4E-09  |                       | 6.59E-08        |                 | 5E-10  |
| Dibenz(a,h)anthracene                    | N/A         | 7.3E+00       | 1.2E+00      |            | 4.04E-07         |                | 3E-06  |  | 5.33E-08        |  | 4E-07  |                       | 6.33E-09        |                 | 5E-08  |
| Indeno(1,2,3-cd)pyrene                   | N/A         | 7.3E-01       | 3.9E+00      |            | 1.35E-06         |                | 1E-06  |  | 1.79E-07        |  | 1E-07  |                       | 2.12E-08        |                 | 2E-08  |
| Pesticides                               |             |               |              |            |                  |                |        |  |                 |  |        |                       |                 |                 |        |
| Dieldrin                                 | 5.0E-05     | 1.6E+01       | 6.8E-03      | 6.66E-09   | 2.38E-09         | 1E-04          | 4E-08  | 2.20E-08                                     | 3.14E-10        | 4E-04  | 5E-09  | 5.22E-10              | 3.73E-11        | 1E-05           | 6E-10  |
| Heptachlor epoxide                       | 5.0E-04     | 9.1E+00       | 2.3E-02      | 2.30E-08   | 8.20E-09         | 5E-05          | 7E-08  | 7.58E-08                                     | 1.08E-09        | 2E-04  | 1E-08  | 1.80E-09              | 1.29E-10        | 4E-06           | 1E-09  |
| Metals                                   |             |               |              |            |                  |                |        |  |                 |  |        |                       |                 |                 |        |
| Arsenic                                  | 3.0E-04     | 1.5E+00       | 1.49E+01     | 1.46E-05   | 5.21E-06         | 5E-02          | 8E-06  | 4.82E-05                                     | 6.88E-07        | 2E-01  | 1E-06  | 1.14E-06              | 8.17E-08        | 4E-03           | 1E-07  |
| Chromium                                 | 3.0E-03     | N/A           | 8.27E+01     | 8.09E-05   |                  | 3E-02          |        | 2.67E-04                                     |                 | 9E-02  |        | 6.35E-06              |                 | 2E-03           |        |
| Iron                                     | 3.0E-01     | N/A           | 2.1627E+04   | 2.12E-02   |                  | 7E-02          |        | 6.98E-02                                     |                 | 2E-01  |        | 1.66E-03              |                 | 6E-03           |        |
| Manganese                                | 2.3E-02     | N/A           | 1.06E+05     | 1.04E-01   |                  | 4E+00          |        | 3.43E-01                                     |                 | 1E+01  |        | 8.16E-03              |                 | 3E-01           |        |
| Thallium                                 | 6.5E-04     | N/A           | 5.34E+01     | 5.23E-05   |                  | 8E-02          |        | 1.73E-04                                     |                 | 3E-01  |        | 4.10E-06              |                 | 6E-03           |        |
| Vanadium                                 | 7.0E-03     | N/A           | 4.27E+01     | 4.17E-05   |                  | 6E-03          |        | 1.38E-04                                     |                 | 2E-02  |        | 3.27E-06              |                 | 5E-04           |        |
| Total Hazard Quotient and Cancer R       | isk:        |               |              |            |                  | 5E+00          | 4E-05  |  |                 | 2E+01  | 5E-06  |                       |                 | 4E-01           | 6E-07  |
|  |             |               |              | A          | ssumptions for l | Industrial Wor | ker    | Ass  | sumptions for C | Construction Wo                                | rker   | Ass                   | umptions for Ac | lolescent Tresp | asser  |
|  |             |               |              | CF =       | 1E-06            | kg/mg          |        | CF =   | 1F-06           | kg/mg  |        | CF =                  | 1F-06           | kg/mg           |        |
|  |             |               |              | EPC=       | EPC Surface Or   |                |        | EPC=   | EPC Surface ar  |  |        | EPC=                  | EPC Surface Or  |                 |        |
|  |             |               |              | BW =       | 70               |                |        | BW =   | 70              | kg   |        | BW =                  |                 | kg              |        |
|  |             |               |              | IR =       | 100              | mg/day         |        | IR =   | 330             | mg/day   |        | IR =                  | 100             | mg/day          |        |
|  |             |               |              | FI =       |                  | unitless       |        | FI =   |                 | unitless                                       |        | FI =                  |                 | unitless        |        |
|  |             |               |              | 1          | EF = 250 day     |                |        | EF =   | 250 days/year   |  |        | EF =                  | 14 days/year    |                 |        |
|  |             |               |              | ED =       |                  | years          |        | ED =   |                 |  | ED =   |                       |                 |                 |        |
|  |             |               |              | AT (Nc) =  | 9,125            |                |        | AT (Nc) = 365 days<br>AT (Car) = 25.550 days |                 | AT (Nc) = 1,825 days<br>AT (Car) = 25,550 days |        |                       |                 |                 |        |
| Note: Calle in this table were intention |             |               |              | AT (Car) = | 25,550           | aays           |        | AT (Car) =                                   | 25,550          | aays   |        | AT (Car) =            | 25,550          | aays            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE F-1B

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg EF = Exposure Frequency ED = Exposure Duration

IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested BW = Bodyweight
AT = Averaging Time Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Oral        | Carc. Slope        | EPC          |            | Industria      |                |        |                    |                 | ion Worker     |                      |            |                | Trespasser      |        |
|------------------------------------|-------------|--------------------|--------------|------------|----------------|----------------|--------|--------------------|-----------------|----------------|----------------------|------------|----------------|-----------------|--------|
| Analyte                            | RfD         | Oral               | Surface Soil | 1          | take           | Hazard         | Cancer | 1                  | take            | Hazard         | Cancer               |            | take           | Hazard          | Cancer |
|                                    |             |                    |              |            | g-day)         | Quotient       | Risk   |                    | (g-day)         | Quotient       | Risk                 |            | (g-day)        | Quotient        | Risk   |
|                                    | (mg/kg-day) | (mg/kg-day)-1      | (mg/kg)      | (Nc)       | (Car)          |                |        | (Nc)               | (Car)           |                |                      | (Nc)       | (Car)          |                 |        |
| Semivolatile Organic Compounds     |             |                    |              |            |                |                |        |                    |                 |                |                      |            |                |                 |        |
| Benzo(a)anthracene                 | N/A         | 7.3E-01            | 1.0E+01      |            | 5.49E-07       |                | 4E-07  |                    | 1.22E-07        |                | 9E-08                |            | 2.73E-08       |                 | 2E-08  |
| Benzo(a)pyrene                     | N/A         | 7.3E+00            | 8.5E+00      |            | 4.70E-07       |                | 3E-06  |                    | 1.04E-07        |                | 8E-07                |            | 2.34E-08       |                 | 2E-07  |
| Benzo(b)fluoranthene               | N/A         | 7.3E-01            | 1.0E+01      |            | 5.52E-07       |                | 4E-07  |                    | 1.23E-07        |                | 9E-08                |            | 2.74E-08       |                 | 2E-08  |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02            | 8.7E+00      |            | 4.79E-07       |                | 3E-08  |                    | 1.06E-07        |                | 8E-09                |            | 2.38E-08       |                 | 2E-09  |
| Chrysene                           | N/A         | 7.3E-03            | 1.2E+01      |            | 6.62E-07       |                | 5E-09  |                    | 1.47E-07        |                | 1E-09                |            | 3.29E-08       |                 | 2E-10  |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00            | 1.2E+00      |            | 6.36E-08       |                | 5E-07  |                    | 1.41E-08        |                | 1E-07                |            | 3.16E-09       |                 | 2E-08  |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01            | 3.9E+00      |            | 2.13E-07       |                | 2E-07  |                    | 4.74E-08        |                | 3E-08                |            | 1.06E-08       |                 | 8E-09  |
| Pesticides                         |             |                    |              |            |                |                |        |                    |                 |                |                      |            |                |                 |        |
| Dieldrin                           | 5.0E-05     | 1.6E+01            | 6.8E-03      | 2.92E-09   | 3.75E-10       | 6E-05          | 6E-09  | 5.83E-09           | 8.33E-11        | 1E-04          | 1E-09                | 2.61E-10   | 1.86E-11       | 5E-06           | 3E-10  |
| Heptachlor epoxide                 | 5.0E-04     | 9.1E+00            | 2.3E-02      | 1.01E-08   | 1.29E-09       | 2E-05          | 1E-08  | 2.01E-08           | 2.87E-10        | 4E-05          | 3E-09                | 9.01E-10   | 6.43E-11       | 2E-06           | 6E-10  |
| Metals                             |             |                    |              |            |                |                |        |                    |                 |                |                      |            |                |                 |        |
| Arsenic                            | 3.0E-04     | 1.5E+00            | 1.49E+01     | 6.39E-06   | 8.22E-07       | 2E-02          | 1E-06  | 1.28E-05           | 1.83E-07        | 4E-02          | 3E-07                | 5.72E-07   | 4.09E-08       | 2E-03           | 6E-08  |
| Chromium                           | 3.0E-03     | N/A                | 8.27E+01     | 3.55E-05   |                | 1E-02          |        | 7.09E-05           |                 | 2E-02          |                      | 3.17E-06   |                | 1E-03           |        |
| Iron                               | 3.0E-01     | N/A                | 2.1627E+04   | 9.27E-03   |                | 3E-02          |        | 1.85E-02           |                 | 6E-02          |                      | 8.30E-04   |                | 3E-03           |        |
| Manganese                          | 2.3E-02     | N/A                | 1.06E+05     | 4.56E-02   |                | 2E+00          |        | 9.12E-02           |                 | 4E+00          |                      | 4.08E-03   |                | 2E-01           |        |
| Thallium                           | 6.5E-04     | N/A                | 5.34E+01     | 2.29E-05   |                | 4E-02          |        | 4.58E-05           |                 | 7E-02          |                      | 2.05E-06   |                | 3E-03           |        |
| Vanadium                           | 7.0E-03     | N/A                | 4.27E+01     | 1.83E-05   |                | 3E-03          |        | 3.66E-05           |                 | 5E-03          |                      | 1.64E-06   |                | 2E-04           |        |
| Total Hazard Quotient and Cancer I | Risk:       |                    |              |            |                | 2E+00          | 6E-06  |                    |                 | 4E+00          | 1E-06                |            |                | 2E-01           | 3E-07  |
|                                    |             |                    |              | A          | ssumptions for | Industrial Wor | ker    | Ass                | sumptions for C | onstruction Wo | rker                 | Ass        | umptions for A | lolescent Tresp | asser  |
|                                    |             |                    |              | CF =       | 1E-06          | la/ma          |        | CF =               | 1E 06           | kg/mg          |                      | CF =       | 1E 06          | kg/mg           |        |
|                                    |             |                    |              | EPC=       | EPC Surface Or |                |        | EPC=               | EPC Surface O   |                |                      | EPC=       | EPC Surface On |                 |        |
|                                    |             |                    |              | BW =       | 70             |                |        | BW =               |                 | kg             |                      | BW =       |                | kg              |        |
|                                    |             |                    |              | IR =       |                | mg/day         |        | IR =               |                 | mg/day         |                      | IR =       |                | mg/day          |        |
|                                    |             |                    |              | FI =       | 1              | unitless       |        | FI =               | 1               | unitless       |                      | FI =       | 1              | unitless        |        |
|                                    |             |                    |              | EF =       | 219            | days/year      |        | EF =               | 219             | days/year      |                      | EF =       | 14 days/year   |                 |        |
|                                    |             |                    |              | ED =       |                |                |        | ED = 1 years       |                 |                | ED = 5 years         |            |                |                 |        |
|                                    |             |                    |              | AT (Nc) =  |                |                |        | AT (Nc) = 365 days |                 |                | AT (Nc) = 1,825 days |            |                |                 |        |
|                                    |             | dua to a laak of t |              | AT (Car) = | 25,550         | days           |        | AT (Car) =         | 25,550          | days           |                      | AT (Car) = | 25,550         | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE F-2A

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL

#### REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) =  $\underline{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}$ 

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

 $\begin{array}{ll} EPC = Exposure \ Point \ Concentration \ in \ Soil, \ mg/kg & EV = Event \ Frequency \\ CF = Conversion \ Factor & EF = Exposure \ Frequency \\ \end{array}$ 

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                 | Dermal     | Carc. Slope   | Absorption | EPC          | -                          |                | al Worker       |                    |           |                 | tion Worker               |                   | Adolescent Trespasser |                |                           |        |
|---------------------------------|------------|---------------|------------|--------------|----------------------------|----------------|-----------------|--------------------|-----------|-----------------|---------------------------|-------------------|-----------------------|----------------|---------------------------|--------|
| Analyte                         | RfD        | Dermal        | Factor*    | Surface Soil |                            | oed Dose       | Hazard          | Cancer             |           | oed Dose        | Hazard                    | Cancer            |                       | oed Dose       | Hazard                    | Cancer |
|                                 | - 1        |               |            |              |                            | (g-day)        | Quotient        | Risk               |           | (g-day)         | Quotient                  | Risk              |                       | (g-day)        | Quotient                  | Risk   |
|                                 | (mg/kg-day | (mg/kg-day)-1 | (unitless) | (mg/kg)      | (Nc)                       | (Car)          |                 |                    | (Nc)      | (Car)           |                           |                   | (Nc)                  | (Car)          |                           |        |
| Semivolatile Organic Compounds  |            |               |            |              |                            |                |                 |                    |           |                 |                           |                   |                       |                |                           |        |
| Benzo(a)anthracene              | N/A        | 7.3E-01       | 1.3E-01    | 1.0E+01      |                            | 2.99E-06       |                 | 2E-06              |           | 1.79E-07        |                           | 1E-07             |                       | 2.92E-08       |                           | 2E-08  |
| Benzo(a)pyrene                  | N/A        | 7.3E+00       | 1.3E-01    | 8.5E+00      |                            | 2.56E-06       |                 | 2E-05              |           | 1.53E-07        |                           | 1E-06             |                       | 2.50E-08       |                           | 2E-07  |
| Benzo(b)fluoranthene            | N/A        | 7.3E-01       | 1.3E-01    | 1.0E+01      |                            | 3.00E-06       |                 | 2E-06              |           | 1.80E-07        |                           | 1E-07             |                       | 2.93E-08       |                           | 2E-08  |
| Benzo(k)fluoranthene            | N/A        | 7.3E-02       | 1.3E-01    | 8.7E+00      |                            | 2.60E-06       |                 | 2E-07              |           | 1.56E-07        |                           | 1E-08             |                       | 2.54E-08       |                           | 2E-09  |
| Chrysene                        | N/A        | 7.3E-03       | 1.3E-01    | 1.2E+01      |                            | 3.60E-06       |                 | 3E-08              |           | 2.16E-07        |                           | 2E-09             |                       | 3.52E-08       |                           | 3E-10  |
| Dibenz(a,h)anthracene           | N/A        | 7.3E+00       | 1.3E-01    | 1.2E+00      |                            | 3.46E-07       |                 | 3E-06              |           | 2.08E-08        |                           | 2E-07             |                       | 3.38E-09       |                           | 2E-08  |
| Indeno(1,2,3-cd)pyrene          | N/A        | 7.3E-01       | 1.3E-01    | 3.9E+00      |                            | 1.16E-06       |                 | 8E-07              |           | 6.97E-08        |                           | 5E-08             |                       | 1.13E-08       |                           | 8E-09  |
| Pesticides                      |            |               |            |              |                            |                |                 |                    |           |                 |                           |                   |                       |                |                           |        |
| Dieldrin                        | 5.0E-05    | 1.6E+01       | 1.0E-01    | 6.8E-03      | 4.39E-09                   | 1.57E-09       | 9E-05           | 3E-08              | 6.59E-09  | 9.41E-11        | 1E-04                     | 2E-09             | 2.14E-10              | 1.53E-11       | 4E-06                     | 2E-10  |
| Heptachlor epoxide              | 5.0E-04    | 9.1E+00       | 1.0E-01    | 2.3E-02      | 1.52E-08                   | 5.42E-09       | 3E-05           | 5E-08              | 2.27E-08  | 3.25E-10        | 5E-05                     | 3E-09             | 7.40E-10              | 5.28E-11       | 1E-06                     | 5E-10  |
| Metals                          |            |               |            |              |                            |                |                 |                    |           |                 |                           |                   |                       |                |                           |        |
| Arsenic                         | 3.0E-04    | 1.5E+00       | 3.0E-02    | 1.49E+01     | 2.89E-06                   | 1.03E-06       | 1E-02           | 2E-06              | 4.34E-06  | 6.19E-08        | 1E-02                     | 9E-08             | 1.41E-07              | 1.01E-08       | 5E-04                     | 2E-08  |
| Chromium                        | 7.5E-05    | N/A           | 1.0E-03    | 8.27E+01     | 5.34E-07                   |                | 7E-03           |                    | 8.01E-07  |                 | 1E-02                     |                   | 2.61E-08              |                | 3E-04                     |        |
| Iron                            | 3.0E-01    | N/A           | 1.0E-03    | 2.1627E+04   | 1.40E-04                   |                | 5E-04           |                    | 2.09E-04  |                 | 7E-04                     |                   | 6.81E-06              |                | 2E-05                     |        |
| Manganese                       | 9.3E-04    | N/A           | 1.0E-03    | 1.06E+05     | 6.87E-04                   |                | 7E-01           |                    | 1.03E-03  |                 | 1E+00                     |                   | 3.35E-05              |                | 4E-02                     |        |
| Thallium                        | 6.5E-04    | N/A           | 1.0E-03    | 5.34E+01     | 3.45E-07                   |                | 5E-04           |                    | 5.18E-07  |                 | 8E-04                     |                   | 1.68E-08              |                | 3E-05                     |        |
| Vanadium                        | 1.8E-04    | N/A           | 1.0E-03    | 4.27E+01     | 2.76E-07                   |                | 2E-03           |                    | 4.13E-07  |                 | 2E-03                     |                   | 1.34E-08              |                | 7E-05                     |        |
| Total Hazard Quotient and Cance | r Risk:    |               |            |              |                            |                | 8E-01           | 3E-05              |           |                 | 1E+00                     | 2E-06             |                       |                | 4E-02                     | 3E-07  |
|                                 |            |               |            |              | A                          | ssumptions for | Industrial Wor  | ke                 | Ass       | sumptions for ( | Construction Wo           | orke              | Ass                   | umptions for A | dolescent Tresp           | assei  |
|                                 |            |               |            |              | CF =                       | 1E-06          | kg/mg           |                    | CF =      | 1E-06           | kg/mg                     |                   | CF =                  | 1E-06          | kg/mg                     |        |
|                                 |            |               |            |              | EPC =                      | EPC Surface O  |                 |                    | EPC =     | EPC Surface O   |                           |                   | EPC =                 | EPC Surface O  |                           |        |
|                                 |            |               |            |              | BW =                       | 70             | kg              |                    | BW =      | 70              | kg                        |                   | BW =                  | 50             | kg                        |        |
|                                 |            |               |            |              | SA =                       | 3,300          | cm <sup>2</sup> |                    | SA =      | 3,300           | cm <sup>2</sup>           |                   | SA =                  | 5,867          | cm <sup>2</sup>           |        |
|                                 |            |               |            |              | $AF = 0.2 \text{ mg/cm}^2$ |                |                 |                    | AF =      |                 | mg/cm <sup>2</sup> -event |                   | AF =                  | 0.07           | mg/cm <sup>2</sup> -event |        |
|                                 |            |               |            |              | EV = 1 event/day           |                |                 | EV = 1 event/day   |           |                 |                           | EV =              |                       | event/day      |                           |        |
|                                 |            |               |            |              | EF = 250 days/year         |                |                 | EF = 250 days/year |           |                 |                           | EF = 14 days/year |                       |                |                           |        |
|                                 |            |               |            |              |                            |                |                 | ED = 1 years       |           |                 |                           | ED =              |                       | years          |                           |        |
|                                 |            |               |            |              | AT (Nc) =                  | 9,125          | days            |                    | AT (Nc) = | 365             | days                      |                   | AT (Nc) =             | 1,825          | days                      |        |

25,550 days

AT (Car) =

25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

AT (Car) =

Absorption factors for chromium, iron, manganese, thallium, and vanadium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

25,550 days

AT (Car) =

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

#### TABLE F-2B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

EPC x CF x SA x AF x ABS x EV x EF x ED Equation for Intake (mg/kg-day) =

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg CF = Conversion Factor  $EV = Event \ Frequency$ EF = Exposure Frequency SA = Surface Area Contact ED = Exposure Duration

AF = Adherence Factor BW = Bodyweight AT = Averaging Time ABS = Absorption Factor

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

365 days

25,550 days

AT (Nc) =

AT (Car) =

AT (Nc) =

AT (Car) =

1,825 days

25,550 days

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Dermal      | Carc. Slope   | Absorption | EPC          | -                  | Industria      | al Worker                 |        |                  | Construct       | ion Worker                |              | 1           | Adolescen                      | t Trespasser    |          |
|------------------------------------|-------------|---------------|------------|--------------|--------------------|----------------|---------------------------|--------|------------------|-----------------|---------------------------|--------------|-------------|--------------------------------|-----------------|----------|
| Analyte                            | RfD         | Dermal        | Factor*    | Surface Soil | Absorb             | oed Dose       | Hazard                    | Cancer | Absorb           | ed Dose         | Hazard                    | Cancer       | Absorb      | ed Dose                        | Hazard          | Cancer   |
|                                    |             |               |            |              |                    | (g-day)        | Quotient                  | Risk   |                  | (g-day)         | Quotient                  | Risk         |             | (g-day)                        | Quotient        | Risk     |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)      | (Nc)               | (Car)          |                           |        | (Nc)             | (Car)           |                           |              | (Nc)        | (Car)                          |                 |          |
| Semivolatile Organic Compounds     |             |               |            |              |                    |                |                           |        |                  |                 |                           |              |             |                                |                 |          |
| Benzo(a)anthracene                 | N/A         | 7.3E-01       | 1.3E-01    | 1.0E+01      |                    | 9.43E-08       |                           | 7E-08  |                  | 1.57E-07        |                           | 1E-07        |             | 4.17E-09                       |                 | 3.04E-09 |
| Benzo(a)pyrene                     | N/A         | 7.3E+00       | 1.3E-01    | 8.5E+00      |                    | 8.06E-08       |                           | 6E-07  |                  | 1.34E-07        |                           | 1E-06        |             | 3.56E-09                       |                 | 2.60E-08 |
| Benzo(b)fluoranthene               | N/A         | 7.3E-01       | 1.3E-01    | 1.0E+01      |                    | 9.47E-08       |                           | 7E-08  |                  | 1.58E-07        |                           | 1E-07        |             | 4.19E-09                       |                 | 3.06E-09 |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02       | 1.3E-01    | 8.7E+00      |                    | 8.21E-08       |                           | 6E-09  |                  | 1.37E-07        |                           | 1E-08        |             | 3.63E-09                       |                 | 2.65E-10 |
| Chrysene                           | N/A         | 7.3E-03       | 1.3E-01    | 1.2E+01      |                    | 1.14E-07       |                           | 8E-10  |                  | 1.89E-07        |                           | 1E-09        |             | 5.02E-09                       |                 | 3.67E-11 |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00       | 1.3E-01    | 1.2E+00      |                    | 1.09E-08       |                           | 8E-08  |                  | 1.82E-08        |                           | 1E-07        |             | 4.83E-10                       |                 | 3.52E-09 |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01       | 1.3E-01    | 3.9E+00      |                    | 3.66E-08       |                           | 3E-08  |                  | 6.10E-08        |                           | 4E-08        |             | 1.62E-09                       |                 | 1.18E-09 |
| Pesticides                         |             |               |            |              |                    |                |                           |        |                  |                 |                           |              |             |                                |                 |          |
| Dieldrin                           | 5.0E-05     | 1.6E+01       | 1.0E-01    | 6.8E-03      | 3.85E-10           | 4.95E-11       | 8E-06                     | 8E-10  | 5.77E-09         | 8.25E-11        | 1E-04                     | 1E-09        | 3.06E-11    | 2.19E-12                       | 6.12E-07        | 3.50E-11 |
| Heptachlor epoxide                 | 5.0E-04     | 9.1E+00       | 1.0E-01    | 2.3E-02      | 1.33E-09           | 1.71E-10       | 3E-06                     | 2E-09  | 1.99E-08         | 2.85E-10        | 4E-05                     | 3E-09        | 1.06E-10    | 7.55E-12                       | 2.11E-07        | 6.87E-11 |
| Metals                             |             |               |            |              |                    |                |                           |        |                  |                 |                           |              |             |                                |                 |          |
| Arsenic                            | 3.0E-04     | 1.5E+00       | 3.0E-02    | 1.49E+01     | 2.53E-07           | 3.26E-08       | 8E-04                     | 5E-08  | 3.80E-06         | 5.43E-08        | 1E-02                     | 8E-08        | 2.01E-08    | 1.44E-09                       | 6.71E-05        | 2.16E-09 |
| Chromium                           | 7.5E-05     | N/A           | 1.0E-03    | 8.27E+01     | 4.68E-08           |                | 6E-04                     |        | 7.02E-07         |                 | 9E-03                     |              | 3.72E-09    |                                | 4.96E-05        |          |
| Iron                               | 3.0E-01     | N/A           | 1.0E-03    | 2.1627E+04   | 1.22E-05           |                | 4E-05                     |        | 1.84E-04         |                 | 6E-04                     |              | 9.73E-07    |                                | 3.24E-06        |          |
| Manganese                          | 9.3E-04     | N/A           | 1.0E-03    | 1.06E+05     | 6.02E-05           |                | 6E-02                     |        | 9.03E-04         |                 | 1E+00                     |              | 4.79E-06    |                                | 5.13E-03        |          |
| Thallium                           | 6.5E-04     | N/A           | 1.0E-03    | 5.34E+01     | 3.02E-08           |                | 5E-05                     |        | 4.54E-07         |                 | 7E-04                     |              | 2.41E-09    |                                | 3.72E-06        |          |
| Vanadium                           | 1.8E-04     | N/A           | 1.0E-03    | 4.27E+01     | 2.41E-08           |                | 1E-04                     |        | 3.62E-07         |                 | 2E-03                     |              | 1.92E-09    |                                | 1.06E-05        |          |
| Total Hazard Quotient and Cancer I | Risk:       |               |            |              |                    |                | 7E-02                     | 9E-07  |                  |                 | 1E+00                     | 1E-06        |             |                                | 5E-03           | 4E-08    |
|                                    |             |               |            |              | A                  | ssumptions for | Industrial Worl           | ke     | Ass              | sumptions for C | Construction Wo           | orke         | Ass         | umptions for A                 | dolescent Tresp | assei    |
|                                    |             |               |            |              | CF =               | 1E-06          | kg/mg                     |        | CF =             | 1E-06           | kg/mg                     |              | CF =        | 1E-06                          | kg/mg           |          |
|                                    |             |               |            |              | CS =               | EPC Surface O  | nly                       |        | EPC =            | EPC Surface O   | nly                       |              | EPC =       | EPC Surface O                  | nly             |          |
|                                    |             |               |            |              | BW =               | 70             | kg                        |        | BW =             | 70              | kg                        |              | BW =        | 50                             | ) kg            |          |
|                                    |             |               |            |              | SA =               | 3,300          | cm <sup>2</sup>           |        | SA =             | 3,300           | cm <sup>2</sup>           |              | SA =        | 5,867                          | cm <sup>2</sup> |          |
|                                    |             |               |            |              | AF =               | 0.02           | mg/cm <sup>2</sup> -event |        | AF =             | 0.3             | mg/cm <sup>2</sup> -event |              | AF =        | 0.01 mg/cm <sup>2</sup> -event |                 |          |
|                                    |             |               |            |              | EV =               |                | event/day                 |        | EV = 1 event/day |                 |                           | EV =         | 1 event/day |                                |                 |          |
|                                    |             |               |            |              | EF = 219 days/year |                |                           |        | EF =             |                 | days/year                 |              | EF =        |                                | days/year       |          |
|                                    |             |               |            |              | ED =               | 9              | years                     |        | ED = 1 years     |                 |                           | ED = 5 years |             |                                |                 |          |

3,285 days

25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

AT (Nc) =

Absorption factors for chromium, manganese, thallium, and vanadium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

#### TABLE F-3A

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121I SOIL

#### SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m³

EQUation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

EPC = EPC in Air, mg/m³

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

EQUATION AT = Averaging Time

| -                                  | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |            | Industria      | al Worker           |        |            | Constru         | ction Worker        |          |            | Adolescent      | Trespasser          |        |
|------------------------------------|-------------|---------------|----------------------|----------------------|------------|----------------|---------------------|--------|------------|-----------------|---------------------|----------|------------|-----------------|---------------------|--------|
| Analyte                            | RfD         | Inhalation    | Surface Soil         | Surface Soil         | Int        | ake            | Hazard              | Cancer | In         | take            | Hazard              | Cancer   |            | take            | Hazard              | Cancer |
|                                    |             |               | (1)                  | Const. Worker (2)    | (mg/k      | g-day)         | Quotient            | Risk   | (mg/l      | kg-day)         | Quotient            | Risk     | (mg/k      | (g-day)         | Quotient            | Risk   |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)           |                     |          | (Nc)       | (Car)           |                     |        |
| Semivolatile Organic Compounds     |             |               |                      |                      |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Benzo(a)anthracene                 | N/A         | N/A           | 1.7E-07              | 1.1E-06              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Benzo(a)pyrene                     | N/A         | 3.10E+00      | 1.4E-07              | 9.4E-07              |            | 1.01E-08       |                     | 3E-08  |            | 2.62E-09        |                     | 8E-09    |            | 1.27E-11        |                     | 4E-11  |
| Benzo(b)fluoranthene               | N/A         | N/A           | 1.7E-07              | 1.1E-06              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Benzo(k)fluoranthene               | N/A         | N/A           | 1.5E-07              | 9.6E-07              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Chrysene                           | N/A         | N/A           | 2.0E-07              | 1.3E-06              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Dibenz(a,h)anthracene              | N/A         | N/A           | 2.0E-08              | 1.3E-07              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Indeno(1,2,3-cd)pyrene             | N/A         | N/A           | 6.6E-08              | 4.3E-07              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Pesticides                         |             |               |                      |                      |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Dieldrin                           | N/A         | 1.61E+01      | 1.2E-10              | 7.5E-10              |            | 8.08E-12       |                     | 1E-10  |            | 2.09E-12        |                     | 3E-11    |            | 1.01E-14        |                     | 2E-13  |
| Heptachlor epoxide                 | N/A         | 9.10E+00      | 4.0E-10              | 2.6E-09              |            | 2.79E-11       |                     | 3E-10  |            | 7.22E-12        |                     | 7E-11    |            | 3.50E-14        |                     | 3E-13  |
| Metals                             |             |               |                      |                      |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Arsenic                            | N/A         | 1.51E+01      | 2.5E-07              | 1.6E-06              |            | 1.77E-08       |                     | 3E-07  |            | 4.59E-09        |                     | 7E-08    |            | 2.22E-11        |                     | 3E-10  |
| Chromium                           | 2.86E-05    | 4.20E+01      | 1.4E-06              | 9.1E-06              | 2.75E-07   | 9.83E-08       | 1E-02               | 4E-06  | 1.78E-06   | 2.54E-08        | 6E-02               | 1E-06    | 1.73E-09   | 1.23E-10        | 6E-05               | 5E-09  |
| Iron                               | N/A         | N/A           | 3.7E-04              | 2.4E-03              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Manganese                          | 1.43E-05    | N/A           | 1.8E-03              | 1.2E-02              | 3.54E-04   |                | 2E+01               |        | 2.29E-03   |                 | 2E+02               |          | 2.22E-06   |                 | 2E-01               |        |
| Thallium                           | N/A         | N/A           | 9.1E-07              | 5.9E-06              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Vanadium                           | N/A         | N/A           | 7.3E-07              | 4.7E-06              |            |                |                     |        |            |                 |                     |          |            |                 |                     |        |
| Total Hazard Quotient and Cancer I | Risk:       |               |                      |                      |            |                | 2E+01               | 4E-06  |            |                 | 2E+02               | 1E-06    |            |                 | 2E-01               | 6E-09  |
|                                    |             |               |                      |                      | As         | ssumptions for | Industrial Worl     | ker    | I A        | Assumptions for | Construction Wo     | rker     | Assı       | umptions for Ad | lolescent Tresp     | asser  |
|                                    |             |               |                      |                      | EPC =      | EPC Surface O  | nlv                 |        | EPC =      | EPC Surface Or  | ly for Construction | n Worker | EPC =      | EPC Surface O   | nlv                 |        |
|                                    |             |               |                      |                      | BW =       |                | kg                  |        | BW =       | 70              |                     |          | BW =       | 50              |                     |        |
|                                    |             |               |                      |                      | IR =       | 20             | m <sup>3</sup> /day |        | IR =       | 20              | m <sup>3</sup> /day |          | IR =       | 1.6             | m <sup>3</sup> /day |        |
|                                    |             |               |                      |                      | EF =       |                | days/year           |        | EF =       |                 | days/year           |          | EF =       |                 | days/year           |        |
|                                    |             |               |                      |                      | ED =       |                | years               |        | ED =       |                 | year                |          | ED =       |                 | years               |        |
|                                    |             |               |                      |                      | AT (Nc) =  | 9,125          |                     |        | AT (Nc) =  | 365             |                     |          | AT (Nc) =  | 1,825           |                     |        |
|                                    |             |               |                      |                      | AT (Car) = | 25,550         |                     |        | AT (Car) = | 25,550          |                     |          | AT (Car) = | 25,550          |                     |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### TABLE F-3B

#### CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR $\,$

#### CENTRAL TENDENCY (CT) - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m³

ED = Exposure Duration
BW = Bodyweight
EF = Exposure Frequency

ED = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Gancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                  | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |             | Industria        | l Worker            | ,      |             | Construct      | ion Worker          |             | Adolescent Trespasser |                |                     |        |
|----------------------------------|-------------|---------------|----------------------|----------------------|-------------|------------------|---------------------|--------|-------------|----------------|---------------------|-------------|-----------------------|----------------|---------------------|--------|
| Analyte                          | RfD         | Inhalation    | Surface Soil         | Surface Soil         | Intake      |                  | Hazard              | Cancer | In          | Intake         |                     | Cancer      | Int                   | ake            | Hazard              | Cancer |
|                                  |             |               | (1)                  | Const. Worker (2)    | (mg/kg-day) |                  | Quotient            | Risk   | (mg/kg-day) |                | Quotient            | Risk        | (mg/kg-day)           |                | Quotient            | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)        | (Car)            |                     |        | (Nc)        | (Car)          |                     |             | (Nc)                  | (Car)          |                     |        |
| Semivolatile Organic Compounds   |             |               |                      |                      |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Benzo(a)anthracene               | N/A         | N/A           | 1.7E-07              | 1.1E-06              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Benzo(a)pyrene                   | N/A         | 3.10E+00      | 1.4E-07              | 9.4E-07              |             | 1.66E-09         |                     | 5E-09  |             | 2.30E-09       |                     | 7E-09       |                       | 1.27E-11       |                     | 4E-11  |
| Benzo(b)fluoranthene             | N/A         | N/A           | 1.7E-07              | 1.1E-06              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Benzo(k)fluoranthene             | N/A         | N/A           | 1.5E-07              | 9.6E-07              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Chrysene                         | N/A         | N/A           | 2.0E-07              | 1.3E-06              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Dibenz(a,h)anthracene            | N/A         | N/A           | 2.0E-08              | 1.3E-07              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Indeno(1,2,3-cd)pyrene           | N/A         | N/A           | 6.6E-08              | 4.3E-07              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Pesticides                       |             |               |                      |                      |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Dieldrin                         | N/A         | 1.61E+01      | 1.2E-10              | 7.5E-10              |             | 1.33E-12         |                     | 2E-11  |             | 1.83E-12       |                     | 3E-11       |                       | 1.01E-14       |                     | 2E-13  |
| Heptachlor epoxide               | N/A         | 9.10E+00      | 4.0E-10              | 2.6E-09              |             | 4.57E-12         |                     | 4E-11  |             | 6.32E-12       |                     | 6E-11       |                       | 3.50E-14       |                     | 3E-13  |
| Metals                           |             |               |                      |                      |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Arsenic                          | N/A         | 1.51E+01      | 2.5E-07              | 1.6E-06              |             | 2.91E-09         |                     | 4E-08  |             | 4.02E-09       |                     | 6E-08       |                       | 2.22E-11       |                     | 3E-10  |
| Chromium                         | 2.86E-05    | 4.20E+01      | 1.4E-06              | 9.1E-06              | 1.25E-07    | 1.61E-08         | 4E-03               | 7E-07  | 1.56E-06    | 2.23E-08       | 5E-02               | 9E-07       | 1.73E-09              | 1.23E-10       | 6E-05               | 5E-09  |
| Iron                             | N/A         | N/A           | 3.7E-04              | 2.4E-03              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Manganese                        | 1.43E-05    | N/A           | 1.8E-03              | 1.2E-02              | 1.61E-04    |                  | 1E+01               |        | 2.01E-03    |                | 1E+02               |             | 2.22E-06              |                | 2E-01               |        |
| Thallium                         | N/A         | N/A           | 9.1E-07              | 5.9E-06              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Vanadium                         | N/A         | N/A           | 7.3E-07              | 4.7E-06              |             |                  |                     |        |             |                |                     |             |                       |                |                     |        |
| Total Hazard Quotient and Cancer | Risk:       |               |                      |                      |             |                  | 1E+01               | 7E-07  |             |                | 1E+02               | 1E-06       |                       |                | 2E-01               | 6E-09  |
|                                  |             |               |                      |                      | A           | ssumptions for l | Industrial Wor      | ker    | Ass         | umptions for C | onstruction Wo      | orker       | Assu                  | imptions for A | lolescent Tresp     | asser  |
|                                  |             |               |                      |                      | EPC =       | EPC Surface O    | nlv                 |        | EPC =       | EPC Surface O  | nly for Construc    | tion Worker | EPC =                 | EPC Surface O  | nly                 |        |
|                                  |             |               |                      |                      | BW =        | 70               |                     |        | BW =        |                | kg                  | tion worker | BW =                  |                | kg                  |        |
|                                  |             |               |                      |                      | IR =        | 10.4             | m <sup>3</sup> /day |        | IR =        | 20             | m <sup>3</sup> /day |             | IR =                  | 1.6            | m <sup>3</sup> /day |        |
|                                  |             |               |                      |                      | EF =        |                  | days/year           |        | EF =        |                | days/year           |             | EF =                  |                | days/year           |        |
|                                  |             |               |                      |                      | ED =        |                  | years               |        | ED =        |                | year                |             | ED =                  |                | years               |        |
|                                  |             |               |                      |                      | AT (Nc) =   | 3,285            |                     |        | AT (Nc) =   |                | days                |             | AT (Nc) =             | 1,825          |                     |        |
|                                  |             |               |                      |                      | AT (Car) =  | 25,550           |                     |        | AT (Car) =  | 25,550         |                     |             | AT (Car) =            | 25,550         |                     |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(1) This EPC was used for the industrial worker and the adolescent trespasser.

(2) This EPC was used for the construction worker.

#### TABLE F-4A

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg EF = Exposure Frequency IR = Ingestion Rate

ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time CF = Conversion Factor FI = Fraction Ingested

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Oral<br>RfD | Carc. Slope   | EPC        |                       | Industria      | al Worker          |        | 1                     | Construc        | ction Worker     | Adolescent Trespasser |                       |                |                    |                |
|------------------------------------|-------------|---------------|------------|-----------------------|----------------|--------------------|--------|-----------------------|-----------------|------------------|-----------------------|-----------------------|----------------|--------------------|----------------|
| Analyte                            |             | Oral          | Ditch Soil | Intake<br>(mg/kg-day) |                | Hazard<br>Quotient | Cancer | Intake<br>(mg/kg-day) |                 | Hazard           | Cancer<br>Risk        | Intake<br>(mg/kg-day) |                | Hazard<br>Quotient | Cancer<br>Risk |
|                                    |             |               |            |                       |                |                    | Risk   |                       |                 | Quotient         |                       |                       |                |                    |                |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)    | (Nc)                  | (Car)          | ]                  |        | (Nc)                  | (Car)           |                  |                       | (Nc)                  | (Car)          |                    |                |
| Semivolatile Organic Compounds     |             |               |            |                       |                |                    |        |                       |                 |                  |                       |                       |                |                    |                |
| Benzo(a)anthracene                 | N/A         | 7.3E-01       | 5.9E+00    |                       | 4.11E-07       |                    | 3E-07  |                       | 2.71E-07        |                  | 2E-07                 |                       | 3.22E-08       |                    | 2E-08          |
| Benzo(a)pyrene                     | N/A         | 7.3E+00       | 6.2E+00    |                       | 4.36E-07       |                    | 3E-06  |                       | 2.88E-07        |                  | 2E-06                 |                       | 3.42E-08       |                    | 2E-07          |
| Benzo(b)fluoranthene               | N/A         | 7.3E-01       | 1.1E+01    |                       | 7.90E-07       |                    | 6E-07  |                       | 5.21E-07        |                  | 4E-07                 |                       | 6.19E-08       |                    | 5E-08          |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02       | 8.9E+00    |                       | 6.20E-07       |                    | 5E-08  |                       | 4.09E-07        |                  | 3E-08                 |                       | 4.86E-08       |                    | 4E-09          |
| Chrysene                           | N/A         | 7.3E-03       | 8.6E+00    |                       | 6.03E-07       |                    | 4E-09  |                       | 3.98E-07        |                  | 3E-09                 |                       | 4.73E-08       |                    | 3E-10          |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00       | 2.4E+00    |                       | 1.65E-07       |                    | 1E-06  |                       | 1.09E-07        |                  | 8E-07                 |                       | 1.29E-08       |                    | 9E-08          |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01       | 1.1E+01    |                       | 7.70E-07       |                    | 6E-07  |                       | 5.08E-07        |                  | 4E-07                 |                       | 6.04E-08       |                    | 4E-08          |
| Metals                             |             |               |            |                       |                |                    |        |                       |                 |                  |                       |                       |                |                    |                |
| Arsenic                            | 3E-04       | 1.5E+00       | 6.1E+01    | 1.19E-05              | 4.24E-06       | 4E-02              | 6E-06  | 1.96E-04              | 2.80E-06        | 7E-01            | 4E-06                 | 4.65E-06              | 3.32E-07       | 2E-02              | 5E-07          |
| Iron                               | 3E-01       | N/A           | 2.1E+04    | 4.13E-03              |                | 1E-02              |        | 6.82E-02              |                 | 2E-01            |                       | 1.62E-03              |                | 5E-03              |                |
| Manganese                          | 2E-02       | N/A           | 1.1E+04    | 2.12E-03              |                | 9E-02              |        | 3.49E-02              |                 | 1E+00            |                       | 8.29E-04              |                | 4E-02              |                |
| Thallium                           | 6E-04       | N/A           | 1.2E+01    | 2.28E-06              |                | 4E-03              |        | 3.76E-05              |                 | 6E-02            |                       | 8.92E-07              |                | 1E-03              |                |
| Total Hazard Quotient and Cancer R | tisk:       |               |            |                       |                | 1E-01              | 1E-05  |                       |                 | 2E+00            | 8E-06                 |                       |                | 6E-02              | 1E-06          |
|                                    |             |               |            | A                     | ssumptions for | Industrial Wor     | ker    | A                     | Assumptions for | Construction Wor | rkei                  | Ass                   | umptions for A | lolescent Tresp    | isser          |
|                                    |             |               |            | CF =                  | 1E-06          | kg/mg              |        | CF =                  | 1E-06           | kg/mg            |                       | CF =                  | 1E-06          | kg/mg              |                |
|                                    |             |               |            | EPC=                  | EPC Surface Or | nly                |        | EPC=                  | EPC Surface Or  | nly              |                       | EPC=                  | EPC Surface On | nly                |                |
|                                    |             |               |            | BW =                  | 70             | kg                 |        | BW =                  |                 | kg               |                       | BW =                  | 50             |                    |                |
|                                    |             |               |            | IR =                  |                | mg/day             |        | IR =                  |                 | mg/day           |                       | IR =                  |                | mg/day             |                |
|                                    |             |               |            | FI =                  |                | unitless           |        | FI =                  |                 | unitless         |                       | FI =                  |                | unitless           |                |
|                                    |             |               |            | EF =                  |                | days/year          |        | EF =                  |                 | days/year        |                       | EF =                  |                | days/year          |                |
|                                    |             |               |            | ED =                  |                | years              |        | ED =                  |                 | years            |                       | ED =                  |                | years              |                |
|                                    |             |               |            | AT (Nc) =             | 9,125          |                    |        | AT (Nc) =             |                 | days             |                       | AT (Nc) =             | 1,825          |                    |                |
|                                    |             |               |            | AT (Car) =            | 25,550         | days               |        | AT (Car) =            | 25,550          | days             |                       | AT (Car) =            | 25,550         | days               |                |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE F-4B

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

FI = Fraction Ingested

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg IR = Ingestion Rate EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time CF = Conversion Factor

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Oral        | Carc. Slope   | EPC        |                         | Industria                 | al Worker       |        |                         | Constru               | ction Worker    | Adolescent Trespasser |                                      |                |                 |        |
|------------------------------------|-------------|---------------|------------|-------------------------|---------------------------|-----------------|--------|-------------------------|-----------------------|-----------------|-----------------------|--------------------------------------|----------------|-----------------|--------|
| Analyte                            | RfD         | Oral          | Ditch Soil | Int                     | take                      | Hazard          | Cancer | Intake                  |                       | Hazard          | Cancer                | Intake                               |                | Hazard          | Cancer |
|                                    |             |               |            | (mg/kg-day)             |                           | Quotient        | Risk   | (mg/kg-day)             |                       | Quotient        | Risk                  | (mg/kg-day)                          |                | Quotient        | Risk   |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)    | (Nc)                    | (Car)                     |                 |        | (Nc)                    | (Car)                 |                 |                       | (Nc)                                 | (Car)          |                 |        |
| Semivolatile Organic Compounds     |             |               |            |                         |                           |                 |        |                         |                       |                 |                       |                                      |                |                 |        |
| Benzo(a)anthracene                 | N/A         | 7.3E-01       | 5.9E+00    |                         | 7.39E-08                  |                 | 5E-08  |                         | 7.19E-08              |                 | 5E-08                 |                                      | 1.61E-08       |                 | 1E-08  |
| Benzo(a)pyrene                     | N/A         | 7.3E+00       | 6.2E+00    |                         | 7.85E-08                  |                 | 6E-07  |                         | 7.64E-08              |                 | 6E-07                 |                                      | 1.71E-08       |                 | 1E-07  |
| Benzo(b)fluoranthene               | N/A         | 7.3E-01       | 1.1E+01    |                         | 1.42E-07                  |                 | 1E-07  |                         | 1.38E-07              |                 | 1E-07                 |                                      | 3.10E-08       |                 | 2E-08  |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02       | 8.9E+00    |                         | 1.12E-07                  |                 | 8E-09  |                         | 1.09E-07              |                 | 8E-09                 |                                      | 2.43E-08       |                 | 2E-09  |
| Chrysene                           | N/A         | 7.3E-03       | 8.6E+00    |                         | 1.09E-07                  |                 | 8E-10  |                         | 1.06E-07              |                 | 8E-10                 |                                      | 2.36E-08       |                 | 2E-10  |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00       | 2.4E+00    |                         | 2.97E-08                  |                 | 2E-07  |                         | 2.89E-08              |                 | 2E-07                 |                                      | 6.46E-09       |                 | 5E-08  |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01       | 1.1E+01    |                         | 1.39E-07                  |                 | 1E-07  |                         | 1.35E-07              |                 | 1E-07                 |                                      | 3.02E-08       |                 | 2E-08  |
| Metals                             |             |               |            |                         |                           |                 |        |                         |                       |                 |                       |                                      |                |                 |        |
| Arsenic                            | 3.0E-04     | 1.5E+00       | 6.1E+01    | 5.93E-06                | 7.63E-07                  | 2E-02           | 1E-06  | 5.20E-05                | 7.42E-07              | 2E-01           | 1E-06                 | 2.33E-06                             | 1.66E-07       | 8E-03           | 2E-07  |
| Iron                               | 3.0E-01     | N/A           | 2.1E+04    | 2.07E-03                |                           | 7E-03           |        | 1.81E-02                |                       | 6E-02           |                       | 8.10E-04                             |                | 3E-03           |        |
| Manganese                          | 2.3E-02     | N/A           | 1.1E+04    | 1.06E-03                |                           | 5E-02           |        | 9.27E-03                |                       | 4E-01           |                       | 4.15E-04                             |                | 2E-02           |        |
| Thallium                           | 6.5E-04     | N/A           | 1.2E+01    | 1.14E-06                |                           | 2E-03           |        | 9.97E-06                |                       | 2E-02           |                       | 4.46E-07                             |                | 7E-04           |        |
| Total Hazard Quotient and Cancer R | isk:        |               |            |                         |                           | 7E-02           | 2E-06  |                         |                       | 6E-01           | 2E-06                 |                                      |                | 3E-02           | 5E-07  |
|                                    |             |               |            | As                      | ssumptions for l          | Industrial Wor  | ker    | A                       | ssumptions for        | Construction Wo | rker                  | Assı                                 | imptions for A | lolescent Tresp | asser  |
|                                    |             |               |            | CF =                    | 1E-06                     | kg/mg           |        | CF =                    | 1E-06                 | kg/mg           |                       | CF =                                 | 1E-06          | kg/mg           |        |
|                                    |             |               |            | EPC=                    | EPC Surface O             | nly             |        | EPC=                    | EPC Surface O         | nly             |                       |                                      | EPC Surface O  |                 |        |
|                                    |             |               |            | BW =                    | 70                        | kg              |        | BW =                    | 70                    | kg              |                       | BW =                                 | 50             | kg              |        |
|                                    |             |               |            | IR =                    |                           | mg/day          |        | IR =                    |                       | mg/day          |                       | IR =                                 |                | mg/day          |        |
|                                    |             | FI =          |            |                         |                           | FI = 1 unitless |        |                         | FI = 1 unitless       |                 |                       |                                      |                |                 |        |
|                                    |             |               |            | EF =                    |                           |                 |        | EF =                    |                       |                 |                       | EF = 14 days/year                    |                |                 |        |
|                                    |             |               |            | ED =                    | 9 years<br>) = 3,285 days |                 |        | ED =                    | 1 years<br>= 365 days |                 |                       | ED = 5 years<br>AT (Nc) = 1,825 days |                |                 |        |
|                                    |             |               |            | AT (Nc) =<br>AT (Car) = | 3,285<br>25,550           | •               |        | AT (Nc) =<br>AT (Car) = | 25,550                | •               |                       | AT (Nc) =<br>AT (Car) =              |                | days            |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### TABLE F-5A

# CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121I SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Ditch Soil, mg/kg

CF = Conversion Factor SA = Surface Area Contact AF = Adherence Factor ABS = Absorption Factor EV = Event Frequency EF = Exposure Frequency

ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Dermal                              | Carc. Slope   | Absorption | EPC        |                 | Industria       | l Worker |        |                | Constructi     | on Worker | ,      |               | Adolescent      | Trespasser | ,      |
|------------------------------------|-------------------------------------|---------------|------------|------------|-----------------|-----------------|----------|--------|----------------|----------------|-----------|--------|---------------|-----------------|------------|--------|
| Analyte                            | RfD                                 | Dermal        | Factor*    | Ditch Soil |                 | ed Dose         | Hazard   | Cancer |                | ed Dose        | Hazard    | Cancer |               | ed Dose         | Hazard     | Cancer |
|                                    | 1                                   |               |            |            |                 | g-day)          | Quotient | Risk   |                | g-day)         | Quotient  | Risk   |               | g-day)          | Quotient   | Risk   |
|                                    | (mg/kg-day)                         | (mg/kg-day)-1 | (unitless) | (mg/kg)    | (Nc)            | (Car)           |          |        | (Nc)           | (Car)          |           |        | (Nc)          | (Car)           |            |        |
| Semivolatile Organic Compounds     |                                     |               |            |            |                 |                 |          |        |                |                |           |        |               |                 |            |        |
| Benzo(a)anthracene                 | N/A                                 | 7.3E-01       | 1.3E-01    | 5.9E+00    |                 | 3.52E-07        |          | 3E-07  |                | 1.06E-07       |           | 8E-08  |               | 1.72E-08        |            | 1E-08  |
| Benzo(a)pyrene                     | N/A                                 | 7.3E+00       | 1.3E-01    | 6.2E+00    |                 | 3.74E-07        |          | 3E-06  |                | 1.12E-07       |           | 8E-07  |               | 1.82E-08        |            | 1E-07  |
| Benzo(b)fluoranthene               | N/A                                 | 7.3E-01       | 1.3E-01    | 1.1E+01    |                 | 6.78E-07        |          | 5E-07  |                | 2.03E-07       |           | 1E-07  |               | 3.31E-08        |            | 2E-08  |
| Benzo(k)fluoranthene               | N/A                                 | 7.3E-02       | 1.3E-01    | 8.9E+00    |                 | 5.32E-07        |          | 4E-08  |                | 1.60E-07       |           | 1E-08  |               | 2.59E-08        |            | 2E-09  |
| Chrysene                           | N/A                                 | 7.3E-03       | 1.3E-01    | 8.6E+00    |                 | 5.17E-07        |          | 4E-09  |                | 1.55E-07       |           | 1E-09  |               | 2.52E-08        |            | 2E-10  |
| Dibenz(a,h)anthracene              | N/A                                 | 7.3E+00       | 1.3E-01    | 2.4E+00    |                 | 1.41E-07        |          | 1E-06  |                | 4.24E-08       |           | 3E-07  |               | 6.90E-09        |            | 5E-08  |
| Indeno(1,2,3-cd)pyrene             | N/A                                 | 7.3E-01       | 1.3E-01    | 1.1E+01    |                 | 6.61E-07        |          | 5E-07  |                | 1.98E-07       |           | 1E-07  |               | 3.22E-08        |            | 2E-08  |
| Metals                             |                                     |               |            |            |                 |                 |          |        |                |                |           |        |               |                 |            |        |
| Arsenic                            | 3E-04                               | 1.5E+00       | 3.0E-02    | 6.1E+01    | 2.35E-06        | 8.39E-07        | 8E-03    | 1E-06  | 1.76E-05       | 2.52E-07       | 6E-02     | 4E-07  | 5.73E-07      | 4.09E-08        | 2E-03      | 6E-08  |
| Iron                               | 3E-01                               | N/A           | 1.0E-03    | 2.1E+04    | 2.73E-05        |                 | 9E-05    |        | 2.04E-04       |                | 7E-04     |        | 6.65E-06      |                 | 2E-05      |        |
| Manganese                          | 9E-04                               | N/A           | 1.0E-03    | 1.1E+04    | 1.40E-05        |                 | 1E-02    |        | 1.05E-04       |                | 1E-01     |        | 3.41E-06      |                 | 4E-03      |        |
| Thallium                           | 6E-04                               | N/A           | 1.0E-03    | 1.2E+01    | 1.50E-08        |                 | 2E-05    |        | 1.13E-07       |                | 2E-04     |        | 3.66E-09      |                 | 6E-06      |        |
| Total Hazard Quotient and Cancer R | al Hazard Quotient and Cancer Risk: |               |            |            |                 |                 | 2E-02    | 6E-06  |                |                | 2E-01     | 2E-06  |               |                 | 6E-03      | 3E-07  |
|                                    |                                     |               |            | As         | sumptions for l | Industrial Worl | ker      | Assı   | imptions for C | onstruction Wo | rker      | Assu   | mptions for A | lolescent Tresp | asser      |        |
|                                    |                                     |               |            |            | CF.             | 1F.06           | 1 /      |        | GE.            | 1F.06          | 1 /       |        | GE.           | IE 06           | 1 /        |        |

|            | Assumptions for Industrial Worker |          | Assumptions for Construction Worker | 1          | Assumptions for Adolescent Trespasser |
|------------|-----------------------------------|----------|-------------------------------------|------------|---------------------------------------|
|            |                                   |          |                                     |            |                                       |
| CF =       | 1E-06 kg/mg                       | CF =     | 1E-06 kg/mg                         | CF =       | 1E-06 kg/mg                           |
| EPC =      | EPC Surface Only                  | EPC =    | EPC Surface Only                    | EPC =      | EPC Surface Only                      |
| BW =       | 70 kg                             | BW =     | 70 kg                               | BW =       | 50 kg                                 |
| SA =       | 3,300 cm <sup>2</sup>             | SA =     | 3,300 cm <sup>2</sup>               | SA =       | 5,867 cm <sup>2</sup>                 |
| AF =       | 0.2 mg/cm <sup>2</sup> -event     | AF =     | 0.3 mg/cm <sup>2</sup> -event       | AF =       | 0.07 mg/cm <sup>2</sup> -event        |
| EV =       | 1 event/day                       | EV =     | 1 event/day                         | EV =       | 1 event/day                           |
| EF =       | 50 days/year                      | EF =     | 250 days/year                       | EF =       | 14 days/year                          |
| ED =       | 25 years                          | ED =     | 1 years                             | ED =       | 5 years                               |
| AT (Nc) =  | 9,125 days                        | AT (Nc)  | = 365 days                          | AT (Nc) =  | 1,825 days                            |
| AT (Car) = | 25,550 days                       | AT (Car) | = 25,550 days                       | AT (Car) = | 25,550 days                           |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Absorption factors for iron, manganese, and thallium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

#### TABLE F-5B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL

#### CENTRAL TENDENCY (CT) - SEAD-121I SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

EPC x CF x SA x AF x ABS x EV x EF x ED Equation for Intake (mg/kg-day) =

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg CF = Conversion Factor

SA = Surface Area Contact

EV = Event Frequency

AF = Adherence Factor ABS = Absorption Factor EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                       | Dermal      | Carc. Slope   | Absorption | EPC        |                | Industri       | al Workei |        |                 | Construct      | ion Worker |        |                | Adolescen       | Trespasser |          |
|---------------------------------------|-------------|---------------|------------|------------|----------------|----------------|-----------|--------|-----------------|----------------|------------|--------|----------------|-----------------|------------|----------|
| Analyte                               | RfD         | Dermal        | Factor*    | Ditch Soil | Absorb         | ed Dose        | Hazard    | Cancer | Absorb          | ed Dose        | Hazard     | Cancer | Absorb         | ed Dose         | Hazard     | Cancer   |
|                                       |             |               |            |            |                | g-day)         | Quotient  | Risk   |                 | g-day)         | Quotient   | Risk   |                | g-day)          | Quotient   | Risk     |
|                                       | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)    | (Nc)           | (Car)          |           |        | (Nc)            | (Car)          |            |        | (Nc)           | (Car)           |            |          |
| Semivolatile Organic Compounds        |             |               |            |            |                |                |           |        |                 |                |            |        |                |                 |            |          |
| Benzo(a)anthracene                    | N/A         | 7.3E-01       | 1.3E-01    | 5.9E+00    |                | 1.27E-08       |           | 9E-09  |                 | 9.26E-08       |            | 7E-08  |                | 2.46E-09        |            | 1.79E-09 |
| Benzo(a)pyrene                        | N/A         | 7.3E+00       | 1.3E-01    | 6.2E+00    |                | 1.35E-08       |           | 1E-07  |                 | 9.83E-08       |            | 7E-07  |                | 2.61E-09        |            | 1.90E-08 |
| Benzo(b)fluoranthene                  | N/A         | 7.3E-01       | 1.3E-01    | 1.1E+01    |                | 2.44E-08       |           | 2E-08  |                 | 1.78E-07       |            | 1E-07  |                | 4.72E-09        |            | 3.45E-09 |
| Benzo(k)fluoranthene                  | N/A         | 7.3E-02       | 1.3E-01    | 8.9E+00    |                | 1.91E-08       |           | 1E-09  |                 | 1.40E-07       |            | 1E-08  |                | 3.71E-09        |            | 2.71E-10 |
| Chrysene                              | N/A         | 7.3E-03       | 1.3E-01    | 8.6E+00    |                | 1.86E-08       |           | 1E-10  |                 | 1.36E-07       |            | 1E-09  |                | 3.60E-09        |            | 2.63E-11 |
| Dibenz(a,h)anthracene                 | N/A         | 7.3E+00       | 1.3E-01    | 2.4E+00    |                | 5.09E-09       |           | 4E-08  |                 | 3.72E-08       |            | 3E-07  |                | 9.86E-10        |            | 7.20E-09 |
| Indeno(1,2,3-cd)pyrene                | N/A         | 7.3E-01       | 1.3E-01    | 1.1E+01    |                | 2.38E-08       |           | 2E-08  |                 | 1.74E-07       |            | 1E-07  |                | 4.60E-09        |            | 3.36E-09 |
| Metals                                |             |               |            |            |                |                |           |        |                 |                |            |        |                |                 |            |          |
| Arsenic                               | 3.00E-04    | 1.5E+00       | 3.0E-02    | 6.1E+01    | 2.35E-07       | 3.02E-08       | 8E-04     | 5E-08  | 1.54E-05        | 2.20E-07       | 5E-02      | 3E-07  | 8.18E-08       | 5.85E-09        | 2.73E-04   | 8.77E-09 |
| Iron                                  | 3.00E-01    | N/A           | 1.0E-03    | 2.1E+04    | 2.73E-06       |                | 9E-06     |        | 1.79E-04        |                | 6E-04      |        | 9.50E-07       |                 | 3.17E-06   |          |
| Manganese                             | 9.33E-04    | N/A           | 1.0E-03    | 1.1E+04    | 1.40E-06       |                | 1E-03     |        | 9.17E-05        |                | 1E-01      |        | 4.87E-07       |                 | 5.21E-04   |          |
| Thallium                              | 6.47E-04    | N/A           | 1.0E-03    | 1.2E+01    | 1.50E-09       |                | 2E-06     |        | 9.87E-08        |                | 2E-04      |        | 5.23E-10       |                 | 8.10E-07   |          |
| otal Hazard Quotient and Cancer Risk: |             |               |            |            |                | 2E-03          | 2E-07     |        |                 | 2E-01          | 2E-06      |        |                | 8E-04           | 4E-08      |          |
|                                       |             |               |            | A          | ssumptions for | Industrial Wor | ke        | Ass    | sumptions for C | onstruction Wo | rke        | Ass    | umptions for A | dolescent Tresp | asse       |          |

|            | Assumptions for Industrial Worker |            | Assumptions for Construction Worke | A          | ssumptions for Adolescent Trespasse |
|------------|-----------------------------------|------------|------------------------------------|------------|-------------------------------------|
|            |                                   |            |                                    |            |                                     |
| CF =       | 1E-06 kg/mg                       | CF =       | 1E-06 kg/mg                        | CF =       | 1E-06 kg/mg                         |
| EPC =      | EPC Surface Only                  | EPC =      | EPC Surface Only                   | EPC =      | EPC Surface Only                    |
| BW =       | 70 kg                             | BW =       | 70 kg                              | BW =       | 50 kg                               |
| SA =       | 3,300 cm <sup>2</sup>             | SA =       | 3,300 cm <sup>2</sup>              | SA =       | 5,867 cm <sup>2</sup>               |
| AF =       | 0.02 mg/cm <sup>2</sup> -event    | AF =       | 0.3 mg/cm <sup>2</sup> -event      | AF =       | 0.01 mg/cm <sup>2</sup> -event      |
| EV =       | 1 event/day                       | EV =       | 1 event/day                        | EV =       | 1 event/day                         |
| EF =       | 50 days/year                      | EF =       | 219 days/year                      | EF =       | 14 days/year                        |
| ED =       | 9 years                           | ED =       | 1 years                            | ED =       | 5 years                             |
| AT (Nc) =  | 3,285 days                        | AT (Nc) =  | 365 days                           | AT (Nc) =  | 1,825 days                          |
| AT (Car) = | 25,550 days                       | AT (Car) = | = 25,550 days                      | AT (Car) = | 25,550 days                         |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Absorption factors for iron, manganese, and thallium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

#### TABLE F-6A

#### CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 DITCH SOIL

## SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) =                                   | EPC x IR x EF x ED     |   |
|---|------------------------|---|
|   | BW x AT                | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                        |   |
| EPC = EPC in Air, mg/m <sup>3</sup>                                 | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate  | BW = Bodyweight        |   |
| EF = Exposure Frequency   | AT = Averaging Time    |   |

|                                  | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from      |            | Industria      | al Worker           |        |            | Constru        | iction Worker         |          |            | Adolescent     | Trespasser          |        |
|----------------------------------|-------------|---------------|----------------------|-------------------|------------|----------------|---------------------|--------|------------|----------------|-----------------------|----------|------------|----------------|---------------------|--------|
| Analyte                          | RfD         | Inhalation    | Ditch Soil           | Ditch Soil        | In         | take           | Hazard              | Cancer | Int        | ake            | Hazard                | Cancer   | Int        | take           | Hazard              | Cancer |
|                                  |             |               | (1)                  | Const. Worker (2) | (mg/l      | (g-day)        | Quotient            | Risk   | (mg/k      | g-day)         | Quotient              | Risk     | (mg/k      | (g-day)        | Quotient            | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m³)           | (Nc)       | (Car)          |                     |        | (Nc)       | (Car)          |                       |          | (Nc)       | (Car)          |                     |        |
| Semivolatile Organic Compounds   |             |               |                      |                   |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Benzo(a)anthracene               | N/A         | N/A           | 1.0E-07              | 6.5E-07           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Benzo(a)pyrene                   | N/A         | 3.10E+00      | 1.1E-07              | 6.9E-07           |            | 7.41E-09       |                     | 2E-08  |            | 1.92E-09       |                       | 6E-09    |            | 9.30E-12       |                     | 3E-11  |
| Benzo(b)fluoranthene             | N/A         | N/A           | 1.9E-07              | 1.2E-06           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Benzo(k)fluoranthene             | N/A         | N/A           | 1.5E-07              | 9.8E-07           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Chrysene                         | N/A         | N/A           | 1.5E-07              | 9.5E-07           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Dibenz(a,h)anthracene            | N/A         | N/A           | 4.0E-08              | 2.6E-07           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Indeno(1,2,3-cd)pyrene           | N/A         | N/A           | 1.9E-07              | 1.2E-06           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Metals                           |             |               |                      |                   |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Arsenic                          | N/A         | 1.51E+01      | 1.0E-06              | 6.7E-06           |            | 7.20E-08       |                     | 1E-06  |            | 1.86E-08       |                       | 3E-07    |            | 9.03E-11       |                     | 1E-09  |
| Iron                             | N/A         | N/A           | 3.6E-04              | 2.3E-03           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Manganese                        | 1.43E-05    | N/A           | 1.8E-04              | 1.2E-03           | 3.60E-05   |                | 3E+00               |        | 2.33E-04   |                | 2E+01                 |          | 2.26E-07   |                | 2E-02               |        |
| Thallium                         | N/A         | N/A           | 2.0E-07              | 1.3E-06           |            |                |                     |        |            |                |                       |          |            |                |                     |        |
| Total Hazard Quotient and Cancer | Risk:       |               |                      |                   |            |                | 3E+00               | 1E-06  |            |                | 2E+01                 | 3E-07    |            |                | 2E-02               | 1E-09  |
|                                  |             |               |                      |                   | A          | ssumptions for | Industrial Wor      | ker    | A          | ssumptions for | Construction Wo       | rker     | Asst       | imptions for A | iolescent Tresp     | asser  |
|                                  |             |               |                      |                   | EPC =      | EPC Surface O  | nlv                 |        | EPC =      | EPC Surface O  | only for Construction | n Worker | EPC =      | EPC Surface C  | nlv                 |        |
|                                  |             |               |                      |                   | BW =       | 70             |                     |        | BW =       |                | kg                    |          | BW =       |                | kg                  |        |
|                                  |             |               |                      |                   | IR =       |                | m <sup>3</sup> /day |        | IR =       |                | m <sup>3</sup> /day   |          | IR =       |                | m <sup>3</sup> /day |        |
|                                  |             |               |                      |                   | EF =       |                | days/year           |        | EF =       |                | days/year             |          | EF =       |                | days/year           |        |
|                                  |             |               |                      |                   | ED =       |                | vears               |        | ED =       |                | vear                  |          | ED =       |                | years               |        |
|                                  |             |               |                      |                   | AT (Nc) =  | 9,125          |                     |        | AT (Nc) =  |                | days                  |          | AT (Nc) =  | 1,825          |                     |        |
|                                  |             |               |                      |                   | AT (Car) = | 25,550         |                     |        | AT (Car) = | 25,550         |                       |          | AT (Car) = | 25,550         |                     |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

This EPC was used for the industrial worker and the adolescent trespasser.
 This EPC was used for the construction worker.

#### TABLE F-6B

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR

# CENTRAL TENDENCY (CT) - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x EF x ED
BW x AT
Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m³
ED = Exposure Duration
BW = Bodyweight
EF = Exposure Frequency
BW = Bodyweight
AT = Averaging Time

|                             | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |                       | Industria       | al Worker           |                    |               | Construct         | ion Worker          |              |            | Adolescent      | Trespasser          |        |
|-----------------------------|-------------|---------------|----------------------|----------------------|-----------------------|-----------------|---------------------|--------------------|---------------|-------------------|---------------------|--------------|------------|-----------------|---------------------|--------|
| Analyte                     | RfD         | Inhalation    | Ditch Soil           | Ditch Soil           | Int                   | take            | Hazard              | Cancer             | Int           | take              | Hazard              | Cancer       | Int        | Intake          |                     | Cancer |
| Analyte                     | KID         | Illialation   |                      | Const. Worker (2)    |                       |                 |                     | Risk               |               |                   |                     | Risk         |            |                 | Hazard<br>Quotient  | Risk   |
|                             |             |               | (1)                  |                      |                       | (g-day)         | Quotient            | KISK               |               | (g-day)           | Quotient            | KISK         |            | g-day)          | Quotient            | RISK   |
|                             | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)                  | (Car)           |                     |                    | (Nc)          | (Car)             |                     |              | (Nc)       | (Car)           |                     |        |
| Semivolatile Organic Compou | nd          |               |                      |                      |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Benzo(a)anthracene          | N/A         | N/A           | 1.0E-07              | 6.5E-07              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Benzo(a)pyrene              | N/A         | 3.10E+00      | 1.1E-07              | 6.9E-07              |                       | 1.22E-09        |                     | 4E-09              |               | 1.68E-09          |                     | 5E-09        |            | 9.30E-12        |                     | 3E-11  |
| Benzo(b)fluoranthene        | N/A         | N/A           | 1.9E-07              | 1.2E-06              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Benzo(k)fluoranthene        | N/A         | N/A           | 1.5E-07              | 9.8E-07              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Chrysene                    | N/A         | N/A           | 1.5E-07              | 9.5E-07              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Dibenz(a,h)anthracene       | N/A         | N/A           | 4.0E-08              | 2.6E-07              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Indeno(1,2,3-cd)pyrene      | N/A         | N/A           | 1.9E-07              | 1.2E-06              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Metals                      |             |               |                      |                      |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Arsenic                     | N/A         | 1.51E+01      | 1.0E-06              | 6.7E-06              |                       | 1.18E-08        |                     | 2E-07              |               | 1.63E-08          |                     | 2E-07        |            | 9.03E-11        |                     | 1E-09  |
| Iron                        | N/A         | N/A           | 3.6E-04              | 2.3E-03              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Manganese                   | 1.43E-05    | N/A           | 1.8E-04              | 1.2E-03              | 1.64E-05              |                 | 1E+00               |                    | 2.04E-04      |                   | 1E+01               |              | 2.26E-07   |                 | 2E-02               |        |
| Thallium                    | N/A         | N/A           | 2.0E-07              | 1.3E-06              |                       |                 |                     |                    |               |                   |                     |              |            |                 |                     |        |
| Total Hazard Quotient and C | ncer Risk:  |               |                      |                      |                       |                 | 1E+00               | 2E-07              |               |                   | 1E+01               | 3E-07        |            |                 | 2E-02               | 1E-09  |
|                             |             |               |                      |                      | As                    | sumptions for l | Industrial Wor      | ker                | Ass           | umptions for C    | onstruction Wo      | orker        | Assu       | ımptions for Ac | lolescent Tresp     | asser  |
|                             |             |               |                      |                      | EPC =                 | EPC Surface O   | nlv                 |                    | EPC =         | EPC Surface C     | nly for Constru     | ction Worker | EPC =      | EPC Surface O   | nlv                 |        |
|                             |             |               |                      |                      | BW =                  |                 | kg                  |                    | BW =          |                   | kg                  | cuon worker  | BW =       |                 | kg                  |        |
|                             |             |               |                      |                      | IR =                  | 10.4            | m <sup>3</sup> /day |                    | IR =          | 20                | m <sup>3</sup> /day |              | IR =       | 1.6             | m <sup>3</sup> /day |        |
|                             |             |               |                      |                      | EF = 219 days/year El |                 | EF =                | EF = 219 days/year |               | EF = 14 days/year |                     | days/year    |            |                 |                     |        |
|                             |             |               |                      |                      | ED = 9 years ED       |                 | ED = 1 year         |                    | ED = 5 years  |                   | years               |              |            |                 |                     |        |
|                             |             |               |                      |                      | AT (Nc) =             | 3,285 days      |                     | AT (Nc) =          | e) = 365 days |                   | AT (Nc) =           |              |            |                 |                     |        |
|                             |             |               |                      |                      | AT (Car) =            | 25,550          | days                |                    | AT (Car) =    | 25,550            | days                |              | AT (Car) = | 25,550          | days                |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### APPENDIX G

#### ECOLOGICAL RISK ASSESSMENT CALCULATION TABLES

- G-1 Chemical-Specific Uptake Factors
- G-2A SEAD-121C Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-2B SEAD-121C Soil American Robin (Turdus migratorius) Exposure
- G-2C SEAD-121C Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-2D SEAD-121C Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-2E SEAD-121C Soil Red Fox (Vulpes vulpes) Exposure
- G-3A SEAD-121C Ditch Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-3B SEAD-121C Ditch Soil American Robin (Turdus migratorius) Exposure
- G-3C SEAD-121C Ditch Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-3D SEAD-121C Ditch Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-3E SEAD-121C Ditch Soil Red Fox (Vulpes vulpes) Exposure
- G-3F SEAD-121C Ditch Soil Great Blue Heron (Ardea herodias) Exposure
- G-4A SEAD-121I Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-4B SEAD-121I Soil American Robin (Turdus migratorius) Exposure
- G-4C SEAD-121I Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-4D SEAD-121I Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-4E SEAD-121I Soil Red Fox (Vulpes vulpes) Exposure
- G-5A SEAD-121I Ditch Soil Deer Mouse (*Peromyscus maniculatus*) Exposure
- G-5B SEAD-121I Ditch Soil American Robin (Turdus migratorius) Exposure
- G-5C SEAD-121I Ditch Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure
- G-5D SEAD-121I Ditch Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-5E SEAD-121I Ditch Soil Red Fox (Vulpes vulpes) Exposure
- G-5F SEAD-121I Ditch Soil Great Blue Heron (Ardea herodias) Exposure
- G-6A SEAD-121C Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-6B SEAD-121C Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-6C SEAD-121C Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-6D SEAD-121C Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-6E SEAD-121C Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration
- G-7A SEAD-121C Ditch Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-7B SEAD-121C Ditch Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-7C SEAD-121C Ditch Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-7D SEAD-121C Ditch Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-7E SEAD-121C Ditch Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration

#### APPENDIX G

## ECOLOGICAL RISK ASSESSMENT CALCULATION TABLES

(Continued)

- G-7F SEAD-121C Ditch Soil Great Blue Heron (*Ardea herodias*) Exposure Based on Mean Concentration
- G-8A SEAD-121I Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-8B SEAD-121I Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-8C SEAD-121I Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-8D SEAD-121I Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-8E SEAD-121I Soil Red Fox (*Vulpes vulpes*) Exposure Based on Mean Concentration
- G-9A SEAD-121I Ditch Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-9B SEAD-121I Ditch Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-9C SEAD-121I Ditch Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-9D SEAD-121I Ditch Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-9E SEAD-121I Ditch Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration
- G-9F SEAD-121I Ditch Soil Great Blue Heron (*Ardea herodias*) Exposure Based on Mean Concentration

# TABLE G-1 CHEMICAL-SPECIFIC UPTAKE FACTORS SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

| СОРС                              | Soil-To-Soil Invertebrate <sup>1</sup><br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg dry<br>soil) | Small Mammal BAF <sup>2</sup><br>(mg COPC/kg wet tissue)/(mg<br>COPC/kg dry soil) | Soil-To-Plant <sup>3</sup><br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) |
|-----------------------------------|---|---|---|
| <b>Volatile Organic Compounds</b> | •   |   |   |
| Benzene                           | 0.20  | 1.07E+00  | 2.27  |
| Ethyl benzene                     | 0.24  | 7.61E-01  | 0.59  |
| Meta/Para Xylene                  | 0.24  | 7.48E-01  | 0.55  |
| Semivolatile Organic Compounds    | S   |   |   |
| 3 or 4-Methylphenol               | 0.10  | 1.14E+00  | 2.89  |
| Acenaphthene                      | 0.07  | 4.61E-04  | 0.21  |
| Acenaphthylene                    | 0.07  | 4.61E-04  | 0.17  |
| Anthracene                        | 0.07  | 4.61E-04  | 0.104   |
| Benzo(a)anthracene                | 0.03  | 1.46E-04  | 0.0202  |
| Benzo(a)pyrene                    | 0.07  | 4.61E-04  | 0.011   |
| Benzo(b)fluoranthene              | 0.07  | 5.46E-04  | 0.0101  |
| Benzo(ghi)perylene                | 0.07  | 4.61E-04  | 0.0057  |
| Benzo(k)fluoranthene              | 0.08  | 5.43E-04  | 0.0101  |
| Bis(2-Ethylhexyl)phthalate        | 0.040   | 5.50E-05  | 0.038   |
| Butylbenzylphthalate              | 0.050   | 4.49E-01  | 0.07  |
| Carbazole                         | 0.060   | 6.29E-01  | 0.27  |
| Chrysene                          | 0.04  | 1.88E-04  | 0.0187  |
| Dibenz(a,h)anthracene             | 0.07  | 1.21E-03  | 0.0064  |
| Dibenzofuran                      | 0.050   | 5.50E-01  | 0.16  |
| Di-n-octylphthalate               | 0.010   | 7.32E-01  | 0.000157  |
| Fluoranthene                      | 0.07  | 4.61E-04  | 0.0372  |
| Fluorene                          | 0.07  | 4.61E-04  | 0.149   |
| Hexachlorobenzene                 | 0.040   | 1.09E-04  | 0.0255  |
| Indeno(1,2,3-cd)pyrene            | 0.08  | 2.82E-03  | 0.0039  |
| Naphthalene                       | 0.07  | 4.61E-04  | 0.42  |
| Phenanthrene                      | 0.07  | 4.61E-04  | 0.102   |
| Phenol                            | 0.110   | 1.34E+00  | 5.55  |
| Pyrene                            | 0.07  | 4.61E-04  | 0.0443  |
| PCBs                              |   | •   | •   |
| Aroclor-1242                      | 1.1   | 5.52E-04  | 0.01  |
| Aroclor-1254                      | 1.1   | 5.52E-04  | 0.01  |
| Aroclor-1260                      | 1.1   | 5.52E-04  | 0.01  |
| Pesticides                        |   |   |   |
| 4,4'-DDD                          | 1.3   | 6.18E-04  | 0.00937   |
| 4,4'-DDE                          | 1.3   | 6.18E-04  | 0.00937   |
| 4,4'-DDT                          | 1.3   | 6.18E-04  | 0.00937   |
| Aldrin                            | 0.070   | 7.97E-01  | 0.705   |
| Alpha-Chlordane                   | 0.040   | 3.51E-01  | 0.027   |
| Delta-BHC                         | 0.050   | 5.47E-01  | 0.157   |
| Dieldrin                          | 0.050   | 4.75E-01  | 0.090   |
| Endosulfan I                      | 0.060   | 6.06E-01  | 0.237   |
| Endosulfan II                     | 0.060   | 6.06E-01  | 0.237   |
| Endrin                            | 0.050   | 4.75E-01  | 0.090   |

#### TABLE G-1

# CHEMICAL-SPECIFIC UPTAKE FACTORS

# SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

| COPC                 | Soil-To-Soil Invertebrate <sup>1</sup><br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg dry<br>soil) | Small Mammal BAF <sup>2</sup><br>(mg COPC/kg wet tissue)/(mg<br>COPC/kg dry soil) | Soil-To-Plant <sup>3</sup><br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) |
|----------------------|---|---|---|
| Endrin ketone        | 0.050   | 4.75E-01  | 0.090   |
| Gamma-Chlordane      | 0.040   | 3.51E-01  | 0.027   |
| Heptachlor           | 1.40  | 3.55E-05  | 0.049   |
| Heptachlor epoxide   | 1.40  | 3.55E-05  | 0.029   |
| Inorganics           |   |   | <u> </u>  |
| Aluminum             | 0.22  | 1.50E-03  | 0.004   |
| Antimony             | 0.22  | 1.00E-03  | 0.2   |
| Arsenic              | 0.11  | 2.00E-03  | 0.036   |
| Barium               | 0.091   | 1.50E-04  | 0.15  |
| Cadmium              | 0.96  | 5.50E-04  | 0.364   |
| Chromium             | 0.01  | 5.50E-03  | 0.0075  |
| Chromium, Hexavalent | 0.01  | 5.50E-03  | 0.0075  |
| Cobalt               | 0.122   | 2.00E-02  | 0.081   |
| Copper               | 0.04  | 1.00E-02  | 0.4   |
| Cyanide              | 1.12  | 1.00E+00  | 1   |
| Iron                 | 0.22  | 2.00E-02  | 0.004   |
| Lead                 | 0.03  | 3.00E-04  | 0.045   |
| Manganese            | 0.054   | 4.00E-04  | 0.25  |
| Mercury              | 0.04  | 2.50E-01  | 0.0375  |
| Nickel               | 0.02  | 6.00E-03  | 0.032   |
| Selenium             | 0.22  | 1.50E-02  | 0.016   |
| Silver               | 0.22  | 3.00E-03  | 0.4   |
| Thallium             | 0.22  | 4.00E-02  | 0.004   |
| Vanadium             | 0.22  | 2.50E-03  | 0.0055  |
| Zinc                 | 0.56  | 1.00E-01  | 1.2E-12   |

COPC = Chemicals of Potential Concern

BAF = Bioaccumulation factor SP = Soil-to-plant uptake factor

1. Values from USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities .

Peer Review Draft.

Values for VOCs or SVOCs not available in USEPA 1999 were calculated using the following equation

based on the equations presented in USEPA 2005 Eco-SSL, Attachment 4-1 and USEPA 1996 Soil

Screening Guidance Technical Background Document. Fraction of organic carbon in soil

was assumed to be 1% and earthworm water content was assumed to be 84% .

For SVOC: BCF= $(16\% \times 10^{0.87 log Kow-2})/(1\% \times 10^{0.983 log kow+0.00028})$ 

For VOC: BCF= $(16\% \times 10^{0.87 \log Kow-2})/(1\% \times 10^{0.7919 \log kow+0.0784})$ 

LogKow from USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, USEPA (1999), or

 $RAIS~(http://risk.lsd.ornl.gov/tox/tox\_values.shtml).$ 

The values for bis(2-ethylhexyl)phthalate, di-n-octylphthalate, and hexachlorobenze were based on the above equations as the values presented in USEPA (1999) were based on equation published from earlier literature.

The value for Benzo(a)pyrene was used for PAHs with no bioaccumulation values in the USEPA document.

The value for 4,4'-DDE was used for 4,4'-DDT and 4,4'-DDD.

The value for total chromium was used for chromium and chromium (VI).

### TABLE G-1

# CHEMICAL-SPECIFIC UPTAKE FACTORS

# SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

| COPC | Soil-To-Soil Invertebrate 1 | Small Mammal BAF <sup>2</sup> | Soil-To-Plant <sup>3</sup> |
|------|-----------------------------|-------------------------------|----------------------------|
|      | (mg COPC/kg wet             | (mg COPC/kg wet tissue)/(mg   | (mg COPC/kg dry            |
|      | tissue)/(mg COPC/kg dry     | COPC/kg dry soil)             | tissue)/(mg COPC/kg        |
|      | soil)                       |                               | dry soil)                  |

The value for endrin was used for endrin ketone.

The value for mercuric chloride was used for mercury

For metals without USEPA recommended values, the median value from USEPA (2003) Table 8 (Attachment 4-1) or the arithmetic mean of the recommended values for the available metals was used.

The value for endosulfan I was used for endosulfan II.

The value for alpha chlordane was used for gamma chlordane.

 Values for inorganics were from Baes, et al., 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture.

Values for organics were from USEPA (1999) Table D-3. The highest value for terrestrial mammals was used.

BCF for Aroclor 1254 was used for Aroclor 1260 and 1242. BCF for 4,4'-DDE was used for 4,4'-DDD and 4,4'-DDT.

BCF for heptachlor was used for heptachlor epoxide.

Values for organics were based on equation provided in USEPA (2003), attachment 4-1. lgBAF=0.338-0.145lgKow.

The value for endrin was used for endrin ketone.

The value for endosulfan I was used for endosulfan II.

The value for alpha chlordane was used for gamma chlordane.

No BCF data were available for cyanide and a default value of 1 was assumed.

3. Values from USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. 1999.

For PAHs and pesticides, the values were calculated based on the model presented in Travers et al., 1988: logBCF=1.588-0.578xlogKow,

The value for 4,4'-DDE was used for 4,4'-DDT and 4,4'-DDD.

The value for Aroclor 1254 was used for Aroclor 1260 and 1242.

The value for total chromium was used for chromium and chromium (VI).

Values for cobalt and iron were from NRC. 1992. US Nuclear Regulatory Commission. Residual Radioactive Contamination from Decommissioning: Technical Basis for Translating Contamination Levels to Annual Total Effective Dose Equivalent.

The value for mercuric chloride was used for mercury

A default value of 1 was used for cyanide.

Values for manganese and vanadium were from Baes, et al., 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture.

# TABLE G-2A DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС                           | Surface Soil (0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4 ft<br>bgs) EPC (mg/kg) | Surface Water EPC (mg/L) | SP (mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry soil) | Terrestrial<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Deer Mouse<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Deer Mouse<br>Total Soil Exposure<br>(mg/kg/day) |
|--------------------------------|--|--|--------------------------|--|--|---|--|
| Volatile Organic Compounds     |  |  |                          |  |  |   |  |
| Benzene                        | 0.041                                    | 1.8                                    |                          | 2.27E+00   | 2.0E-01  | 7.20E-03  | 3.16E-01   |
| Ethyl benzene                  | 3.3                                      | 24                                     |                          | 5.85E-01   | 2.4E-01  | 3.79E-01  | 2.76E+00   |
| Meta/Para Xylene               | 4.4                                      | 130                                    |                          | 5.48E-01   | 2.4E-01  | 4.98E-01  | 1.47E+01   |
| Semivolatile Organic Compounds | •  |  |                          | •  |  |   |  |
| Acenaphthene                   | 2.6                                      | 2.6                                    |                          | 2.10E-01   | 7.0E-02  | 9.43E-02  | 9.43E-02   |
| Acenaphthylene                 | 2.5                                      | 2.5                                    |                          | 1.72E-01   | 7.0E-02  | 8.65E-02  | 8.65E-02   |
| Anthracene                     | 7.1                                      | 7.1                                    |                          | 1.04E-01   | 7.0E-02  | 2.24E-01  | 2.24E-01   |
| Benzo(a)anthracene             | 10                                       | 10                                     |                          | 2.02E-02   | 3.0E-02  | 1.33E-01  | 1.33E-01   |
| Benzo(a)pyrene                 | 8.7                                      | 8.7                                    |                          | 1.10E-02   | 7.0E-02  | 2.38E-01  | 2.38E-01   |
| Benzo(b)fluoranthene           | 12                                       | 12                                     |                          | 1.01E-02   | 7.0E-02  | 3.28E-01  | 3.28E-01   |
| Benzo(ghi)perylene             | 3.15                                     | 3.15                                   |                          | 5.70E-03   | 7.0E-02  | 8.56E-02  | 8.56E-02   |
| Benzo(k)fluoranthene           | 7.5                                      | 7.5                                    |                          | 1.01E-02   | 8.0E-02  | 2.33E-01  | 2.33E-01   |
| Bis(2-Ethylhexyl)phthalate     |  |  | 0.0042                   | 3.80E-02   | 4.0E-02  | 6.34E-04  | 6.34E-04   |
| Carbazole                      | 4.2                                      | 4.2                                    |                          | 2.74E-01   | 6.0E-02  | 1.49E-01  | 1.49E-01   |
| Chrysene                       | 9.1                                      | 9.1                                    |                          | 1.87E-02   | 4.0E-02  | 1.53E-01  | 1.53E-01   |
| Dibenz(a,h)anthracene          | 0.47                                     | 0.47                                   |                          | 6.40E-03   | 7.0E-02  | 1.28E-02  | 1.28E-02   |
| Dibenzofuran                   | 1.7                                      | 1.7                                    |                          | 1.61E-01   | 5.0E-02  | 4.56E-02  | 4.56E-02   |
| Di-n-octylphthalate            | 0.0232                                   | 0.0232                                 |                          | 1.57E-04   | 1.0E-02  | 1.18E-04  | 1.18E-04   |
| Fluoranthene                   | 27                                       | 27                                     |                          | 3.72E-02   | 7.0E-02  | 7.72E-01  | 7.72E-01   |
| Fluorene                       | 3.5                                      | 3.5                                    |                          | 1.49E-01   | 7.0E-02  | 1.17E-01  | 1.17E-01   |
| Hexachlorobenzene              | 0.0085                                   | 0.0085                                 |                          | 2.55E-02   | 4.0E-02  | 1.46E-04  | 1.46E-04   |
| Indeno(1,2,3-cd)pyrene         | 0.97                                     | 0.97                                   |                          | 3.90E-03   | 8.0E-02  | 2.98E-02  | 2.98E-02   |
| Naphthalene                    | 0.4                                      | 1.9                                    |                          | 4.20E-01   | 7.0E-02  | 1.83E-02  | 8.67E-02   |
| Phenanthrene                   | 29                                       | 29                                     |                          | 1.02E-01   | 7.0E-02  | 9.13E-01  | 9.13E-01   |
| Pyrene                         | 34                                       | 34                                     |                          | 4.43E-02   | 7.0E-02  | 9.82E-01  | 9.82E-01   |
| PCBs                           | •  |  |                          |  | •  |   |  |
| Aroclor-1242                   | 0.058                                    | 0.058                                  |                          | 1.00E-02   | 1.1E+00  | 2.40E-02  | 2.40E-02   |
| Aroclor-1254                   | 0.93                                     | 0.93                                   |                          | 1.00E-02   | 1.1E+00  | 3.84E-01  | 3.84E-01   |
| Aroclor-1260                   | 0.085                                    | 0.2                                    |                          | 1.00E-02   | 1.1E+00  | 3.51E-02  | 8.26E-02   |
| Pesticides                     | •  |  |                          | •  | •  |   |  |
| 4,4'-DDD                       | 0.044                                    | 0.044                                  |                          | 9.37E-03   | 1.3E+00  | 2.03E-02  | 2.03E-02   |
| 4,4'-DDE                       | 0.069                                    | 0.069                                  |                          | 9.37E-03   | 1.3E+00  | 3.18E-02  | 3.18E-02   |

Page 1 of 3

# TABLE G-2A DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС               | Surface Soil (0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4 ft<br>bgs) EPC (mg/kg) | Surface Water EPC (mg/L) | dry tissue)/(mg | Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil) | Deer Mouse<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Deer Mouse<br>Total Soil Exposure<br>(mg/kg/day) |
|--------------------|--|--|--------------------------|-----------------|--|---|--|
| 4,4'-DDT           | 0.1                                      | 0.1                                    |                          | 9.37E-03        | 1.3E+00  | 4.60E-02  | 4.60E-02   |
| Aldrin             | 0.01445                                  | 0.01445                                |                          | 7.05E-01        | 7.0E-02  | 8.43E-04  | 8.43E-04   |
| Alpha-Chlordane    | 0.063                                    | 0.063                                  |                          | 2.67E-02        | 4.0E-02  | 1.08E-03  | 1.08E-03   |
| Delta-BHC          | 0.002                                    | 0.002                                  |                          | 1.57E-01        | 5.0E-02  | 5.33E-05  | 5.33E-05   |
| Dieldrin           | 0.041                                    | 0.041                                  |                          | 8.96E-02        | 5.0E-02  | 9.69E-04  | 9.69E-04   |
| Endosulfan I       | 0.19                                     | 0.19                                   |                          | 2.37E-01        | 6.0E-02  | 6.43E-03  | 6.43E-03   |
| Endosulfan II      | 0.009                                    | 0.009                                  |                          | 2.37E-01        | 6.0E-02  | 3.05E-04  | 3.05E-04   |
| Endrin             | 0.0215                                   | 0.023                                  |                          | 8.96E-02        | 5.0E-02  | 5.08E-04  | 5.44E-04   |
| Endrin ketone      | 0.0075                                   | 0.0097                                 |                          | 8.96E-02        | 5.0E-02  | 1.77E-04  | 2.29E-04   |
| Gamma-Chlordane    | 0.0012                                   | 0.0012                                 |                          | 2.67E-02        | 4.0E-02  | 2.06E-05  | 2.06E-05   |
| Heptachlor         | 0.014                                    | 0.014                                  |                          | 4.89E-02        | 1.4E+00  | 7.18E-03  | 7.18E-03   |
| Heptachlor epoxide | 0.0028                                   | 0.0028                                 |                          | 2.93E-02        | 1.4E+00  | 1.43E-03  | 1.43E-03   |
| Metals             | •  |  |                          |                 | •  |   | •  |
| Aluminum           |  |  | 8.76                     | 4.00E-03        | 2.2E-01  | 1.32E+00  | 1.32E+00   |
| Antimony           | 236                                      | 236                                    |                          | 2.00E-01        | 2.2E-01  | 2.13E+01  | 2.13E+01   |
| Arsenic            | 11.6                                     | 11.6                                   | 0.0503                   | 3.60E-02        | 1.1E-01  | 5.07E-01  | 5.07E-01   |
| Barium             | 2030                                     | 2030                                   |                          | 1.50E-01        | 9.1E-02  | 8.37E+01  | 8.37E+01   |
| Cadmium            | 29.1                                     | 29.1                                   | 0.0195                   | 3.64E-01        | 9.6E-01  | 1.07E+01  | 1.07E+01   |
| Chromium           | 74.8                                     | 74.8                                   | 0.129                    | 7.50E-03        | 1.0E-02  | 4.24E-01  | 4.24E-01   |
| Cobalt             | 17                                       | 19.7                                   | 0.047                    | 8.10E-02        | 1.2E-01  | 8.48E-01  | 9.81E-01   |
| Copper             | 9750                                     | 9750                                   | 1.16                     | 4.00E-01        | 4.0E-02  | 3.30E+02  | 3.30E+02   |
| Iron               |  |  | 110                      | 4.00E-03        | 2.2E-01  | 1.66E+01  | 1.66E+01   |
| Lead               | 18900                                    | 18900                                  | 0.839                    | 4.50E-02        | 3.0E-02  | 2.72E+02  | 2.72E+02   |
| Manganese          | 858                                      | 858                                    |                          | 2.50E-01        | 5.4E-02  | 2.77E+01  | 2.77E+01   |
| Mercury            | 0.47                                     | 0.47                                   | 0.0021                   | 3.75E-02        | 4.0E-02  | 8.62E-03  | 8.62E-03   |
| Nickel             | 224                                      | 224                                    | 0.154                    | 3.20E-02        | 2.0E-02  | 2.30E+00  | 2.30E+00   |
| Selenium           | 1.3                                      | 1.3                                    | 0.0046                   | 1.60E-02        | 2.2E-01  | 1.08E-01  | 1.08E-01   |
| Silver             | 21.8                                     | 21.8                                   | 0.008                    | 4.00E-01        | 2.2E-01  | 2.17E+00  | 2.17E+00   |
| Thallium           | 1.1                                      | 1.8                                    |                          | 4.00E-03        | 2.2E-01  | 8.99E-02  | 1.47E-01   |
| Vanadium           | 25.4                                     | 27                                     | 0.233                    | 5.50E-03        | 2.2E-01  | 2.11E+00  | 2.24E+00   |
| Zinc               | 3610                                     | 3610                                   | 6.91                     | 1.20E-12        | 5.6E-01  | 7.42E+02  | 7.42E+02   |

#### **TABLE G-2A**

# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

|      |                           |                    |                          |                   | Terrestrial       |              |                     |
|------|---------------------------|--------------------|--------------------------|-------------------|-------------------|--------------|---------------------|
|      |                           |                    |                          |                   | Invertebrate BAF  | Deer Mouse   |                     |
|      |                           |                    |                          | SP (mg COPC/kg    | (mg COPC/kg wet   | Surface Soil | Deer Mouse          |
|      | Surface Soil (0-2 ft bgs) | Total Soil (0-4 ft | <b>Surface Water EPC</b> | dry tissue)/(mg   | tissue)/(mg       | Exposure     | Total Soil Exposure |
| COPC | EPC (mg/kg)               | bgs) EPC (mg/kg)   | (mg/L)                   | COPC/kg dry soil) | COPC/kg dry soil) | (mg/kg/day)  | (mg/kg/day)         |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# **TABLE G-2B**

# AMERICAN ROBIN (*Turdus migratorius* ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| COPC                       | Surface Soil<br>(0-2 ft bgs) | EPC     |        | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg |           | Surface Soil<br>Exposure | American Robin Total Soil Exposure |
|----------------------------|------------------------------|---------|--------|--|-----------|--------------------------|------------------------------------|
|                            | EPC (mg/kg)                  | (mg/kg) | (mg/L) | dry soil)  | dry soil) | (mg/kg/day)              | (mg/kg/day)                        |
| Volatile Organic Compounds |                              | 1.0     |        | 2.27E+00   | 2.005.01  | 4.55E-03                 | 2.00E-01                           |
| Benzene                    | 0.041<br>3.3                 | 1.8     |        |  | 2.00E-01  |                          |                                    |
| Ethyl benzene              | 4.4                          | 130     |        | 5.85E-01   | 2.40E-01  | 3.86E-01                 | 2.81E+00                           |
| Meta/Para Xylene           |                              | 130     |        | 5.48E-01   | 2.40E-01  | 5.14E-01                 | 1.52E+01                           |
| Semivolatile Organic Compo |                              | 2.6     |        | 2.105.01   | 7.005.00  | 1.165.01                 | 1.1 <i>C</i> E 01                  |
| Acenaphthene               | 2.6                          | 2.6     |        | 2.10E-01   | 7.00E-02  | 1.16E-01                 | 1.16E-01                           |
| Acenaphthylene             | 2.5                          | 2.5     |        | 1.72E-01   | 7.00E-02  | 1.11E-01                 | 1.11E-01                           |
| Anthracene                 | 7.1                          | 7.1     |        | 1.04E-01   | 7.00E-02  | 3.11E-01                 | 3.11E-01                           |
| Benzo(a)anthracene         | 10                           | 10      |        | 2.02E-02   | 3.00E-02  | 2.68E-01                 | 2.68E-01                           |
| Benzo(a)pyrene             | 8.7                          | 8.7     |        | 1.10E-02   | 7.00E-02  | 3.76E-01                 | 3.76E-01                           |
| Benzo(b)fluoranthene       | 12                           | 12      |        | 1.01E-02   | 7.00E-02  | 5.19E-01                 | 5.19E-01                           |
| Benzo(ghi)perylene         | 3.15                         | 3.15    |        | 5.70E-03   | 7.00E-02  | 1.36E-01                 | 1.36E-01                           |
| Benzo(k)fluoranthene       | 7.5                          | 7.5     |        | 1.01E-02   | 8.00E-02  | 3.55E-01                 | 3.55E-01                           |
| Bis(2-Ethylhexyl)phthalate |                              |         | 0.0042 | 3.80E-02   | 4.00E-02  | 5.75E-04                 | 5.75E-04                           |
| Carbazole                  | 4.2                          | 4.2     |        | 2.74E-01   | 6.00E-02  | 1.71E-01                 | 1.71E-01                           |
| Chrysene                   | 9.1                          | 9.1     |        | 1.87E-02   | 4.00E-02  | 2.81E-01                 | 2.81E-01                           |
| Dibenz(a,h)anthracene      | 0.47                         | 0.47    |        | 6.40E-03   | 7.00E-02  | 2.03E-02                 | 2.03E-02                           |
| Dibenzofuran               | 1.7                          | 1.7     |        | 1.61E-01   | 5.00E-02  | 6.11E-02                 | 6.11E-02                           |
| Di-n-octylphthalate        | 0.0232                       | 0.0232  |        | 1.57E-04   | 1.00E-02  | 4.28E-04                 | 4.28E-04                           |
| Fluoranthene               | 27                           | 27      |        | 3.72E-02   | 7.00E-02  | 1.17E+00                 | 1.17E+00                           |
| Fluorene                   | 3.5                          | 3.5     |        | 1.49E-01   | 7.00E-02  | 1.54E-01                 | 1.54E-01                           |
| Hexachlorobenzene          | 0.0085                       | 0.0085  |        | 2.55E-02   | 4.00E-02  | 2.63E-04                 | 2.63E-04                           |
| Indeno(1,2,3-cd)pyrene     | 0.97                         | 0.97    |        | 3.90E-03   | 8.00E-02  | 4.59E-02                 | 4.59E-02                           |
| Naphthalene                | 0.4                          | 1.9     |        | 4.20E-01   | 7.00E-02  | 1.83E-02                 | 8.70E-02                           |
| Phenanthrene               | 29                           | 29      |        | 1.02E-01   | 7.00E-02  | 1.27E+00                 | 1.27E+00                           |
| Pyrene                     | 34                           | 34      |        | 4.43E-02   | 7.00E-02  | 1.48E+00                 | 1.48E+00                           |
| PCBs                       |                              |         |        |  |           |                          |                                    |
| Aroclor-1242               | 0.058                        | 0.058   |        | 1.00E-02   | 1.13E+00  | 2.79E-02                 | 2.79E-02                           |
| Aroclor-1254               | 0.93                         | 0.93    |        | 1.00E-02   | 1.13E+00  | 4.47E-01                 | 4.47E-01                           |
| Aroclor-1260               | 0.085                        | 0.2     |        | 1.00E-02   | 1.13E+00  | 4.09E-02                 | 9.62E-02                           |

# TABLE G-2B AMERICAN ROBIN (Turdus migratorius ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                    | Surface Soil<br>(0-2 ft bgs) | EPC     |        | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg |           | Surface Soil<br>Exposure | American Robin<br>Total Soil<br>Exposure |
|--------------------|------------------------------|---------|--------|--|-----------|--------------------------|--|
| СОРС               | EPC (mg/kg)                  | (mg/kg) | (mg/L) | dry soil)  | dry soil) | (mg/kg/day)              | (mg/kg/day)                              |
| Pesticides         |                              |         |        |  |           |                          |  |
| 4,4'-DDD           | 0.044                        | 0.044   |        | 9.37E-03   | 1.26E+00  | 2.35E-02                 | 2.35E-02                                 |
| 4,4'-DDE           | 0.069                        | 0.069   |        | 9.37E-03   | 1.26E+00  | 3.69E-02                 | 3.69E-02                                 |
| 4,4'-DDT           | 0.1                          | 0.1     |        | 9.37E-03   | 1.26E+00  | 5.35E-02                 | 5.35E-02                                 |
| Aldrin             | 0.01445                      | 0.01445 |        | 7.05E-01   | 7.00E-02  | 6.88E-04                 | 6.88E-04                                 |
| Alpha-Chlordane    | 0.063                        | 0.063   |        | 2.67E-02   | 4.00E-02  | 1.95E-03                 | 1.95E-03                                 |
| Delta-BHC          | 0.002                        | 0.002   |        | 1.57E-01   | 5.00E-02  | 7.18E-05                 | 7.18E-05                                 |
| Dieldrin           | 0.041                        | 0.041   |        | 8.96E-02   | 5.00E-02  | 1.46E-03                 | 1.46E-03                                 |
| Endosulfan I       | 0.19                         | 0.19    |        | 2.37E-01   | 6.00E-02  | 7.70E-03                 | 7.70E-03                                 |
| Endosulfan II      | 0.009                        | 0.009   |        | 2.37E-01   | 6.00E-02  | 3.65E-04                 | 3.65E-04                                 |
| Endrin             | 0.0215                       | 0.023   |        | 8.96E-02   | 5.00E-02  | 7.63E-04                 | 8.17E-04                                 |
| Endrin ketone      | 0.0075                       | 0.0097  |        | 8.96E-02   | 5.00E-02  | 2.66E-04                 | 3.44E-04                                 |
| Gamma-Chlordane    | 0.0012                       | 0.0012  |        | 2.67E-02   | 4.00E-02  | 3.72E-05                 | 3.72E-05                                 |
| Heptachlor         | 0.014                        | 0.014   |        | 4.89E-02   | 1.40E+00  | 8.30E-03                 | 8.30E-03                                 |
| Heptachlor epoxide | 0.0028                       | 0.0028  |        | 2.93E-02   | 1.40E+00  | 1.66E-03                 | 1.66E-03                                 |
| Metals             |                              |         |        |  |           |                          |  |
| Aluminum           |                              |         | 8.76   | 4.00E-03   | 2.20E-01  | 1.20E+00                 | 1.20E+00                                 |
| Antimony           | 236                          | 236     |        | 2.00E-01   | 2.20E-01  | 2.51E+01                 | 2.51E+01                                 |
| Arsenic            | 11.6                         | 11.6    | 0.0503 | 3.60E-02   | 1.10E-01  | 7.02E-01                 | 7.02E-01                                 |
| Barium             | 2030                         | 2030    |        | 1.50E-01   | 9.10E-02  | 1.07E+02                 | 1.07E+02                                 |
| Cadmium            | 29.1                         | 29.1    | 0.0195 | 3.64E-01   | 9.60E-01  | 1.20E+01                 | 1.20E+01                                 |
| Chromium           | 74.8                         | 74.8    | 0.129  | 7.50E-03   | 1.00E-02  | 1.40E+00                 | 1.40E+00                                 |
| Cobalt             | 17                           | 19.7    | 0.047  | 8.10E-02   | 1.22E-01  | 1.11E+00                 | 1.29E+00                                 |
| Copper             | 9750                         | 9750    | 1.16   | 4.00E-01   | 4.00E-02  | 3.25E+02                 | 3.25E+02                                 |
| Iron               |                              |         | 110    | 4.00E-03   | 2.20E-01  | 1.51E+01                 | 1.51E+01                                 |
| Lead               | 18900                        | 18900   | 0.839  | 4.50E-02   | 3.00E-02  | 5.10E+02                 | 5.10E+02                                 |
| Manganese          | 858                          | 858     |        | 2.50E-01   | 5.40E-02  | 3.27E+01                 | 3.27E+01                                 |
| Mercury            | 0.47                         | 0.47    | 0.0021 | 3.75E-02   | 4.00E-02  | 1.49E-02                 | 1.49E-02                                 |
| Nickel             | 224                          | 224     | 0.154  | 3.20E-02   | 2.00E-02  | 5.12E+00                 | 5.12E+00                                 |
| Selenium           | 1.3                          | 1.3     | 0.0046 | 1.60E-02   | 2.20E-01  | 1.37E-01                 | 1.37E-01                                 |

## **TABLE G-2B**

# AMERICAN ROBIN (Turdus migratorius ) EXPOSURE - SEAD-121C SOIL

# SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

| СОРС     | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | EPC  | Surface Water EPC (mg/L) | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | American Robin<br>Surface Soil<br>Exposure<br>(mg/kg/day) | American Robin<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|----------|---|------|--------------------------|---|---|---|---|
| Silver   | 21.8  | 21.8 | 0.008                    | 4.00E-01  | 2.20E-01  | 2.35E+00  | 2.35E+00  |
| Thallium | 1.1   | 1.8  |                          | 4.00E-03  | 2.20E-01  | 1.16E-01  | 1.89E-01  |
| Vanadium | 25.4  | 27   | 0.233                    | 5.50E-03  | 2.20E-01  | 2.70E+00  | 2.87E+00  |
| Zinc     | 3610  | 3610 | 6.91                     | 1.20E-12  | 5.60E-01  | 8.87E+02  | 8.87E+02  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# **TABLE G-2C**

# SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

| СОРС                       | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4<br>ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Short-Tailed<br>Shrew Surface<br>Soil Exposure<br>(mg/kg/day) | Short-Tailed Shrew<br>Total Soil Exposure<br>(mg/kg/day) |
|----------------------------|---|---|-----------------------------|---|---|---|---|--|
| Volatile Organic Compound  | s   |   |                             |   |   |   |   |  |
| Benzene                    | 0.041                                       | 1.8                                       |                             | 2.27E+00  | 2.00E-01  | 1.07E+00  | 7.78E-03  | 3.42E-01   |
| Ethyl benzene              | 3.3   | 24  |                             | 5.85E-01  | 2.40E-01  | 7.61E-01  | 6.09E-01  | 4.43E+00   |
| Meta/Para Xylene           | 4.4   | 130                                       |                             | 5.48E-01  | 2.40E-01  | 7.48E-01  | 8.08E-01  | 2.39E+01   |
| Semivolatile Organic Compo | ounds                                       |   |                             |   |   |   |   |  |
| Acenaphthene               | 2.6   | 2.6                                       |                             | 2.10E-01  | 7.00E-02  | 4.61E-04  | 1.37E-01  | 1.37E-01   |
| Acenaphthylene             | 2.5   | 2.5                                       |                             | 1.72E-01  | 7.00E-02  | 4.61E-04  | 1.31E-01  | 1.31E-01   |
| Anthracene                 | 7.1   | 7.1                                       |                             | 1.04E-01  | 7.00E-02  | 4.61E-04  | 3.68E-01  | 3.68E-01   |
| Benzo(a)anthracene         | 10  | 10  |                             | 2.02E-02  | 3.00E-02  | 1.46E-04  | 2.98E-01  | 2.98E-01   |
| Benzo(a)pyrene             | 8.7   | 8.7                                       |                             | 1.10E-02  | 7.00E-02  | 4.61E-04  | 4.46E-01  | 4.46E-01   |
| Benzo(b)fluoranthene       | 12  | 12  |                             | 1.01E-02  | 7.00E-02  | 5.46E-04  | 6.15E-01  | 6.15E-01   |
| Benzo(ghi)perylene         | 3.15  | 3.15                                      |                             | 5.70E-03  | 7.00E-02  | 4.61E-04  | 1.61E-01  | 1.61E-01   |
| Benzo(k)fluoranthene       | 7.5   | 7.5                                       |                             | 1.01E-02  | 8.00E-02  | 5.43E-04  | 4.24E-01  | 4.24E-01   |
| Bis(2-Ethylhexyl)phthalate |   |   | 0.0042                      | 3.80E-02  | 4.00E-02  | 5.50E-05  | 6.34E-04  | 6.34E-04   |
| Carbazole                  | 4.2   | 4.2                                       |                             | 2.74E-01  | 6.00E-02  | 6.29E-01  | 3.33E-01  | 3.33E-01   |
| Chrysene                   | 9.1   | 9.1                                       |                             | 1.87E-02  | 4.00E-02  | 1.88E-04  | 3.20E-01  | 3.20E-01   |
| Dibenz(a,h)anthracene      | 0.47  | 0.47                                      |                             | 6.40E-03  | 7.00E-02  | 1.21E-03  | 2.41E-02  | 2.41E-02   |
| Dibenzofuran               | 1.7   | 1.7                                       |                             | 1.61E-01  | 5.00E-02  | 5.50E-01  | 1.18E-01  | 1.18E-01   |
| Di-n-octylphthalate        | 0.0232                                      | 0.0232                                    |                             | 1.57E-04  | 1.00E-02  | 7.32E-01  | 1.29E-03  | 1.29E-03   |
| Fluoranthene               | 27  | 27  |                             | 3.72E-02  | 7.00E-02  | 4.61E-04  | 1.39E+00  | 1.39E+00   |
| Fluorene                   | 3.5   | 3.5                                       |                             | 1.49E-01  | 7.00E-02  | 4.61E-04  | 1.83E-01  | 1.83E-01   |
| Hexachlorobenzene          | 0.0085                                      | 0.0085                                    |                             | 2.55E-02  | 4.00E-02  | 1.09E-04  | 2.99E-04  | 2.99E-04   |
| Indeno(1,2,3-cd)pyrene     | 0.97  | 0.97                                      |                             | 3.90E-03  | 8.00E-02  | 2.82E-03  | 5.50E-02  | 5.50E-02   |
| Naphthalene                | 0.4   | 1.9                                       |                             | 4.20E-01  | 7.00E-02  | 4.61E-04  | 2.16E-02  | 1.03E-01   |
| Phenanthrene               | 29  | 29  |                             | 1.02E-01  | 7.00E-02  | 4.61E-04  | 1.50E+00  | 1.50E+00   |
| Pyrene                     | 34  | 34  |                             | 4.43E-02  | 7.00E-02  | 4.61E-04  | 1.75E+00  | 1.75E+00   |
| PCBs                       | - '   | -   |                             | •   |   |   | · · · · · · · · · · · · · · · · · · ·                         |  |
| Aroclor-1242               | 0.058                                       | 0.058                                     |                             | 1.00E-02  | 1.13E+00  | 5.52E-04  | 3.59E-02  | 3.59E-02   |
| Aroclor-1254               | 0.93  | 0.93                                      |                             | 1.00E-02  | 1.13E+00  | 5.52E-04  | 5.76E-01  | 5.76E-01   |
| Aroclor-1260               | 0.085                                       | 0.2                                       |                             | 1.00E-02  | 1.13E+00  | 5.52E-04  | 5.27E-02  | 1.24E-01   |

Page 1 of 3

# **TABLE G-2C**

# SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

|                    | (0-2 ft bgs) | Total Soil (0-4<br>ft bgs) EPC | Surface Water | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry | Short-Tailed<br>Shrew Surface<br>Soil Exposure | Short-Tailed Shrew<br>Total Soil Exposure |
|--------------------|--------------|--------------------------------|---------------|--|--|--|--|---|
| COPC               | EPC (mg/kg)  | (mg/kg)                        | EPC (mg/L)    | soil)  | COPC/kg dry soil)  | soil)  | (mg/kg/day)                                    | (mg/kg/day)                               |
| Pesticides         |              |                                |               |  |  |  |  |   |
| 4,4'-DDD           | 0.044        | 0.044                          |               | 9.37E-03   | 1.26E+00   | 6.18E-04   | 3.03E-02                                       | 3.03E-02                                  |
| 4,4'-DDE           | 0.069        | 0.069                          |               | 9.37E-03   | 1.26E+00   | 6.18E-04   | 4.76E-02                                       | 4.76E-02                                  |
| 4,4'-DDT           | 0.1          | 0.1                            |               | 9.37E-03   | 1.26E+00   | 6.18E-04   | 6.89E-02                                       | 6.89E-02                                  |
| Aldrin             | 0.01445      | 0.01445                        |               | 7.05E-01   | 7.00E-02   | 7.97E-01   | 1.39E-03                                       | 1.39E-03                                  |
| Alpha-Chlordane    | 0.063        | 0.063                          |               | 2.67E-02   | 4.00E-02   | 3.51E-01   | 3.33E-03                                       | 3.33E-03                                  |
| Delta-BHC          | 0.002        | 0.002                          |               | 1.57E-01   | 5.00E-02   | 5.47E-01   | 1.38E-04                                       | 1.38E-04                                  |
| Dieldrin           | 0.041        | 0.041                          |               | 8.96E-02   | 5.00E-02   | 4.75E-01   | 2.66E-03                                       | 2.66E-03                                  |
| Endosulfan I       | 0.19         | 0.19                           |               | 2.37E-01   | 6.00E-02   | 6.06E-01   | 1.48E-02                                       | 1.48E-02                                  |
| Endosulfan II      | 0.009        | 0.009                          |               | 2.37E-01   | 6.00E-02   | 6.06E-01   | 7.00E-04                                       | 7.00E-04                                  |
| Endrin             | 0.0215       | 0.023                          |               | 8.96E-02   | 5.00E-02   | 4.75E-01   | 1.39E-03                                       | 1.49E-03                                  |
| Endrin ketone      | 0.0075       | 0.0097                         |               | 8.96E-02   | 5.00E-02   | 4.75E-01   | 4.87E-04                                       | 6.29E-04                                  |
| Gamma-Chlordane    | 0.0012       | 0.0012                         |               | 2.67E-02   | 4.00E-02   | 3.51E-01   | 6.34E-05                                       | 6.34E-05                                  |
| Heptachlor         | 0.014        | 0.014                          |               | 4.89E-02   | 1.40E+00   | 3.55E-05   | 1.07E-02                                       | 1.07E-02                                  |
| Heptachlor epoxide | 0.0028       | 0.0028                         |               | 2.93E-02   | 1.40E+00   | 3.55E-05   | 2.14E-03                                       | 2.14E-03                                  |
| Metals             |              |                                |               |  |  |  |  |   |
| Aluminum           |              |                                | 8.76          | 4.00E-03   | 2.20E-01   | 1.50E-03   | 1.32E+00                                       | 1.32E+00                                  |
| Antimony           | 236          | 236                            |               | 2.00E-01   | 2.20E-01   | 1.00E-03   | 3.14E+01                                       | 3.14E+01                                  |
| Arsenic            | 11.6         | 11.6                           | 0.0503        | 3.60E-02   | 1.10E-01   | 2.00E-03   | 8.54E-01                                       | 8.54E-01                                  |
| Barium             | 2030         | 2030                           |               | 1.50E-01   | 9.10E-02   | 1.50E-04   | 1.29E+02                                       | 1.29E+02                                  |
| Cadmium            | 29.1         | 29.1                           | 0.0195        | 3.64E-01   | 9.60E-01   | 5.50E-04   | 1.55E+01                                       | 1.55E+01                                  |
| Chromium           | 74.8         | 74.8                           | 0.129         | 7.50E-03   | 1.00E-02   | 5.50E-03   | 1.46E+00                                       | 1.46E+00                                  |
| Cobalt             | 17           | 19.7                           | 0.047         | 8.10E-02   | 1.22E-01   | 2.00E-02   | 1.38E+00                                       | 1.59E+00                                  |
| Copper             | 9750         | 9750                           | 1.16          | 4.00E-01   | 4.00E-02   | 1.00E-02   | 3.73E+02                                       | 3.73E+02                                  |
| Iron               |              |                                | 110           | 4.00E-03   | 2.20E-01   | 2.00E-02   | 1.66E+01                                       | 1.66E+01                                  |
| Lead               | 18900        | 18900                          | 0.839         | 4.50E-02   | 3.00E-02   | 3.00E-04   | 5.67E+02                                       | 5.67E+02                                  |
| Manganese          | 858          | 858                            |               | 2.50E-01   | 5.40E-02   | 4.00E-04   | 3.80E+01                                       | 3.80E+01                                  |
| Mercury            | 0.47         | 0.47                           | 0.0021        | 3.75E-02   | 4.00E-02   | 2.50E-01   | 2.28E-02                                       | 2.28E-02                                  |
| Nickel             | 224          | 224                            | 0.154         | 3.20E-02   | 2.00E-02   | 6.00E-03   | 5.59E+00                                       | 5.59E+00                                  |
| Selenium           | 1.3          | 1.3                            | 0.0046        | 1.60E-02   | 2.20E-01   | 1.50E-02   | 1.73E-01                                       | 1.73E-01                                  |

Page 2 of 3

## **TABLE G-2C**

# SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE - SEAD-121C SOIL

# SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

| СОРС     | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4<br>ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Short-Tailed<br>Shrew Surface<br>Soil Exposure<br>(mg/kg/day) | Short-Tailed Shrew<br>Total Soil Exposure<br>(mg/kg/day) |
|----------|---|---|-----------------------------|---|---|---|---|--|
| Silver   | 21.8  | 21.8                                      | 0.008                       | 4.00E-01  | 2.20E-01  | 3.00E-03  | 2.93E+00  | 2.93E+00   |
| Thallium | 1.1   | 1.8                                       |                             | 4.00E-03  | 2.20E-01  | 4.00E-02  | 1.47E-01  | 2.41E-01   |
| Vanadium | 25.4  | 27  | 0.233                       | 5.50E-03  | 2.20E-01  | 2.50E-03  | 3.38E+00  | 3.59E+00   |
| Zinc     | 3610  | 3610                                      | 6.91                        | 1.20E-12  | 5.60E-01  | 1.00E-01  | 1.15E+03  | 1.15E+03   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

# **TABLE G-2D**

# MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС                       | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4<br>ft bgs) EPC<br>(mg/kg) | Surface Water EPC<br>(mg/L) | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | Meadow Vole<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Meadow Vole<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|----------------------------|---|---|-----------------------------|---|---|--|--|
| Volatile Organic Compounds | l j   |   |                             |   |   |  |  |
| Benzene                    | 0.041                                       | 1.8                                       |                             | 2.27E+00  | 2.00E-01  | 1.11E-02   | 4.87E-01   |
| Ethyl benzene              | 3.3   | 24  |                             | 5.85E-01  | 2.40E-01  | 4.06E-01   | 2.95E+00   |
| Meta/Para Xylene           | 4.4   | 130                                       |                             | 5.48E-01  | 2.40E-01  | 5.27E-01   | 1.56E+01   |
| Semivolatile Organic Compo | unds  |   |                             |   |   |  |  |
| Acenaphthene               | 2.6   | 2.6                                       |                             | 2.10E-01  | 7.00E-02  | 2.34E-01   | 2.34E-01   |
| Acenaphthylene             | 2.5   | 2.5                                       |                             | 1.72E-01  | 7.00E-02  | 2.17E-01   | 2.17E-01   |
| Anthracene                 | 7.1   | 7.1                                       |                             | 1.04E-01  | 7.00E-02  | 5.74E-01   | 5.74E-01   |
| Benzo(a)anthracene         | 10  | 10  |                             | 2.02E-02  | 3.00E-02  | 7.36E-01   | 7.36E-01   |
| Benzo(a)pyrene             | 8.7   | 8.7                                       |                             | 1.10E-02  | 7.00E-02  | 6.33E-01   | 6.33E-01   |
| Benzo(b)fluoranthene       | 12  | 12  |                             | 1.01E-02  | 7.00E-02  | 8.72E-01   | 8.72E-01   |
| Benzo(ghi)perylene         | 3.15  | 3.15                                      |                             | 5.70E-03  | 7.00E-02  | 2.28E-01   | 2.28E-01   |
| Benzo(k)fluoranthene       | 7.5   | 7.5                                       |                             | 1.01E-02  | 8.00E-02  | 5.45E-01   | 5.45E-01   |
| Bis(2-Ethylhexyl)phthalate |   |   | 0.0042                      | 3.80E-02  | 4.00E-02  | 8.82E-04   | 8.82E-04   |
| Carbazole                  | 4.2   | 4.2                                       |                             | 2.74E-01  | 6.00E-02  | 4.02E-01   | 4.02E-01   |
| Chrysene                   | 9.1   | 9.1                                       |                             | 1.87E-02  | 4.00E-02  | 6.68E-01   | 6.68E-01   |
| Dibenz(a,h)anthracene      | 0.47  | 0.47                                      |                             | 6.40E-03  | 7.00E-02  | 3.40E-02   | 3.40E-02   |
| Dibenzofuran               | 1.7   | 1.7                                       |                             | 1.61E-01  | 5.00E-02  | 1.46E-01   | 1.46E-01   |
| Di-n-octylphthalate        | 0.0232                                      | 0.0232                                    |                             | 1.57E-04  | 1.00E-02  | 1.67E-03   | 1.67E-03   |
| Fluoranthene               | 27  | 27  |                             | 3.72E-02  | 7.00E-02  | 2.03E+00   | 2.03E+00   |
| Fluorene                   | 3.5   | 3.5                                       |                             | 1.49E-01  | 7.00E-02  | 2.97E-01   | 2.97E-01   |
| Hexachlorobenzene          | 0.0085                                      | 0.0085                                    |                             | 2.55E-02  | 4.00E-02  | 6.29E-04   | 6.29E-04   |
| Indeno(1,2,3-cd)pyrene     | 0.97  | 0.97                                      |                             | 3.90E-03  | 8.00E-02  | 7.00E-02   | 7.00E-02   |
| Naphthalene                | 0.4   | 1.9                                       |                             | 4.20E-01  | 7.00E-02  | 4.34E-02   | 2.06E-01   |
| Phenanthrene               | 29  | 29  |                             | 1.02E-01  | 7.00E-02  | 2.34E+00   | 2.34E+00   |
| Pyrene                     | 34  | 34  |                             | 4.43E-02  | 7.00E-02  | 2.57E+00   | 2.57E+00   |
| PCBs                       | -   | •   |                             |   | - 1   |  |  |
| Aroclor-1242               | 0.058                                       | 0.058                                     |                             | 1.00E-02  | 1.13E+00  | 4.21E-03   | 4.21E-03   |
| Aroclor-1254               | 0.93  | 0.93                                      |                             | 1.00E-02  | 1.13E+00  | 6.76E-02   | 6.76E-02   |
| Aroclor-1260               | 0.085                                       | 0.2                                       |                             | 1.00E-02  | 1.13E+00  | 6.18E-03   | 1.45E-02   |

# **TABLE G-2D**

# MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС               | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4<br>ft bgs) EPC<br>(mg/kg) | Surface Water EPC<br>(mg/L) | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Invertebrate BAF (mg COPC/kg wet | Meadow Vole<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Meadow Vole<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|--------------------|---|---|-----------------------------|---|----------------------------------|--|--|
| Pesticides         |   |   | <del>_</del>                | <u>-</u>  | <u> </u>                         |  |  |
| 4,4'-DDD           | 0.044                                       | 0.044                                     |                             | 9.37E-03  | 1.26E+00                         | 3.20E-03   | 3.20E-03   |
| 4,4'-DDE           | 0.069                                       | 0.069                                     |                             | 9.37E-03  | 1.26E+00                         | 5.01E-03   | 5.01E-03   |
| 4,4'-DDT           | 0.1   | 0.1                                       |                             | 9.37E-03  | 1.26E+00                         | 7.26E-03   | 7.26E-03   |
| Aldrin             | 0.01445                                     | 0.01445                                   |                             | 7.05E-01  | 7.00E-02                         | 1.93E-03   | 1.93E-03   |
| Alpha-Chlordane    | 0.063                                       | 0.063                                     |                             | 2.67E-02  | 4.00E-02                         | 4.67E-03   | 4.67E-03   |
| Delta-BHC          | 0.002                                       | 0.002                                     |                             | 1.57E-01  | 5.00E-02                         | 1.71E-04   | 1.71E-04   |
| Dieldrin           | 0.041                                       | 0.041                                     |                             | 8.96E-02  | 5.00E-02                         | 3.27E-03   | 3.27E-03   |
| Endosulfan I       | 0.19  | 0.19                                      |                             | 2.37E-01  | 6.00E-02                         | 1.76E-02   | 1.76E-02   |
| Endosulfan II      | 0.009                                       | 0.009                                     |                             | 2.37E-01  | 6.00E-02                         | 8.33E-04   | 8.33E-04   |
| Endrin             | 0.0215                                      | 0.023                                     |                             | 8.96E-02  | 5.00E-02                         | 1.71E-03   | 1.83E-03   |
| Endrin ketone      | 0.0075                                      | 0.0097                                    |                             | 8.96E-02  | 5.00E-02                         | 5.97E-04   | 7.72E-04   |
| Gamma-Chlordane    | 0.0012                                      | 0.0012                                    |                             | 2.67E-02  | 4.00E-02                         | 8.90E-05   | 8.90E-05   |
| Heptachlor         | 0.014                                       | 0.014                                     |                             | 4.89E-02  | 1.40E+00                         | 1.07E-03   | 1.07E-03   |
| Heptachlor epoxide | 0.0028                                      | 0.0028                                    |                             | 2.93E-02  | 1.40E+00                         | 2.08E-04   | 2.08E-04   |
| Metals             | •   | _   |                             |   |                                  |  |  |
| Aluminum           |   |   | 8.76                        | 4.00E-03  | 2.20E-01                         | 1.84E+00   | 1.84E+00   |
| Antimony           | 236   | 236                                       |                             | 2.00E-01  | 2.20E-01                         | 2.11E+01   | 2.11E+01   |
| Arsenic            | 11.6  | 11.6                                      | 0.0503                      | 3.60E-02  | 1.10E-01                         | 8.80E-01   | 8.80E-01   |
| Barium             | 2030  | 2030                                      |                             | 1.50E-01  | 9.10E-02                         | 1.72E+02   | 1.72E+02   |
| Cadmium            | 29.1  | 29.1                                      | 0.0195                      | 3.64E-01  | 9.60E-01                         | 3.02E+00   | 3.02E+00   |
| Chromium           | 74.8  | 74.8                                      | 0.129                       | 7.50E-03  | 1.00E-02                         | 5.45E+00   | 5.45E+00   |
| Cobalt             | 17  | 19.7                                      | 0.047                       | 8.10E-02  | 1.22E-01                         | 1.35E+00   | 1.56E+00   |
| Copper             | 9750  | 9750                                      | 1.16                        | 4.00E-01  | 4.00E-02                         | 1.04E+03   | 1.04E+03   |
| Iron               |   |   | 110                         | 4.00E-03  | 2.20E-01                         | 2.31E+01   | 2.31E+01   |
| Lead               | 18900                                       | 18900                                     | 0.839                       | 4.50E-02  | 3.00E-02                         | 1.43E+03   | 1.43E+03   |
| Manganese          | 858   | 858                                       |                             | 2.50E-01  | 5.40E-02                         | 8.04E+01   | 8.04E+01   |
| Mercury            | 0.47  | 0.47                                      | 0.0021                      | 3.75E-02  | 4.00E-02                         | 3.57E-02   | 3.57E-02   |
| Nickel             | 224   | 224                                       | 0.154                       | 3.20E-02  | 2.00E-02                         | 1.67E+01   | 1.67E+01   |
| Selenium           | 1.3   | 1.3                                       | 0.0046                      | 1.60E-02  | 2.20E-01                         | 9.61E-02   | 9.61E-02   |

#### **TABLE G-2D**

# MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE - SEAD-121C SOIL

# SEAD-121C AND SEAD-121I RI Report

## **Seneca Army Depot Activity**

| СОРС     | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil (0-4<br>ft bgs) EPC<br>(mg/kg) | Surface Water EPC<br>(mg/L) | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Invertebrate BAF (mg COPC/kg wet | Meadow Vole<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Meadow Vole<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|----------|---|---|-----------------------------|---|----------------------------------|--|--|
| Silver   | 21.8  | 21.8                                      | 0.008                       | 4.00E-01  | 2.20E-01                         | 2.33E+00   | 2.33E+00   |
| Thallium | 1.1   | 1.8                                       |                             | 4.00E-03  | 2.20E-01                         | 7.94E-02   | 1.30E-01   |
| Vanadium | 25.4  | 27  | 0.233                       | 5.50E-03  | 2.20E-01                         | 1.88E+00   | 2.00E+00   |
| Zinc     | 3610  | 3610                                      | 6.91                        | 1.20E-12  | 5.60E-01                         | 2.61E+02   | 2.61E+02   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-2E RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                             |              |                   |                      |                 |                   | Small Mammal    |              |                    |
|-----------------------------|--------------|-------------------|----------------------|-----------------|-------------------|-----------------|--------------|--------------------|
|                             |              |                   |                      | Soil-To-Plant   | Soil-To-Soil      | BAF             |              |                    |
|                             |              | <b>Total Soil</b> |                      | (mg COPC/kg     | Invertebrate BAF  | (mg COPC/kg     | Red Fox      |                    |
|                             | Surface Soil | (0-4 ft bgs)      |                      | dry tissue)/(mg | (mg COPC/kg wet   | wet tissue)/(mg | Surface Soil | Red Fox Total Soil |
|                             | (0-2 ft bgs) | EPC               | <b>Surface Water</b> | COPC/kg dry     | tissue)/(mg       | COPC/kg dry     | Exposure     | Exposure           |
| COPC                        | EPC (mg/kg)  | (mg/kg)           | EPC (mg/L)           | soil)           | COPC/kg dry soil) | soil)           | (mg/kg/day)  | (mg/kg/day)        |
| Volatile Organic Compounds  |              |                   |                      |                 |                   |                 |              |                    |
| Benzene                     | 0.041        | 1.8               |                      | 2.27E+00        | 2.00E-01          | 1.07E+00        | 6.72E-03     | 2.95E-01           |
| Ethyl benzene               | 3.3          | 24                |                      | 5.85E-01        | 2.40E-01          | 7.61E-01        | 3.82E-01     | 2.78E+00           |
| Meta/Para Xylene            | 4.4          | 130               |                      | 5.48E-01        | 2.40E-01          | 7.48E-01        | 5.01E-01     | 1.48E+01           |
| Semivolatile Organic Compou | ınds         |                   |                      |                 |                   |                 |              |                    |
| Acenaphthene                | 2.6          | 2.6               |                      | 2.10E-01        | 7.00E-02          | 4.61E-04        | 7.46E-03     | 7.46E-03           |
| Acenaphthylene              | 2.5          | 2.5               |                      | 1.72E-01        | 7.00E-02          | 4.61E-04        | 6.95E-03     | 6.95E-03           |
| Anthracene                  | 7.1          | 7.1               |                      | 1.04E-01        | 7.00E-02          | 4.61E-04        | 1.86E-02     | 1.86E-02           |
| Benzo(a)anthracene          | 10           | 10                |                      | 2.02E-02        | 3.00E-02          | 1.46E-04        | 1.92E-02     | 1.92E-02           |
| Benzo(a)pyrene              | 8.7          | 8.7               |                      | 1.10E-02        | 7.00E-02          | 4.61E-04        | 2.09E-02     | 2.09E-02           |
| Benzo(b)fluoranthene        | 12           | 12                |                      | 1.01E-02        | 7.00E-02          | 5.46E-04        | 2.90E-02     | 2.90E-02           |
| Benzo(ghi)perylene          | 3.15         | 3.15              |                      | 5.70E-03        | 7.00E-02          | 4.61E-04        | 7.53E-03     | 7.53E-03           |
| Benzo(k)fluoranthene        | 7.5          | 7.5               |                      | 1.01E-02        | 8.00E-02          | 5.43E-04        | 1.89E-02     | 1.89E-02           |
| Bis(2-Ethylhexyl)phthalate  |              |                   | 0.0042               | 3.80E-02        | 4.00E-02          | 5.50E-05        | 3.62E-04     | 3.62E-04           |
| Carbazole                   | 4.2          | 4.2               |                      | 2.74E-01        | 6.00E-02          | 6.29E-01        | 3.94E-01     | 3.94E-01           |
| Chrysene                    | 9.1          | 9.1               |                      | 1.87E-02        | 4.00E-02          | 1.88E-04        | 1.85E-02     | 1.85E-02           |
| Dibenz(a,h)anthracene       | 0.47         | 0.47              |                      | 6.40E-03        | 7.00E-02          | 1.21E-03        | 1.17E-03     | 1.17E-03           |
| Dibenzofuran                | 1.7          | 1.7               |                      | 1.61E-01        | 5.00E-02          | 5.50E-01        | 1.40E-01     | 1.40E-01           |
| Di-n-octylphthalate         | 0.0232       | 0.0232            |                      | 1.57E-04        | 1.00E-02          | 7.32E-01        | 2.50E-03     | 2.50E-03           |
| Fluoranthene                | 27           | 27                |                      | 3.72E-02        | 7.00E-02          | 4.61E-04        | 6.65E-02     | 6.65E-02           |
| Fluorene                    | 3.5          | 3.5               |                      | 1.49E-01        | 7.00E-02          | 4.61E-04        | 9.54E-03     | 9.54E-03           |
| Hexachlorobenzene           | 0.0085       | 0.0085            |                      | 2.55E-02        | 4.00E-02          | 1.09E-04        | 1.74E-05     | 1.74E-05           |
| Indeno(1,2,3-cd)pyrene      | 0.97         | 0.97              |                      | 3.90E-03        | 8.00E-02          | 2.82E-03        | 2.76E-03     | 2.76E-03           |
| Naphthalene                 | 0.4          | 1.9               |                      | 4.20E-01        | 7.00E-02          | 4.61E-04        | 1.35E-03     | 6.39E-03           |
| Phenanthrene                | 29           | 29                |                      | 1.02E-01        | 7.00E-02          | 4.61E-04        | 7.59E-02     | 7.59E-02           |
| Pyrene                      | 34           | 34                |                      | 4.43E-02        | 7.00E-02          | 4.61E-04        | 8.43E-02     | 8.43E-02           |
| PCBs                        |              | •                 |                      |                 |                   |                 |              |                    |
| Aroclor-1242                | 0.058        | 0.058             |                      | 1.00E-02        | 1.13E+00          | 5.52E-04        | 8.42E-04     | 8.42E-04           |
| Aroclor-1254                | 0.93         | 0.93              |                      | 1.00E-02        | 1.13E+00          | 5.52E-04        | 1.35E-02     | 1.35E-02           |
| Aroclor-1260                | 0.085        | 0.2               |                      | 1.00E-02        | 1.13E+00          | 5.52E-04        | 1.23E-03     | 2.90E-03           |

Page 1 of 3 7/21/2005

# TABLE G-2E RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                    |              |                   |               |                 |                   | Small Mammal    |              |                           |
|--------------------|--------------|-------------------|---------------|-----------------|-------------------|-----------------|--------------|---------------------------|
|                    |              |                   |               | Soil-To-Plant   | Soil-To-Soil      | BAF             |              |                           |
|                    |              | <b>Total Soil</b> |               | (mg COPC/kg     | Invertebrate BAF  | (mg COPC/kg     | Red Fox      |                           |
|                    | Surface Soil | (0-4 ft bgs)      |               | dry tissue)/(mg | (mg COPC/kg wet   | wet tissue)/(mg | Surface Soil | <b>Red Fox Total Soil</b> |
|                    | (0-2 ft bgs) | EPC               | Surface Water | COPC/kg dry     | tissue)/(mg       | COPC/kg dry     | Exposure     | Exposure                  |
| COPC               | EPC (mg/kg)  | (mg/kg)           | EPC (mg/L)    | soil)           | COPC/kg dry soil) | soil)           | (mg/kg/day)  | (mg/kg/day)               |
| Pesticides         |              |                   |               |                 |                   |                 |              |                           |
| 4,4'-DDD           | 0.044        | 0.044             |               | 9.37E-03        | 1.26E+00          | 6.18E-04        | 7.05E-04     | 7.05E-04                  |
| 4,4'-DDE           | 0.069        | 0.069             |               | 9.37E-03        | 1.26E+00          | 6.18E-04        | 1.11E-03     | 1.11E-03                  |
| 4,4'-DDT           | 0.1          | 0.1               |               | 9.37E-03        | 1.26E+00          | 6.18E-04        | 1.60E-03     | 1.60E-03                  |
| Aldrin             | 0.01445      | 0.01445           |               | 7.05E-01        | 7.00E-02          | 7.97E-01        | 1.73E-03     | 1.73E-03                  |
| Alpha-Chlordane    | 0.063        | 0.063             |               | 2.67E-02        | 4.00E-02          | 3.51E-01        | 3.33E-03     | 3.33E-03                  |
| Delta-BHC          | 0.002        | 0.002             |               | 1.57E-01        | 5.00E-02          | 5.47E-01        | 1.63E-04     | 1.63E-04                  |
| Dieldrin           | 0.041        | 0.041             |               | 8.96E-02        | 5.00E-02          | 4.75E-01        | 2.91E-03     | 2.91E-03                  |
| Endosulfan I       | 0.19         | 0.19              |               | 2.37E-01        | 6.00E-02          | 6.06E-01        | 1.72E-02     | 1.72E-02                  |
| Endosulfan II      | 0.009        | 0.009             |               | 2.37E-01        | 6.00E-02          | 6.06E-01        | 8.15E-04     | 8.15E-04                  |
| Endrin             | 0.0215       | 0.023             |               | 8.96E-02        | 5.00E-02          | 4.75E-01        | 1.53E-03     | 1.64E-03                  |
| Endrin ketone      | 0.0075       | 0.0097            |               | 8.96E-02        | 5.00E-02          | 4.75E-01        | 5.33E-04     | 6.90E-04                  |
| Gamma-Chlordane    | 0.0012       | 0.0012            |               | 2.67E-02        | 4.00E-02          | 3.51E-01        | 6.34E-05     | 6.34E-05                  |
| Heptachlor         | 0.014        | 0.014             |               | 4.89E-02        | 1.40E+00          | 3.55E-05        | 2.47E-04     | 2.47E-04                  |
| Heptachlor epoxide | 0.0028       | 0.0028            |               | 2.93E-02        | 1.40E+00          | 3.55E-05        | 4.92E-05     | 4.92E-05                  |
| Metals             |              | •                 |               | •               |                   |                 |              |                           |
| Aluminum           |              |                   | 8.76          | 4.00E-03        | 2.20E-01          | 1.50E-03        | 7.56E-01     | 7.56E-01                  |
| Antimony           | 236          | 236               |               | 2.00E-01        | 2.20E-01          | 1.00E-03        | 1.09E+00     | 1.09E+00                  |
| Arsenic            | 11.6         | 11.6              | 0.0503        | 3.60E-02        | 1.10E-01          | 2.00E-03        | 4.08E-02     | 4.08E-02                  |
| Barium             | 2030         | 2030              |               | 1.50E-01        | 9.10E-02          | 1.50E-04        | 5.94E+00     | 5.94E+00                  |
| Cadmium            | 29.1         | 29.1              | 0.0195        | 3.64E-01        | 9.60E-01          | 5.50E-04        | 3.92E-01     | 3.92E-01                  |
| Chromium           | 74.8         | 74.8              | 0.129         | 7.50E-03        | 1.00E-02          | 5.50E-03        | 1.94E-01     | 1.94E-01                  |
| Cobalt             | 17           | 19.7              | 0.047         | 8.10E-02        | 1.22E-01          | 2.00E-02        | 1.06E-01     | 1.22E-01                  |
| Copper             | 9750         | 9750              | 1.16          | 4.00E-01        | 4.00E-02          | 1.00E-02        | 4.26E+01     | 4.26E+01                  |
| Iron               |              |                   | 110           | 4.00E-03        | 2.20E-01          | 2.00E-02        | 9.49E+00     | 9.49E+00                  |
| Lead               | 18900        | 18900             | 0.839         | 4.50E-02        | 3.00E-02          | 3.00E-04        | 3.79E+01     | 3.79E+01                  |
| Manganese          | 858          | 858               |               | 2.50E-01        | 5.40E-02          | 4.00E-04        | 2.38E+00     | 2.38E+00                  |
| Mercury            | 0.47         | 0.47              | 0.0021        | 3.75E-02        | 4.00E-02          | 2.50E-01        | 1.82E-02     | 1.82E-02                  |
| Nickel             | 224          | 224               | 0.154         | 3.20E-02        | 2.00E-02          | 6.00E-03        | 6.14E-01     | 6.14E-01                  |
| Selenium           | 1.3          | 1.3               | 0.0046        | 1.60E-02        | 2.20E-01          | 1.50E-02        | 8.50E-03     | 8.50E-03                  |

Page 2 of 3 7/21/2005

## **TABLE G-2E**

# RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL

# SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

| СОРС     | Surface Soil<br>(0-2 ft bgs)<br>EPC (mg/kg) | Total Soil<br>(0-4 ft bgs)<br>EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Red Fox<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Red Fox Total Soil<br>Exposure<br>(mg/kg/day) |
|----------|---|--|-----------------------------|---|---|---|--|---|
| Silver   | 21.8  | 21.8   | 0.008                       | 4.00E-01  | 2.20E-01  | 3.00E-03  | 1.18E-01   | 1.18E-01                                      |
| Thallium | 1.1   | 1.8  |                             | 4.00E-03  | 2.20E-01  | 4.00E-02  | 1.08E-02   | 1.77E-02                                      |
| Vanadium | 25.4  | 27   | 0.233                       | 5.50E-03  | 2.20E-01  | 2.50E-03  | 1.32E-01   | 1.39E-01                                      |
| Zinc     | 3610  | 3610   | 6.91                        | 1.20E-12  | 5.60E-01  | 1.00E-01  | 8.14E+01   | 8.14E+01                                      |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*ADF*BAF*FR) + (Cs*ADF*BAF*$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-3A**

# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

|                                |                |                   |                   | Terrestrial         |             |
|--------------------------------|----------------|-------------------|-------------------|---------------------|-------------|
|                                |                |                   |                   | Invertebrate BAF    | Deer Mouse  |
|                                |                |                   | SP (mg COPC/kg    | (mg COPC/kg wet     | Ditch Soil  |
|                                | Ditch Soil EPC | Surface Water EPC | dry tissue)/(mg   | tissue)/(mg COPC/kg | Exposure    |
| СОРС                           | (mg/kg)        | (mg/L)            | COPC/kg dry soil) | dry soil)           | (mg/kg/day) |
| Semivolatile Organic Compounds |                |                   |                   |                     |             |
| 3 or 4-Methylphenol            | 0.79           |                   | 2.89E+00          | 1.0E-01             | 1.32E-01    |
| Anthracene                     | 0.25           |                   | 1.04E-01          | 7.0E-02             | 7.89E-03    |
| Benzo(a)anthracene             | 1.1            |                   | 2.02E-02          | 3.0E-02             | 1.46E-02    |
| Benzo(a)pyrene                 | 0.9            |                   | 1.10E-02          | 7.0E-02             | 2.47E-02    |
| Benzo(b)fluoranthene           | 1.1            |                   | 1.01E-02          | 7.0E-02             | 3.01E-02    |
| Benzo(ghi)perylene             | 0.29           |                   | 5.70E-03          | 7.0E-02             | 7.88E-03    |
| Benzo(k)fluoranthene           | 0.58           |                   | 1.01E-02          | 8.0E-02             | 1.80E-02    |
| Bis(2-Ethylhexyl)phthalate     |                | 0.0042            | 3.80E-02          | 4.0E-02             | 6.34E-04    |
| Chrysene                       | 1.2            |                   | 1.87E-02          | 4.0E-02             | 2.02E-02    |
| Fluoranthene                   | 2.1            |                   | 3.72E-02          | 7.0E-02             | 6.00E-02    |
| Indeno(1,2,3-cd)pyrene         | 0.27           |                   | 3.90E-03          | 8.0E-02             | 8.30E-03    |
| Phenanthrene                   | 1.1            |                   | 1.02E-01          | 7.0E-02             | 3.46E-02    |
| Pyrene                         | 2.1            |                   | 4.43E-02          | 7.0E-02             | 6.07E-02    |
| Metals                         |                |                   | •                 |                     |             |
| Aluminum                       |                | 8.76              | 4.00E-03          | 2.2E-01             | 1.32E+00    |
| Antimony                       | 4.9            |                   | 2.00E-01          | 2.2E-01             | 4.43E-01    |
| Arsenic                        | 6.1            | 0.0503            | 3.60E-02          | 1.1E-01             | 2.70E-01    |
| Cadmium                        | 14.3           | 0.0195            | 3.64E-01          | 9.6E-01             | 5.25E+00    |
| Chromium                       | 29.8           | 0.129             | 7.50E-03          | 1.0E-02             | 1.81E-01    |
| Cobalt                         | 15.8           | 0.047             | 8.10E-02          | 1.2E-01             | 7.89E-01    |
| Copper                         | 1,190          | 1.16              | 4.00E-01          | 4.0E-02             | 4.04E+01    |
| Cyanide                        | 2.36           |                   | 1.00E+00          | 1.1E+00             | 1.07E+00    |
| Iron                           |                | 110               | 4.00E-03          | 2.2E-01             | 1.66E+01    |
| Lead                           | 436            | 0.839             | 4.50E-02          | 3.0E-02             | 6.39E+00    |
| Manganese                      | 918            |                   | 2.50E-01          | 5.4E-02             | 2.96E+01    |
| Mercury                        | 0.3            | 0.0021            | 3.75E-02          | 4.0E-02             | 5.62E-03    |
| Nickel                         | 42.7           | 0.154             | 3.20E-02          | 2.0E-02             | 4.57E-01    |
| Selenium                       | 2.5            | 0.0046            | 1.60E-02          | 2.2E-01             | 2.06E-01    |
| Silver                         | 2.6            | 0.008             | 4.00E-01          | 2.2E-01             | 2.60E-01    |
| Vanadium                       | 29.1           | 0.233             | 5.50E-03          | 2.2E-01             | 2.41E+00    |
| Zinc                           | 566            | 6.91              | 1.20E-12          | 5.6E-01             | 1.17E+02    |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

 $IDF = Invertebrate\ dietary\ fraction\ \ (unitless)$ 

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### **TABLE G-3B**

# AMERICAN ROBIN (*Turdus migratorius* ) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

|                            |            |                   | Soil-To-Plant     | Soil-To-Soil      |                |
|----------------------------|------------|-------------------|-------------------|-------------------|----------------|
|                            |            |                   | Uptake Factor     | Invertebrate BAF  | American Robin |
|                            | Ditch Soil |                   | (mg COPC/kg dry   | (mg COPC/kg wet   | Ditch Soil     |
|                            | EPC        | Surface Water EPC | tissue)/(mg       | tissue)/(mg       | Exposure       |
| COPC                       | (mg/kg)    | (mg/L)            | COPC/kg dry soil) | COPC/kg dry soil) | (mg/kg/day)    |
| Semivolatile Organic Comp  | ounds      |                   |                   |                   |                |
| 3 or 4-Methylphenol        | 0.79       |                   | 2.89E+00          | 1.00E-01          | 5.81E-02       |
| Anthracene                 | 0.25       |                   | 1.04E-01          | 7.00E-02          | 1.10E-02       |
| Benzo(a)anthracene         | 1.1        |                   | 2.02E-02          | 3.00E-02          | 2.95E-02       |
| Benzo(a)pyrene             | 0.9        |                   | 1.10E-02          | 7.00E-02          | 3.89E-02       |
| Benzo(b)fluoranthene       | 1.1        |                   | 1.01E-02          | 7.00E-02          | 4.76E-02       |
| Benzo(ghi)perylene         | 0.29       |                   | 5.70E-03          | 7.00E-02          | 1.25E-02       |
| Benzo(k)fluoranthene       | 0.58       |                   | 1.01E-02          | 8.00E-02          | 2.75E-02       |
| Bis(2-Ethylhexyl)phthalate |            | 0.0042            | 3.80E-02          | 4.00E-02          | 5.75E-04       |
| Chrysene                   | 1.2        |                   | 1.87E-02          | 4.00E-02          | 3.71E-02       |
| Fluoranthene               | 2.1        |                   | 3.72E-02          | 7.00E-02          | 9.12E-02       |
| Indeno(1,2,3-cd)pyrene     | 0.27       |                   | 3.90E-03          | 8.00E-02          | 1.28E-02       |
| Phenanthrene               | 1.1        |                   | 1.02E-01          | 7.00E-02          | 4.82E-02       |
| Pyrene                     | 2.1        |                   | 4.43E-02          | 7.00E-02          | 9.13E-02       |
| Metals                     |            |                   | •                 |                   | •              |
| Aluminum                   |            | 8.76              | 4.00E-03          | 2.20E-01          | 1.20E+00       |
| Antimony                   | 4.9        |                   | 2.00E-01          | 2.20E-01          | 5.21E-01       |
| Arsenic                    | 6.1        | 0.0503            | 3.60E-02          | 1.10E-01          | 3.73E-01       |
| Cadmium                    | 14.3       | 0.0195            | 3.64E-01          | 9.60E-01          | 5.91E+00       |
| Chromium                   | 29.8       | 0.129             | 7.50E-03          | 1.00E-02          | 5.68E-01       |
| Cobalt                     | 15.8       | 0.047             | 8.10E-02          | 1.22E-01          | 1.04E+00       |
| Copper                     | 1,190      | 1.16              | 4.00E-01          | 4.00E-02          | 3.98E+01       |
| Cyanide                    | 2.36       |                   | 1.00E+00          | 1.12E+00          | 1.14E+00       |
| Iron                       |            | 110               | 4.00E-03          | 2.20E-01          | 1.51E+01       |
| Lead                       | 436        | 0.839             | 4.50E-02          | 3.00E-02          | 1.19E+01       |
| Manganese                  | 918        |                   | 2.50E-01          | 5.40E-02          | 3.50E+01       |
| Mercury                    | 0.3        | 0.0021            | 3.75E-02          | 4.00E-02          | 9.60E-03       |
| Nickel                     | 42.7       | 0.154             | 3.20E-02          | 2.00E-02          | 9.93E-01       |
| Selenium                   | 2.5        | 0.0046            | 1.60E-02          | 2.20E-01          | 2.64E-01       |
| Silver                     | 2.6        | 0.008             | 4.00E-01          | 2.20E-01          | 2.81E-01       |
| Vanadium                   | 29.1       | 0.233             | 5.50E-03          | 2.20E-01          | 3.09E+00       |
| Zinc                       | 566        | 6.91              | 1.20E-12          | 5.60E-01          | 1.40E+02       |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

 $SP = Soil \ tp \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

## **TABLE G-3C**

# SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

|                            |            |                   |                     | Soil-To-Soil        |                     |               |
|----------------------------|------------|-------------------|---------------------|---------------------|---------------------|---------------|
|                            |            |                   | Soil-To-Plant       | Invertebrate BAF    | Small Mammal BAF    | Short-Tailed  |
|                            | Ditch Soil |                   | (mg COPC/kg dry     | (mg COPC/kg wet     | (mg COPC/kg wet     | Shrew Ditch   |
|                            | EPC        | Surface Water EPC | tissue)/(mg COPC/kg | tissue)/(mg COPC/kg | tissue)/(mg COPC/kg | Soil Exposure |
| COPC                       | (mg/kg)    | (mg/L)            | dry soil)           | dry soil)           | dry soil)           | (mg/kg/day)   |
| Semivolatile Organic Comp  | ounds      |                   |                     |                     |                     |               |
| 3 or 4-Methylphenol        | 0.79       |                   | 2.89E+00            | 1.00E-01            | 1.14E+00            | 1.13E-01      |
| Anthracene                 | 0.25       |                   | 1.04E-01            | 7.00E-02            | 4.61E-04            | 1.30E-02      |
| Benzo(a)anthracene         | 1.1        |                   | 2.02E-02            | 3.00E-02            | 1.46E-04            | 3.28E-02      |
| Benzo(a)pyrene             | 0.9        |                   | 1.10E-02            | 7.00E-02            | 4.61E-04            | 4.61E-02      |
| Benzo(b)fluoranthene       | 1.1        |                   | 1.01E-02            | 7.00E-02            | 5.46E-04            | 5.64E-02      |
| Benzo(ghi)perylene         | 0.29       |                   | 5.70E-03            | 7.00E-02            | 4.61E-04            | 1.48E-02      |
| Benzo(k)fluoranthene       | 0.58       |                   | 1.01E-02            | 8.00E-02            | 5.43E-04            | 3.28E-02      |
| Bis(2-Ethylhexyl)phthalate |            | 0.0042            | 3.80E-02            | 4.00E-02            | 5.50E-05            | 6.34E-04      |
| Chrysene                   | 1.2        |                   | 1.87E-02            | 4.00E-02            | 1.88E-04            | 4.22E-02      |
| Fluoranthene               | 2.1        |                   | 3.72E-02            | 7.00E-02            | 4.61E-04            | 1.08E-01      |
| Indeno(1,2,3-cd)pyrene     | 0.27       |                   | 3.90E-03            | 8.00E-02            | 2.82E-03            | 1.53E-02      |
| Phenanthrene               | 1.1        |                   | 1.02E-01            | 7.00E-02            | 4.61E-04            | 5.70E-02      |
| Pyrene                     | 2.1        |                   | 4.43E-02            | 7.00E-02            | 4.61E-04            | 1.08E-01      |
| Metals                     |            | •                 |                     |                     |                     |               |
| Aluminum                   |            | 8.76              | 4.00E-03            | 2.20E-01            | 1.50E-03            | 1.32E+00      |
| Antimony                   | 4.9        |                   | 2.00E-01            | 2.20E-01            | 1.00E-03            | 6.52E-01      |
| Arsenic                    | 6.1        | 0.0503            | 3.60E-02            | 1.10E-01            | 2.00E-03            | 4.52E-01      |
| Cadmium                    | 14.3       | 0.0195            | 3.64E-01            | 9.60E-01            | 5.50E-04            | 7.59E+00      |
| Chromium                   | 29.8       | 0.129             | 7.50E-03            | 1.00E-02            | 5.50E-03            | 5.94E-01      |
| Cobalt                     | 15.8       | 0.047             | 8.10E-02            | 1.22E-01            | 2.00E-02            | 1.28E+00      |
| Copper                     | 1,190      | 1.16              | 4.00E-01            | 4.00E-02            | 1.00E-02            | 4.57E+01      |
| Cyanide                    | 2.36       |                   | 1.00E+00            | 1.12E+00            | 1.00E+00            | 1.58E+00      |
| Iron                       |            | 110               | 4.00E-03            | 2.20E-01            | 2.00E-02            | 1.66E+01      |
| Lead                       | 436        | 0.839             | 4.50E-02            | 3.00E-02            | 3.00E-04            | 1.32E+01      |
| Manganese                  | 918        |                   | 2.50E-01            | 5.40E-02            | 4.00E-04            | 4.06E+01      |
| Mercury                    | 0.3        | 0.0021            | 3.75E-02            | 4.00E-02            | 2.50E-01            | 1.47E-02      |
| Nickel                     | 42.7       | 0.154             | 3.20E-02            | 2.00E-02            | 6.00E-03            | 1.08E+00      |
| Selenium                   | 2.5        | 0.0046            | 1.60E-02            | 2.20E-01            | 1.50E-02            | 3.32E-01      |
| Silver                     | 2.6        | 0.008             | 4.00E-01            | 2.20E-01            | 3.00E-03            | 3.51E-01      |
| Vanadium                   | 29.1       | 0.233             | 5.50E-03            | 2.20E-01            | 2.50E-03            | 3.87E+00      |
| Zinc                       | 566        | 6.91              | 1.20E-12            | 5.60E-01            | 1.00E-01            | 1.82E+02      |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

 $Cs = Soil\ concentration\ (mg/kg)$ 

 $SP = Soil \ to \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

 $FR = Feeding \ rate \ (kg/day)$ 

 $IDF = Invertebrate\ dietary\ fraction\ \ (unitless)$ 

 $ADF = Animal\ dietary\ fraction\ \ (unitless)$ 

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-3D**

# MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-121C DITCH SOIL

## SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

|                            |             |                   | Soil-To-Plant Uptake<br>Factor<br>(mg COPC/kg dry | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet | Meadow Vole<br>Ditch Soil |
|----------------------------|-------------|-------------------|---|---|---------------------------|
|                            | Ditch Soil  | Surface Water EPC | tissue)/(mg COPC/kg                               | tissue)/(mg COPC/kg                                 | Exposure                  |
| COPC                       | EPC (mg/kg) | (mg/L)            | dry soil)   | dry soil)   | (mg/kg/day)               |
| Semivolatile Organic Comp  | oounds      |                   |   |   |                           |
| 3 or 4-Methylphenol        | 0.79        |                   | 2.89E+00  | 1.00E-01  | 2.56E-01                  |
| Anthracene                 | 0.25        |                   | 1.04E-01  | 7.00E-02  | 2.02E-02                  |
| Benzo(a)anthracene         | 1.1         |                   | 2.02E-02  | 3.00E-02  | 8.09E-02                  |
| Benzo(a)pyrene             | 0.9         |                   | 1.10E-02  | 7.00E-02  | 6.55E-02                  |
| Benzo(b)fluoranthene       | 1.1         |                   | 1.01E-02  | 7.00E-02  | 7.99E-02                  |
| Benzo(ghi)perylene         | 0.29        |                   | 5.70E-03  | 7.00E-02  | 2.10E-02                  |
| Benzo(k)fluoranthene       | 0.58        |                   | 1.01E-02  | 8.00E-02  | 4.22E-02                  |
| Bis(2-Ethylhexyl)phthalate |             | 0.0042            | 3.80E-02  | 4.00E-02  | 8.82E-04                  |
| Chrysene                   | 1.2         |                   | 1.87E-02  | 4.00E-02  | 8.81E-02                  |
| Fluoranthene               | 2.1         |                   | 3.72E-02  | 7.00E-02  | 1.58E-01                  |
| Indeno(1,2,3-cd)pyrene     | 0.27        |                   | 3.90E-03  | 8.00E-02  | 1.95E-02                  |
| Phenanthrene               | 1.1         |                   | 1.02E-01  | 7.00E-02  | 8.88E-02                  |
| Pyrene                     | 2.1         |                   | 4.43E-02  | 7.00E-02  | 1.59E-01                  |
| Metals                     |             |                   |   |   |                           |
| Aluminum                   |             | 8.76              | 4.00E-03  | 2.20E-01  | 1.84E+00                  |
| Antimony                   | 4.9         |                   | 2.00E-01  | 2.20E-01  | 4.38E-01                  |
| Arsenic                    | 6.1         | 0.0503            | 3.60E-02  | 1.10E-01  | 4.68E-01                  |
| Cadmium                    | 14.3        | 0.0195            | 3.64E-01  | 9.60E-01  | 1.49E+00                  |
| Chromium                   | 29.8        | 0.129             | 7.50E-03  | 1.00E-02  | 2.19E+00                  |
| Cobalt                     | 15.8        | 0.047             | 8.10E-02  | 1.22E-01  | 1.26E+00                  |
| Copper                     | 1,190       | 1.16              | 4.00E-01  | 4.00E-02  | 1.27E+02                  |
| Cyanide                    | 2.36        |                   | 1.00E+00  | 1.12E+00  | 3.76E-01                  |
| Iron                       |             | 110               | 4.00E-03  | 2.20E-01  | 2.31E+01                  |
| Lead                       | 436         | 0.839             | 4.50E-02  | 3.00E-02  | 3.32E+01                  |
| Manganese                  | 918         |                   | 2.50E-01  | 5.40E-02  | 8.60E+01                  |
| Mercury                    | 0.3         | 0.0021            | 3.75E-02  | 4.00E-02  | 2.30E-02                  |
| Nickel                     | 42.7        | 0.154             | 3.20E-02  | 2.00E-02  | 3.22E+00                  |
| Selenium                   | 2.5         | 0.0046            | 1.60E-02  | 2.20E-01  | 1.84E-01                  |
| Silver                     | 2.6         | 0.008             | 4.00E-01  | 2.20E-01  | 2.79E-01                  |
| Vanadium                   | 29.1        | 0.233             | 5.50E-03  | 2.20E-01  | 2.15E+00                  |
| Zinc                       | 566         | 6.91              | 1.20E-12  | 5.60E-01  | 4.21E+01                  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-3E RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# **Seneca Army Depot Activity**

| СОРС                       | Ditch Soil<br>EPC (mg/kg) |        | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | Small Mammal BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | Red Fox Ditch<br>Soil Exposure<br>(mg/kg/day) |
|----------------------------|---------------------------|--------|---|---|---|---|
| Semivolatile Organic Com   | pounds                    |        |   |   |   |   |
| 3 or 4-Methylphenol        | 0.79                      |        | 2.89E+00  | 1.00E-01  | 1.14E+00  | 1.37E-01                                      |
| Anthracene                 | 0.25                      |        | 1.04E-01  | 7.00E-02  | 4.61E-04  | 6.55E-04                                      |
| Benzo(a)anthracene         | 1.1                       |        | 2.02E-02  | 3.00E-02  | 1.46E-04  | 2.11E-03                                      |
| Benzo(a)pyrene             | 0.9                       |        | 1.10E-02  | 7.00E-02  | 4.61E-04  | 2.16E-03                                      |
| Benzo(b)fluoranthene       | 1.1                       |        | 1.01E-02  | 7.00E-02  | 5.46E-04  | 2.65E-03                                      |
| Benzo(ghi)perylene         | 0.29                      |        | 5.70E-03  | 7.00E-02  | 4.61E-04  | 6.93E-04                                      |
| Benzo(k)fluoranthene       | 0.58                      |        | 1.01E-02  | 8.00E-02  | 5.43E-04  | 1.47E-03                                      |
| Bis(2-Ethylhexyl)phthalate |                           | 0.0042 | 3.80E-02  | 4.00E-02  | 5.50E-05  | 3.62E-04                                      |
| Chrysene                   | 1.2                       |        | 1.87E-02  | 4.00E-02  | 1.88E-04  | 2.45E-03                                      |
| Fluoranthene               | 2.1                       |        | 3.72E-02  | 7.00E-02  | 4.61E-04  | 5.17E-03                                      |
| Indeno(1,2,3-cd)pyrene     | 0.27                      |        | 3.90E-03  | 8.00E-02  | 2.82E-03  | 7.67E-04                                      |
| Phenanthrene               | 1.1                       |        | 1.02E-01  | 7.00E-02  | 4.61E-04  | 2.88E-03                                      |
| Pyrene                     | 2.1                       |        | 4.43E-02  | 7.00E-02  | 4.61E-04  | 5.21E-03                                      |
| Metals                     |                           |        | •   |   |   |   |
| Aluminum                   |                           | 8.76   | 4.00E-03  | 2.20E-01  | 1.50E-03  | 7.56E-01                                      |
| Antimony                   | 4.9                       |        | 2.00E-01  | 2.20E-01  | 1.00E-03  | 2.27E-02                                      |
| Arsenic                    | 6.1                       | 0.0503 | 3.60E-02  | 1.10E-01  | 2.00E-03  | 2.35E-02                                      |
| Cadmium                    | 14.3                      | 0.0195 | 3.64E-01  | 9.60E-01  | 5.50E-04  | 1.93E-01                                      |
| Chromium                   | 29.8                      | 0.129  | 7.50E-03  | 1.00E-02  | 5.50E-03  | 8.38E-02                                      |
| Cobalt                     | 15.8                      | 0.047  | 8.10E-02  | 1.22E-01  | 2.00E-02  | 9.87E-02                                      |
| Copper                     | 1,190                     | 1.16   | 4.00E-01  | 4.00E-02  | 1.00E-02  | 5.28E+00                                      |
| Cyanide                    | 2.36                      |        | 1.00E+00  | 1.12E+00  | 1.00E+00  | 3.81E-01                                      |
| Iron                       |                           | 110    | 4.00E-03  | 2.20E-01  | 2.00E-02  | 9.49E+00                                      |
| Lead                       | 436                       | 0.839  | 4.50E-02  | 3.00E-02  | 3.00E-04  | 9.45E-01                                      |
| Manganese                  | 918                       |        | 2.50E-01  | 5.40E-02  | 4.00E-04  | 2.55E+00                                      |
| Mercury                    | 0.3                       | 0.0021 | 3.75E-02  | 4.00E-02  | 2.50E-01  | 1.17E-02                                      |
| Nickel                     | 42.7                      | 0.154  | 3.20E-02  | 2.00E-02  | 6.00E-03  | 1.28E-01                                      |
| Selenium                   | 2.5                       | 0.0046 | 1.60E-02  | 2.20E-01  | 1.50E-02  | 1.60E-02                                      |
| Silver                     | 2.6                       | 0.008  | 4.00E-01  | 2.20E-01  | 3.00E-03  | 1.47E-02                                      |
| Vanadium                   | 29.1                      | 0.233  | 5.50E-03  | 2.20E-01  | 2.50E-03  | 1.48E-01                                      |
| Zinc                       | 566                       | 6.91   | 1.20E-12  | 5.60E-01  | 1.00E-01  | 1.33E+01                                      |

COPC = Chemical of Potential Concern

 $EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration$ 

 $BAF = Bioaccumulation\ Factor\ (unitless)$ 

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

Cs = Soil concentration (mg/kg)

 $SP = Soil \ to \ plant \ uptake \ factor \ from \ literature$ 

 $CF = Dry \ weight \ to \ wet \ weight \ plant \ matter \ conversion \ factor = 0.2 \ \ (unitless)$ 

 $PDF = Plant \ dietary \ fraction \ \ (unitless)$ 

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

 $ADF = Animal\ dietary\ fraction\ (unitless)$ 

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

 $WR = Water\ intake\ rate\ (L/day)$ 

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-3F**

# ${\bf GREAT\ BLUE\ HERON}\,(Ardea\ herodias)\ \ {\bf EXPOSURE\ -\ SEAD-121C\ DITCH\ SOIL}$

# SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

|                            |             |               |                 |                      | CII M           |                  |
|----------------------------|-------------|---------------|-----------------|----------------------|-----------------|------------------|
|                            |             |               |                 | C 11 77 T 4 1 4      | Small Mammal    | Great Blue Heron |
|                            |             |               |                 | Soil-To-Invertebrate | BAF             | Ditch Soil and   |
|                            |             |               | (mg COPC/kg     | BAF                  | (mg COPC/kg     | Surface Water    |
|                            | D: 1 G !!   | G 6 YY        | dry tissue)/(mg | (mg COPC/kg wet      | wet tissue)/(mg |                  |
|                            | Ditch Soil  | Surface Water | COPC/kg dry     | tissue)/(mg          | COPC/kg dry     | Exposure         |
| COPC                       | EPC (mg/kg) | EPC (mg/L)    | soil)           | COPC/kg dry soil)    | soil)           | (mg/kg/day)      |
| Semivolatile Organic Comp  |             |               |                 |                      |                 |                  |
| 3 or 4-Methylphenol        | 0.79        |               | 2.89E+00        | 1.00E-01             | 1.14E+00        | 1.65E-01         |
| Anthracene                 | 0.25        |               | 1.04E-01        | 7.00E-02             | 4.61E-04        | 2.28E-03         |
| Benzo(a)anthracene         | 1.1         |               | 2.02E-02        | 3.00E-02             | 1.46E-04        | 9.83E-03         |
| Benzo(a)pyrene             | 0.9         |               | 1.10E-02        | 7.00E-02             | 4.61E-04        | 8.22E-03         |
| Benzo(b)fluoranthene       | 1.1         |               | 1.01E-02        | 7.00E-02             | 5.46E-04        | 1.01E-02         |
| Benzo(ghi)perylene         | 0.29        |               | 5.70E-03        | 7.00E-02             | 4.61E-04        | 2.65E-03         |
| Benzo(k)fluoranthene       | 0.58        |               | 1.01E-02        | 8.00E-02             | 5.43E-04        | 5.33E-03         |
| Bis(2-Ethylhexyl)phthalate |             | 0.0042        | 3.80E-02        | 4.00E-02             | 5.50E-05        | 1.89E-04         |
| Chrysene                   | 1.2         |               | 1.87E-02        | 4.00E-02             | 1.88E-04        | 1.08E-02         |
| Fluoranthene               | 2.1         |               | 3.72E-02        | 7.00E-02             | 4.61E-04        | 1.92E-02         |
| Indeno(1,2,3-cd)pyrene     | 0.27        |               | 3.90E-03        | 8.00E-02             | 2.82E-03        | 2.59E-03         |
| Phenanthrene               | 1.1         |               | 1.02E-01        | 7.00E-02             | 4.61E-04        | 1.00E-02         |
| Pyrene                     | 2.1         |               | 4.43E-02        | 7.00E-02             | 4.61E-04        | 1.92E-02         |
| Metals                     | •           |               | •               |                      |                 |                  |
| Aluminum                   |             | 8.76          | 4.00E-03        | 2.20E-01             | 1.50E-03        | 3.94E-01         |
| Antimony                   | 4.9         |               | 2.00E-01        | 2.20E-01             | 1.00E-03        | 4.79E-02         |
| Arsenic                    | 6.1         | 0.0503        | 3.60E-02        | 1.10E-01             | 2.00E-03        | 6.05E-02         |
| Cadmium                    | 14.3        | 0.0195        | 3.64E-01        | 9.60E-01             | 5.50E-04        | 1.78E-01         |
| Chromium                   | 29.8        | 0.129         | 7.50E-03        | 1.00E-02             | 5.50E-03        | 2.98E-01         |
| Cobalt                     | 15.8        | 0.047         | 8.10E-02        | 1.22E-01             | 2.00E-02        | 2.04E-01         |
| Copper                     | 1,190       | 1.16          | 4.00E-01        | 4.00E-02             | 1.00E-02        | 1.28E+01         |
| Cyanide                    | 2.36        |               | 1.00E+00        | 1.12E+00             | 1.00E+00        | 4.47E-01         |
| Iron                       |             | 110           | 4.00E-03        | 2.20E-01             | 2.00E-02        | 4.95E+00         |
| Lead                       | 436         | 0.839         | 4.50E-02        | 3.00E-02             | 3.00E-04        | 3.94E+00         |
| Manganese                  | 918         |               | 2.50E-01        | 5.40E-02             | 4.00E-04        | 8.32E+00         |
| Mercury                    | 0.3         | 0.0021        | 3.75E-02        | 4.00E-02             | 2.50E-01        | 1.60E-02         |
| Nickel                     | 42.7        | 0.154         | 3.20E-02        | 2.00E-02             | 6.00E-03        | 4.31E-01         |
| Selenium                   | 2.5         | 0.0046        | 1.60E-02        | 2.20E-01             | 1.50E-02        | 3.08E-02         |
| Silver                     | 2.6         | 0.008         | 4.00E-01        | 2.20E-01             | 3.00E-03        | 2.67E-02         |
| Vanadium                   | 29.1        | 0.233         | 5.50E-03        | 2.20E-01             | 2.50E-03        | 3.02E-01         |
| Zinc                       | 566         | 6.91          | 1.20E-12        | 5.60E-01             | 1.00E-01        | 1.64E+01         |

COPC = Chemical of Potential Concern

 $EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration$ 

 $BAF = Bioaccumulation\ Factor\ (unitless)$ 

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

 $Cs = Soil\ concentration\ (mg/kg)$ 

 $SP = Soil \ to \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

 $Is = Soil \ dietary \ (kg \ dry/day)$ 

Cw = EPC in surface water (mg COPC/L)

 $WR = Water\ intake\ rate\ (L/day)$ 

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-4A**

## DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| COPC                           | Surface Soil (0-2 ft bgs)<br>EPC (mg/kg) | Surface Water<br>EPC (mg/L) | SP<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Terrestrial Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Deer Mouse<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|--------------------------------|--|-----------------------------|---|---|---|
| Semivolatile Organic Compounds |  |                             |   |   |   |
| Acenaphthene                   | 6.1                                      |                             | 2.10E-01  | 7.0E-02   | 2.21E-01  |
| Acenaphthylene                 | 0.56                                     |                             | 1.72E-01  | 7.0E-02   | 1.94E-02  |
| Anthracene                     | 12                                       |                             | 1.04E-01  | 7.0E-02   | 3.79E-01  |
| Benzo(a)anthracene             | 28                                       |                             | 2.02E-02  | 3.0E-02   | 3.71E-01  |
| Benzo(a)pyrene                 | 23                                       |                             | 1.10E-02  | 7.0E-02   | 6.30E-01  |
| Benzo(b)fluoranthene           | 29                                       |                             | 1.01E-02  | 7.0E-02   | 7.94E-01  |
| Benzo(ghi)perylene             | 29                                       |                             | 5.70E-03  | 7.0E-02   | 7.88E-01  |
| Benzo(k)fluoranthene           | 21                                       |                             | 1.01E-02  | 8.0E-02   | 6.51E-01  |
| Bis(2-Ethylhexyl)phthalate     | 1.6                                      |                             | 3.80E-02  | 4.0E-02   | 2.83E-02  |
| Carbazole                      | 6.8                                      |                             | 2.74E-01  | 6.0E-02   | 2.41E-01  |
| Chrysene                       | 32                                       |                             | 1.87E-02  | 4.0E-02   | 5.39E-01  |
| Dibenz(a,h)anthracene          | 4.6                                      |                             | 6.40E-03  | 7.0E-02   | 1.25E-01  |
| Dibenzofuran                   | 2  |                             | 1.61E-01  | 5.0E-02   | 5.36E-02  |
| Fluoranthene                   | 62                                       |                             | 3.72E-02  | 7.0E-02   | 1.77E+00  |
| Fluorene                       | 4.2                                      |                             | 1.49E-01  | 7.0E-02   | 1.41E-01  |
| Indeno(1,2,3-cd)pyrene         | 8.1                                      |                             | 3.90E-03  | 8.0E-02   | 2.49E-01  |
| Naphthalene                    | 0.63                                     |                             | 4.20E-01  | 7.0E-02   | 2.88E-02  |
| Phenanthrene                   | 52                                       |                             | 1.02E-01  | 7.0E-02   | 1.64E+00  |
| Pyrene                         | 64                                       |                             | 4.43E-02  | 7.0E-02   | 1.85E+00  |
| PCBs                           |  |                             |   |   |   |
| Aroclor-1254                   | 0.03                                     |                             | 1.00E-02  | 1.1E+00   | 1.24E-02  |
| Aroclor-1260                   | 0.046                                    |                             | 1.00E-02  | 1.1E+00   | 1.90E-02  |
| Pesticides                     | 0.010                                    |                             | 11002 02  | 1112100   | 1.502.02  |
| 4.4'-DDE                       | 0.034                                    |                             | 9.37E-03  | 1.3E+00   | 1.57E-02  |
| 4,4'-DDT                       | 0.039                                    |                             | 9.37E-03  | 1.3E+00   | 1.80E-02  |
| Aldrin                         | 0.012                                    |                             | 7.05E-01  | 7.0E-02   | 7.00E-04  |
| Dieldrin                       | 0.034                                    |                             | 8.96E-02  | 5.0E-02   | 8.04E-04  |
| Endosulfan I                   | 0.095                                    |                             | 2.37E-01  | 6.0E-02   | 3.21E-03  |
| Endrin                         | 0.03                                     |                             | 8.96E-02  | 5.0E-02   | 7.09E-04  |
| Heptachlor epoxide             | 0.055                                    |                             | 2.93E-02  | 1.4E+00   | 2.82E-02  |
| Metals                         | 0.033                                    |                             | 2.751 02  | 1.42100   | LOLE OF   |
| Aluminum                       |  | 2.050                       | 4.00E-03  | 2.2E-01   | 3.10E-01  |
| Antimony                       | 7.5                                      | 2.000                       | 2.00E-01  | 2.2E-01   | 6.78E-01  |
| Arsenic                        | 32.1                                     |                             | 3.60E-02  | 1.1E-01   | 1.38E+00  |
| Cadmium                        | 6.6                                      | 5.4.E-04                    | 3.64E-01  | 9.6E-01   | 2.42E+00  |
| Chromium                       | 439                                      | 0.006                       | 7.50E-03  | 1.0E-02   | 2.38E+00  |
| Cobalt                         | 205.5                                    | 0.000                       | 8.10E-02  | 1.2E-01   | 1.02E+01  |
| Copper                         | 209                                      | 0.0112                      | 4.00E-01  | 4.0E-02   | 7.07E+00  |
| Cyanide                        | 2  | 0.0112                      | 1.00E+00  | 1.1E+00   | 9.07E-01  |
| Iron                           |  | 3.41                        | 4.00E-03  | 2.2E-01   | 5.15E-01  |
| Lead                           | 122                                      | 0.0263                      | 4.50E-02  | 3.0E-02   | 1.76E+00  |
| Manganese                      | 310500                                   | 0.0203                      | 2.50E-01  | 5.4E-02   | 1.00E+04  |
| Nickel                         | 342                                      | 3.6.E-03                    | 3.20E-02  | 2.0E-02   | 3.47E+00  |
| Selenium                       | 145.5                                    | 2.45.E-03                   | 1.60E-02  | 2.0E-02<br>2.2E-01  | 1.20E+01  |
| Silver                         | 3.05                                     | 4. <del>4</del> 3.E=03      | 4.00E-02  | 2.2E-01<br>2.2E-01  | 3.03E-01  |
| Thallium                       | 162.5                                    |                             | 4.00E-01<br>4.00E-03                                    | 2.2E-01<br>2.2E-01  | 1.33E+01  |
|                                | 182.5                                    |                             | 4.00E-03<br>5.50E-03                                    | 2.2E-01<br>2.2E-01  | 1.33E+01<br>1.49E+01                                  |
| Vanadium<br>Zinc               | 329                                      | 0.19                        | 5.50E-03<br>1.20E-12                                    | 2.2E-01<br>5.6E-01  | 6.76E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

 $BAF = Bioaccumulation\ Factor\ (unitless)$ 

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

 $SP = Soil\text{-to-plant uptake factor} \ ((mg\ COPC/kg\ dry\ tissue)/(mg\ COPC/kg\ dry\ soil))$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-4B**

### AMERICAN ROBIN (Turdus migratorius ) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| сорс                       | Surface Soil<br>(0-2 ft bgs)<br>EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>Uptake Factor<br>(mg COPC/kg dry<br>tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | American Robin<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|----------------------------|--|--------------------------|--|---|---|
| Semivolatile Organic Compo | ınds   |                          |  |   |   |
| Acenaphthene               | 6.1  |                          | 2.10E-01   | 7.00E-02  | 2.72E-01  |
| Acenaphthylene             | 0.56   |                          | 1.72E-01   | 7.00E-02  | 2.48E-02  |
| Anthracene                 | 12   |                          | 1.04E-01   | 7.00E-02  | 5.26E-01  |
| Benzo(a)anthracene         | 28   |                          | 2.02E-02   | 3.00E-02  | 7.51E-01  |
| Benzo(a)pyrene             | 23   |                          | 1.10E-02   | 7.00E-02  | 9.95E-01  |
| Benzo(b)fluoranthene       | 29   |                          | 1.01E-02   | 7.00E-02  | 1.25E+00  |
| Benzo(ghi)perylene         | 29   |                          | 5.70E-03   | 7.00E-02  | 1.25E+00  |
| Benzo(k)fluoranthene       | 21   |                          | 1.01E-02   | 8.00E-02  | 9.95E-01  |
| Bis(2-Ethylhexyl)phthalate | 1.6  |                          | 3.80E-02   | 4.00E-02  | 4.97E-02  |
| Carbazole                  | 6.8  |                          | 2.74E-01   | 6.00E-02  | 2.77E-01  |
| Chrysene                   | 32   |                          | 1.87E-02   | 4.00E-02  | 9.90E-01  |
| Dibenz(a,h)anthracene      | 4.6  |                          | 6.40E-03   | 7.00E-02  | 1.99E-01  |
| Dibenzofuran               | 2  |                          | 1.61E-01   | 5.00E-02  | 7.19E-02  |
| Fluoranthene               | 62   |                          | 3.72E-02   | 7.00E-02  | 2.69E+00  |
| Fluorene                   | 4.2  |                          | 1.49E-01   | 7.00E-02  | 1.85E-01  |
| Indeno(1,2,3-cd)pyrene     | 8.1  |                          | 3.90E-03   | 8.00E-02  | 3.84E-01  |
| Naphthalene                | 0.63   |                          | 4.20E-01   | 7.00E-02  | 2.89E-02  |
| Phenanthrene               | 52   |                          | 1.02E-01   | 7.00E-02  | 2.28E+00  |
| Pyrene                     | 64   |                          | 4.43E-02   | 7.00E-02  | 2.78E+00  |
| PCBs                       |  |                          |  |   | _   |
| Aroclor-1254               | 0.03   |                          | 1.00E-02   | 1.13E+00  | 1.44E-02  |
| Aroclor-1260               | 0.046  |                          | 1.00E-02   | 1.13E+00  | 2.21E-02  |
| Pesticides                 |  |                          |  |   |   |
| 4,4'-DDE                   | 0.034  |                          | 9.37E-03   | 1.26E+00  | 1.82E-02  |
| 4,4'-DDT                   | 0.039  |                          | 9.37E-03   | 1.26E+00  | 2.09E-02  |
| Aldrin                     | 0.012  |                          | 7.05E-01   | 7.00E-02  | 5.71E-04  |
| Dieldrin                   | 0.034  |                          | 8.96E-02   | 5.00E-02  | 1.21E-03  |
| Endosulfan I               | 0.095  |                          | 2.37E-01   | 6.00E-02  | 3.85E-03  |
| Endrin                     | 0.03   |                          | 8.96E-02   | 5.00E-02  | 1.07E-03  |
| Heptachlor epoxide         | 0.055  |                          | 2.93E-02   | 1.40E+00  | 3.26E-02  |
| Metals                     |  |                          |  |   |   |
| Aluminum                   | <b> </b>                                       | 2.050                    | 4.00E-03   | 2.20E-01  | 2.81E-01  |
| Antimony                   | 7.5  |                          | 2.00E-01   | 2.20E-01  | 7.98E-01  |
| Arsenic                    | 32.1   | 7.17.01                  | 3.60E-02   | 1.10E-01  | 1.92E+00  |
| Cadmium                    | 6.6  | 5.4.E-04                 | 3.64E-01   | 9.60E-01  | 2.73E+00  |
| Chromium                   | 439  | 0.006                    | 7.50E-03   | 1.00E-02  | 8.11E+00  |
| Cobalt                     | 205.5  | 0.0112                   | 8.10E-02   | 1.22E-01  | 1.34E+01  |
| Copper                     |  | 0.0112                   | 4.00E-01   | 4.00E-02  | 6.96E+00  |
| Cyanide<br>Iron            | 2  | 3.41                     | 1.00E+00   | 1.12E+00<br>2.20E-01  | 9.66E-01<br>4.67E-01                                      |
|                            | 122  |                          | 4.00E-03   |   |   |
| Lead                       | 122<br>310500                                  | 0.0263                   | 4.50E-02<br>2.50E-01   | 3.00E-02<br>5.40E-02  | 3.29E+00<br>1.18E+04                                      |
| Manganese<br>Nickel        |  | 2.6 E.02                 |  |   |   |
|                            | 342  | 3.6.E-03                 | 3.20E-02   | 2.00E-02  | 7.78E+00  |
| Selenium                   | 145.5  | 2.45.E-03                | 1.60E-02   | 2.20E-01  | 1.53E+01  |
| Silver                     | 3.05   |                          | 4.00E-01   | 2.20E-01  | 3.28E-01  |
| Thallium                   | 162.5  |                          | 4.00E-03   | 2.20E-01  | 1.71E+01  |
| Vanadium                   | 182  | 0.10                     | 5.50E-03   | 2.20E-01  | 1.91E+01  |
| Zinc                       | 329  | 0.19                     | 1.20E-12   | 5.60E-01  | 8.08E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L) WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### TABLE G-4C

# Short-Tailed Shrew (Blarina brevicauda) EXPOSURE - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                             |              |                   |                      |                      | Small Mammal         |                      |
|-----------------------------|--------------|-------------------|----------------------|----------------------|----------------------|----------------------|
|                             |              |                   | Soil-To-Plant        | Soil-To-Soil         | BAF                  |                      |
|                             | Surface Soil |                   | (mg COPC/kg          | Invertebrate BAF     | (mg COPC/kg          | Short-Tailed         |
|                             | (0-2 ft bgs) |                   | dry tissue)/(mg      | (mg COPC/kg wet      | wet tissue)/(mg      | Shrew Surface        |
|                             | EPC          | Surface Water EPC | COPC/kg dry          | tissue)/(mg          | COPC/kg dry          | Soil Exposure        |
| COPC                        | (mg/kg)      | (mg/L)            | soil)                | COPC/kg dry soil)    | soil)                | (mg/kg/day)          |
| Semivolatile Organic Compou |              |                   |                      |                      |                      |                      |
| Acenaphthene                | 6.1          |                   | 2.10E-01             | 7.00E-02             | 4.61E-04             | 3.21E-01             |
| Acenaphthylene              | 0.56         |                   | 1.72E-01             | 7.00E-02             | 4.61E-04             | 2.93E-02             |
| Anthracene                  | 12           |                   | 1.04E-01             | 7.00E-02             | 4.61E-04             | 6.22E-01             |
| Benzo(a)anthracene          | 28           |                   | 2.02E-02             | 3.00E-02             | 1.46E-04             | 8.35E-01             |
| Benzo(a)pyrene              | 23           |                   | 1.10E-02             | 7.00E-02             | 4.61E-04             | 1.18E+00             |
| Benzo(b)fluoranthene        | 29           |                   | 1.01E-02             | 7.00E-02             | 5.46E-04             | 1.49E+00             |
| Benzo(ghi)perylene          | 29           |                   | 5.70E-03             | 7.00E-02             | 4.61E-04             | 1.48E+00             |
| Benzo(k)fluoranthene        | 21           |                   | 1.01E-02             | 8.00E-02             | 5.43E-04             | 1.19E+00             |
| Bis(2-Ethylhexyl)phthalate  | 1.6          |                   | 3.80E-02             | 4.00E-02             | 5.50E-05             | 5.65E-02             |
| Carbazole                   | 6.8          |                   | 2.74E-01             | 6.00E-02             | 6.29E-01             | 5.39E-01             |
| Chrysene                    | 32           |                   | 1.87E-02             | 4.00E-02             | 1.88E-04             | 1.13E+00             |
| Dibenz(a,h)anthracene       | 4.6          |                   | 6.40E-03             | 7.00E-02             | 1.21E-03             | 2.36E-01             |
| Dibenzofuran                | 2            |                   | 1.61E-01             | 5.00E-02             | 5.50E-01             | 1.38E-01             |
| Fluoranthene                | 62           |                   | 3.72E-02             | 7.00E-02             | 4.61E-04             | 3.19E+00             |
| Fluorene                    | 4.2          |                   | 1.49E-01             | 7.00E-02             | 4.61E-04             | 2.19E-01             |
| Indeno(1,2,3-cd)pyrene      | 8.1          |                   | 3.90E-03             | 8.00E-02             | 2.82E-03             | 4.59E-01             |
| Naphthalene                 | 0.63         |                   | 4.20E-01             | 7.00E-02             | 4.61E-04             | 3.40E-02             |
| Phenanthrene                | 52           |                   | 1.02E-01             | 7.00E-02             | 4.61E-04             | 2.70E+00             |
| Pyrene                      | 64           |                   | 4.43E-02             | 7.00E-02             | 4.61E-04             | 3.29E+00             |
| PCBs                        |              | 1                 |                      |                      | 1                    |                      |
| Aroclor-1254                | 0.03         |                   | 1.00E-02             | 1.13E+00             | 5.52E-04             | 1.86E-02             |
| Aroclor-1260                | 0.046        |                   | 1.00E-02             | 1.13E+00             | 5.52E-04             | 2.85E-02             |
| Pesticides                  | 0.024        |                   | 0.000.00             | 4.2477.000           | C 40T 04             | 2247.02              |
| 4,4'-DDE                    | 0.034        |                   | 9.37E-03             | 1.26E+00             | 6.18E-04             | 2.34E-02             |
| 4,4'-DDT                    | 0.039        |                   | 9.37E-03             | 1.26E+00             | 6.18E-04             | 2.69E-02             |
| Aldrin<br>Dieldrin          | 0.012        |                   | 7.05E-01             | 7.00E-02             | 7.97E-01             | 1.15E-03             |
| Endosulfan I                | 0.034        |                   | 8.96E-02             | 5.00E-02             | 4.75E-01             | 2.21E-03             |
| Endosuiran i<br>Endrin      | 0.095        |                   | 2.37E-01             | 6.00E-02             | 6.06E-01             | 7.39E-03             |
|                             | 0.03         |                   | 8.96E-02<br>2.93E-02 | 5.00E-02             | 4.75E-01             | 1.95E-03<br>4.21E-02 |
| Heptachlor epoxide  Metals  | 0.033        |                   | 2.93E-02             | 1.40E+00             | 3.55E-05             | 4.21E-02             |
| Aluminum                    | 1            | 2.050             | 4.00E-03             | 2.20E-01             | 1.50E-03             | 3.10E-01             |
| Antimony                    | 7.5          | 2.030             | 2.00E-01             | 2.20E-01<br>2.20E-01 | 1.00E-03             | 9.97E-01             |
| Arsenic                     | 32.1         |                   | 3.60E-02             | 1.10E-01             | 2.00E-03             | 2.34E+00             |
| Cadmium                     | 6.6          | 5.4.E-04          | 3.64E-01             | 9.60E-01             | 5.50E-04             | 3.50E+00             |
| Chromium                    | 439          | 0.006             | 7.50E-03             | 1.00E-02             | 5.50E-04<br>5.50E-03 | 8.47E+00             |
| Cobalt                      | 205.5        | 0.000             | 8.10E-02             | 1.22E-01             | 2.00E-02             | 1.66E+01             |
| Copper                      | 209          | 0.0112            | 4.00E-01             | 4.00E-02             | 1.00E-02             | 7.99E+00             |
| Cyanide                     | 2            | 0.0112            | 1.00E+00             | 1.12E+00             | 1.00E+00             | 1.34E+00             |
| Iron                        | -            | 3.41              | 4.00E-03             | 2.20E-01             | 2.00E-02             | 5.15E-01             |
| Lead                        | 122          | 0.0263            | 4.50E-02             | 3.00E-02             | 3.00E-02             | 3.66E+00             |
| Manganese                   | 310500       | 0.0203            | 2.50E-01             | 5.40E-02             | 4.00E-04             | 1.37E+04             |
| Nickel                      | 342          | 3.6.E-03          | 3.20E-01             | 2.00E-02             | 6.00E-03             | 8.50E+00             |
| Selenium                    | 145.5        | 2.45.E-03         | 1.60E-02             | 2.20E-01             | 1.50E-02             | 1.93E+01             |
| Silver                      | 3.05         | 2.TJ.L-0J         | 4.00E-01             | 2.20E-01<br>2.20E-01 | 3.00E-02             | 4.10E-01             |
| Thallium                    | 162.5        |                   | 4.00E-03             | 2.20E-01<br>2.20E-01 | 4.00E-02             | 2.17E+01             |
| Vanadium                    | 182          |                   | 5.50E-03             | 2.20E-01<br>2.20E-01 | 2.50E-03             | 2.40E+01             |
| Zinc                        | 329          | 0.19              | 1.20E-12             | 5.60E-01             | 1.00E-01             | 1.05E+02             |
|                             | 327          | 0.17              | 1.201 12             | 3.00E 01             | 1.00L 01             | 1.031102             |

COPC = Chemical of Potential Concern

 $EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration$ 

BAF = Bioaccumulation Factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)
Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-4D**

### ${\bf Meadow\ Vole\ } ({\it Microtus\ pennsylvanicus}\ )\ {\bf EXPOSURE\ -\ SEAD\text{-}121I\ SOIL}$ SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                            |              |                   |                 | 0-17-0-1        |              |
|----------------------------|--------------|-------------------|-----------------|-----------------|--------------|
|                            |              |                   | G. T. T. Di     | Soil-To-Soil    |              |
|                            |              |                   | Soil-To-Plant   | Invertebrate    |              |
|                            |              |                   | Uptake Factor   | BAF             |              |
|                            | Surface Soil |                   | (mg COPC/kg dry |                 | Meadow Vole  |
|                            | (0-2 ft bgs) |                   | tissue)/(mg     | wet tissue)/(mg | Surface Soil |
|                            | EPC          | Surface Water EPC | COPC/kg dry     | COPC/kg dry     | Exposure     |
| COPC                       | (mg/kg)      | (mg/L)            | soil)           | soil)           | (mg/kg/day)  |
| Semivolatile Organic Compo |              |                   |                 |                 |              |
| Acenaphthene               | 6.1          |                   | 2.10E-01        | 7.00E-02        | 5.50E-01     |
| Acenaphthylene             | 0.56         |                   | 1.72E-01        | 7.00E-02        | 4.86E-02     |
| Anthracene                 | 12           |                   | 1.04E-01        | 7.00E-02        | 9.71E-01     |
| Benzo(a)anthracene         | 28           |                   | 2.02E-02        | 3.00E-02        | 2.06E+00     |
| Benzo(a)pyrene             | 23           |                   | 1.10E-02        | 7.00E-02        | 1.67E+00     |
| Benzo(b)fluoranthene       | 29           |                   | 1.01E-02        | 7.00E-02        | 2.11E+00     |
| Benzo(ghi)perylene         | 29           |                   | 5.70E-03        | 7.00E-02        | 2.10E+00     |
| Benzo(k)fluoranthene       | 21           |                   | 1.01E-02        | 8.00E-02        | 1.53E+00     |
| Bis(2-Ethylhexyl)phthalate | 1.6          |                   | 3.80E-02        | 4.00E-02        | 1.20E-01     |
| Carbazole                  | 6.8          |                   | 2.74E-01        | 6.00E-02        | 6.51E-01     |
| Chrysene                   | 32           |                   | 1.87E-02        | 4.00E-02        | 2.35E+00     |
| Dibenz(a,h)anthracene      | 4.6          |                   | 6.40E-03        | 7.00E-02        | 3.33E-01     |
| Dibenzofuran               | 2            |                   | 1.61E-01        | 5.00E-02        | 1.72E-01     |
| Fluoranthene               | 62           |                   | 3.72E-02        | 7.00E-02        | 4.65E+00     |
| Fluorene                   | 4.2          |                   | 1.49E-01        | 7.00E-02        | 3.56E-01     |
| Indeno(1,2,3-cd)pyrene     | 8.1          |                   | 3.90E-03        | 8.00E-02        | 5.84E-01     |
| Naphthalene                | 0.63         |                   | 4.20E-01        | 7.00E-02        | 6.84E-02     |
| Phenanthrene               | 52           |                   | 1.02E-01        | 7.00E-02        | 4.20E+00     |
| Pyrene                     | 64           |                   | 4.43E-02        | 7.00E-02        | 4.84E+00     |
| PCBs                       |              |                   |                 |                 |              |
| Aroclor-1254               | 0.03         |                   | 1.00E-02        | 1.13E+00        | 2.18E-03     |
| Aroclor-1260               | 0.046        |                   | 1.00E-02        | 1.13E+00        | 3.34E-03     |
| Pesticides                 |              |                   | 1               |                 |              |
| 4,4'-DDE                   | 0.034        |                   | 9.37E-03        | 1.26E+00        | 2.47E-03     |
| 4,4'-DDT                   | 0.039        |                   | 9.37E-03        | 1.26E+00        | 2.83E-03     |
| Aldrin                     | 0.012        |                   | 7.05E-01        | 7.00E-02        | 1.60E-03     |
| Dieldrin                   | 0.034        |                   | 8.96E-02        | 5.00E-02        | 2.71E-03     |
| Endosulfan I               | 0.095        |                   | 2.37E-01        | 6.00E-02        | 8.79E-03     |
| Endrin                     | 0.03         |                   | 8.96E-02        | 5.00E-02        | 2.39E-03     |
| Heptachlor epoxide         | 0.055        |                   | 2.93E-02        | 1.40E+00        | 4.09E-03     |
| Metals                     |              |                   | 1               |                 |              |
| Aluminum                   |              | 2.050             | 4.00E-03        | 2.20E-01        | 4.31E-01     |
| Antimony                   | 7.5          |                   | 2.00E-01        | 2.20E-01        | 6.70E-01     |
| Arsenic                    | 32.1         |                   | 3.60E-02        | 1.10E-01        | 2.41E+00     |
| Cadmium                    | 6.6          | 5.4.E-04          | 3.64E-01        | 9.60E-01        | 6.84E-01     |
| Chromium                   | 439          | 0.006             | 7.50E-03        | 1.00E-02        | 3.18E+01     |
| Cobalt                     | 205.5        |                   | 8.10E-02        | 1.22E-01        | 1.62E+01     |
| Copper                     | 209          | 0.0112            | 4.00E-01        | 4.00E-02        | 2.23E+01     |
| Cyanide                    | 2            |                   | 1.00E+00        | 1.12E+00        | 3.19E-01     |
| Iron                       | 1            | 3.41              | 4.00E-03        | 2.20E-01        | 7.16E-01     |
| Lead                       | 122          | 0.0263            | 4.50E-02        | 3.00E-02        | 9.24E+00     |
| Manganese                  | 310500       | =****             | 2.50E-01        | 5.40E-02        | 2.91E+04     |
| Nickel                     | 342          | 3.6.E-03          | 3.20E-02        | 2.00E-02        | 2.55E+01     |
| Selenium                   | 145.5        | 2.45.E-03         | 1.60E-02        | 2.20E-01        | 1.07E+01     |
| Silver                     | 3.05         |                   | 4.00E-01        | 2.20E-01        | 3.26E-01     |
| Thallium                   | 162.5        |                   | 4.00E-03        | 2.20E-01        | 1.17E+01     |
| Vanadium                   | 182          |                   | 5.50E-03        | 2.20E-01        | 1.32E+01     |
| Zinc                       | 329          | 0.19              | 1.20E-12        | 5.60E-01        | 2.37E+01     |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)
(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

 $SP = Soil \ tp \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L) WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### **TABLE G-4E** Red Fox (Vulpes vulpes) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| COPC   |                   | Small Mammal    |              |
|--|-------------------|-----------------|--------------|
| COPC   | Soil-To-Soil      | BAF             |              |
| COPC   | Invertebrate BAF  | (mg COPC/kg     | Red Fox      |
| COPC   | (mg COPC/kg wet   | wet tissue)/(mg | Surface Soil |
| COPC   | tissue)/(mg       | COPC/kg dry     | Exposure     |
| Acenaphthene         6.1         2.10E-01           Acenaphthylene         0.56         1.72E-01           Anthracene         12         1.04E-01           Benzo(a)anthracene         28         2.02E-02           Benzo(a)pyrene         23         1.10E-02           Benzo(b)fluoranthene         29         1.01E-02           Benzo(b)fluoranthene         21         1.01E-02           Benzo(b)fluoranthene         21         1.01E-02           Bis(2-Ethylhexyl)phthalate         1.6         3.80E-02           Carbazole         6.8         2.74E-01           Chrysene         32         1.87E-02           Dibenz(a,h)anthracene         4.6         6.40E-03           Dibenzofuran         2         1.61E-01           Fluoranthene         62         3.72E-02           Fluorene         4.2         1.49E-01           Indeno(1,2,3-cd)pyrene         8.1         3.90E-03           Naphthalene         0.63         4.20E-01           Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBS         4.4°-DDT         0.034         1.00E-02           Aroclor-1260         0.046   | COPC/kg dry soil) | soil)           | (mg/kg/day)  |
| Acenaphthylene   |                   |                 |              |
| Anthracene 12 1.04E-01 Benzo(a)anthracene 28 2.02E-02 Benzo(a)pyrene 23 1.10E-02 Benzo(a)pyrene 29 1.01E-02 Benzo(ghi)perylene 29 1.01E-02 Benzo(ghi)perylene 29 5.70E-03 Benzo(k)fluoranthene 21 1.01E-02 Bis(2-Ethylhexyl)phthalate 1.6 3.80E-02 Carbazole 6.8 2.74E-01 Carbazole 6.8 2.74E-01 Dibenzofuran 2 1.87E-02 Dibenz(a,h)anthracene 4.6 6.40E-03 Dibenzofuran 2 1.61E-01 Fluoranthene 62 3.72E-02 Fluorene 4.2 1.49E-01 Indeno(1,2,3-cd)pyrene 8.1 3.90E-03 Naphthalene 0.63 4.20E-01 Phenanthrene 52 1.02E-01 Phenanthrene 52 Pyrene 64 4.33E-02 PCBs  Aroclor-1254 0.03 1.00E-02 Aroclor-1260 0.046 1.00E-02 Aroclor-1260 0.046 1.00E-02 Aroclor-1260 0.034 9.37E-03 Aldrin 0.012 7.05E-01 Dieldrin 0.039 9.37E-03 Aldrin 0.012 7.05E-01 Endrin 0.034 8.96E-02 Endosulfan I 0.03 8.96E-02 Heptachlor epoxide 0.055 2.93E-02 Metals  Aluminum 2.050 4.00E-03 Antimony 7.5 2.00E-01 Arsenic 32.1 3.60E-02 Cadmium 439 0.006 7.50E-03 Cobalt 205.5 8.10E-02 Copper 209 0.0112 4.00E-03 Cobalt 205.5 8.10E-02 Copper 209 0.0112 4.00E-03 Cobalt 205.5 8.10E-02 Copper 209 0.0112 4.00E-03 Cobalt 205.5 2.50E-01 Nickel 342 3.6E-03 3.20E-02 Manganese 310500 Nickel 342 3.6E-03 3.20E-02 Selenium 145.5 2.45E-03 1.60E-02 S | 7.00E-02          | 4.61E-04        | 1.75E-02     |
| Benzo(a)anthracene   28  | 7.00E-02          | 4.61E-04        | 1.56E-03     |
| Benzo(a)pyrene   23  | 7.00E-02          | 4.61E-04        | 3.15E-02     |
| Benzo(b)Fluoranthene   29  | 3.00E-02          | 1.46E-04        | 5.38E-02     |
| Benzo(ghi)perylene   29   5.70E-03   | 7.00E-02          | 4.61E-04        | 5.53E-02     |
| Benzo(k)fluoranthene   | 7.00E-02          | 5.46E-04        | 7.00E-02     |
| Bis(2-Ethylhexyl)phthalate         1.6         3.80E-02           Carbazole         6.8         2.74E-01           Chrysene         32         1.87E-02           Dibenz(a,h)anthracene         4.6         6.40E-03           Dibenzofuran         2         1.61E-01           Fluoranthene         62         3.72E-02           Fluorene         4.2         1.49E-01           Indeno(1,2,3-cd)pyrene         8.1         3.90E-03           Naphthalene         0.63         4.20E-01           Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBs         Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4,4'-DDE         0.034         9.37E-03           4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.37E-01           Aluminum         2.050         4.00E-03           Antimony         7.5         2.  | 7.00E-02          | 4.61E-04        | 6.93E-02     |
| Carbazole         6.8         2.74E-01           Chrysene         32         1.87E-02           Dibenzofuran         2         1.61E-01           Dibenzofuran         2         1.61E-01           Fluoranthene         62         3.72E-02           Fluorene         4.2         1.49E-01           Indeno(1,2,3-cd)pyrene         8.1         3.90E-03           Naphthalene         0.63         4.20E-01           Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBs         Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4,4'-DDT         0.039         9.37E-03           4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2   | 8.00E-02          | 5.43E-04        | 5.31E-02     |
| Chrysene         32         1.87E-02           Dibenzofuran         2         1.61E-01           Fluoranthene         62         3.72E-02           Fluorene         4.2         1.49E-01           Indeno(1,2,3-cd)pyrene         8.1         3.90E-03           Naphthalene         0.63         4.20E-01           Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBs         4.43E-02         PCBs           Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4,4'-DDT         0.039         9.37E-03           4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Metals         4.00E-03           Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         <  | 4.00E-02          | 5.50E-05        | 3.30E-03     |
| Dibenz(a,h)anthracene  | 6.00E-02          | 6.29E-01        | 6.39E-01     |
| Dibenzofuran   2   | 4.00E-02          | 1.88E-04        | 6.52E-02     |
| Fluoranthene         62         3.72E-02           Fluorene         4.2         1.49E-01           Indeno(1,2,3-cd)pyrene         8.1         3.90E-03           Naphthalene         0.63         4.20E-01           Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBs         Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4,4'-DDE         0.034         9.37E-03           4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Coba   | 7.00E-02          | 1.21E-03        | 1.15E-02     |
| Fluorene   | 5.00E-02          | 5.50E-01        | 1.64E-01     |
| Indeno(1,2,3-cd)pyrene   | 7.00E-02          | 4.61E-04        | 1.53E-01     |
| Naphthalene  | 7.00E-02          | 4.61E-04        | 1.15E-02     |
| Phenanthrene         52         1.02E-01           Pyrene         64         4.43E-02           PCBs         Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4.4"-DDE         0.034         9.37E-03           4,4"-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead   | 8.00E-02          | 2.82E-03        | 2.30E-02     |
| Pyrene         64         4.43E-02           PCBs           Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4.4'-DDE         0.034         9.37E-03           4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02  | 7.00E-02          | 4.61E-04        | 2.12E-03     |
| PCBs           Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4,4"-DDE         0.034         9.37E-03           4,4"-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01 <td>7.00E-02</td> <td>4.61E-04</td> <td>1.36E-01</td>   | 7.00E-02          | 4.61E-04        | 1.36E-01     |
| Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4.4"-DDE         0.034         9.37E-03           4,4"-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel<  | 7.00E-02          | 4.61E-04        | 1.59E-01     |
| Aroclor-1254         0.03         1.00E-02           Aroclor-1260         0.046         1.00E-02           Pesticides         4.4"-DDE         0.034         9.37E-03           4,4"-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel<  |                   |                 |              |
| Pesticides         4,4°-DDE         0.034         9.37E-03           4,4°-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 1.13E+00          | 5.52E-04        | 4.36E-04     |
| 4,4'-DDE       0.034       9.37E-03         4,4'-DDT       0.039       9.37E-03         Aldrin       0.012       7.05E-01         Dieldrin       0.034       8.96E-02         Endosulfan I       0.095       2.37E-01         Endrin       0.03       8.96E-02         Heptachlor epoxide       0.055       2.93E-02         Metals  | 1.13E+00          | 5.52E-04        | 6.68E-04     |
| 4,4'-DDT         0.039         9.37E-03           Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Nations         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  |                   |                 |              |
| Aldrin         0.012         7.05E-01           Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Wetals           Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 1.26E+00          | 6.18E-04        | 5.45E-04     |
| Dieldrin         0.034         8.96E-02           Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         ***           Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 1.26E+00          | 6.18E-04        | 6.25E-04     |
| Endosulfan I         0.095         2.37E-01           Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 7.00E-02          | 7.97E-01        | 1.43E-03     |
| Endrin         0.03         8.96E-02           Heptachlor epoxide         0.055         2.93E-02           Metals         Aluminum           Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 5.00E-02          | 4.75E-01        | 2.42E-03     |
| Heptachlor epoxide   0.055   2.93E-02  | 6.00E-02          | 6.06E-01        | 8.60E-03     |
| Metals         Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 5.00E-02          | 4.75E-01        | 2.13E-03     |
| Aluminum         2.050         4.00E-03           Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 1.40E+00          | 3.55E-05        | 9.67E-04     |
| Antimony         7.5         2.00E-01           Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00         1           Iron         3.41         4.00E-03         4.50E-02           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   |                   |                 |              |
| Arsenic         32.1         3.60E-02           Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 2.20E-01          | 1.50E-03        | 1.77E-01     |
| Cadmium         6.6         5.4.E-04         3.64E-01           Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 2.20E-01          | 1.00E-03        | 3.48E-02     |
| Chromium         439         0.006         7.50E-03           Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 1.10E-01          | 2.00E-03        | 1.01E-01     |
| Cobalt         205.5         8.10E-02           Copper         209         0.0112         4.00E-01           Cyanide         2         1.00F+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 9.60E-01          | 5.50E-04        | 8.86E-02     |
| Copper         209         0.0112         4.00E-01           Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 1.00E-02          | 5.50E-03        | 1.07E+00     |
| Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 1.22E-01          | 2.00E-02        | 1.23E+00     |
| Cyanide         2         1.00E+00           Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02  | 4.00E-02          | 1.00E-02        | 9.11E-01     |
| Iron         3.41         4.00E-03           Lead         122         0.0263         4.50E-02           Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 1.12E+00          | 1.00E+00        | 3.23E-01     |
| Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 2.20E-01          | 2.00E-02        | 2.94E-01     |
| Manganese         310500         2.50E-01           Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 3.00E-02          | 3.00E-04        | 2.47E-01     |
| Nickel         342         3.6.E-03         3.20E-02           Selenium         145.5         2.45.E-03         1.60E-02   | 5.40E-02          | 4.00E-04        | 8.61E+02     |
| Selenium 145.5 2.45.E-03 1.60E-02  | 2.00E-02          | 6.00E-03        | 9.18E-01     |
| 0.05   | 2.20E-01          | 1.50E-02        | 9.07E-01     |
| Silver 3.05 4.00E-01   | 2.20E-01          | 3.00E-03        | 1.65E-02     |
| Thallium 162.5 4.00E-03  | 2.20E-01          | 4.00E-02        | 1.60E+00     |
| Vanadium 182 5.50E-03  | 2.20E-01          | 2.50E-03        | 8.00E-01     |
| Zinc 329 0.19 1.20E-12   | 5.60E-01          | 1.00E-01        | 7.38E+00     |

COPC = Chemical of Potential Concern

 $\label{eq:epc} EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration\ BAF = Bioaccumulation\ Factor\ (unitless)$ 

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

(1) Exposure = [((C\*ADF\*B\*)\*(C\*PDF\*R\*) + (C\*ADF\*B\*)\*(C\*

FR = Feeding rate (kg/day)
IDF = Invertebrate dietary fraction (unitless)
ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless) BW = Body weight (kg)

#### **TABLE G-5A**

# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                                |                |                   |                   | Terrestrial         |             |
|--------------------------------|----------------|-------------------|-------------------|---------------------|-------------|
|                                |                |                   |                   | Invertebrate BAF    | Deer Mouse  |
|                                |                |                   | SP (mg COPC/kg    | (mg COPC/kg wet     | Ditch Soil  |
|                                | Ditch Soil EPC | Surface Water EPC | dry tissue)/(mg   | tissue)/(mg COPC/kg | Exposure    |
| COPC                           | (mg/kg)        | (mg/L)            | COPC/kg dry soil) | dry soil)           | (mg/kg/day) |
| Semivolatile Organic Compounds | (g/g/          | (mg/2)            | cor cing ary son) | ury 5011)           | (mg/mg/mg/  |
| Acenaphthene                   | 0.74           |                   | 2.10E-01          | 7.0E-02             | 2.69E-02    |
| Acenaphthylene                 | 0.42           |                   | 1.72E-01          | 7.0E-02             | 1.45E-02    |
| Anthracene                     | 1.8            |                   | 1.04E-01          | 7.0E-02             | 5.68E-02    |
| Benzo(a)anthracene             | 14             |                   | 2.02E-02          | 3.0E-02             | 1.86E-01    |
| Benzo(a)pyrene                 | 16             |                   | 1.10E-02          | 7.0E-02             | 4.39E-01    |
| Benzo(b)fluoranthene           | 22             |                   | 1.01E-02          | 7.0E-02             | 6.02E-01    |
| Benzo(ghi)pervlene             | 12             |                   | 5.70E-03          | 7.0E-02             | 3.26E-01    |
| Benzo(k)fluoranthene           | 23             |                   | 1.01E-02          | 8.0E-02             | 7.13E-01    |
| Butylbenzylphthalate           | 0.42           |                   | 7.15E-02          | 5.0E-02             | 9.59E-03    |
| Carbazole                      | 1.6            |                   | 2.74E-01          | 6.0E-02             | 5.68E-02    |
| Chrysene                       | 25             |                   | 1.87E-02          | 4.0E-02             | 4.21E-01    |
| Dibenz(a,h)anthracene          | 5              |                   | 6.40E-03          | 7.0E-02             | 1.36E-01    |
| Dibenzofuran                   | 0.356          |                   | 1.61E-01          | 5.0E-02             | 9.53E-03    |
| Fluoranthene                   | 24             |                   | 3.72E-02          | 7.0E-02             | 6.86E-01    |
| Fluorene                       | 0.645          |                   | 1.49E-01          | 7.0E-02             | 2.16E-02    |
| Indeno(1,2,3-cd)pyrene         | 12             |                   | 3.90E-03          | 8.0E-02             | 3.69E-01    |
| Naphthalene                    | 0.35           |                   | 4.20E-01          | 7.0E-02             | 1.60E-02    |
| Phenanthrene                   | 6.25           |                   | 1.02E-01          | 7.0E-02             | 1.97E-01    |
| Phenol                         | 0.315          |                   | 5.55E+00          | 1.1E-01             | 9.10E-02    |
| Pyrene                         | 17             |                   | 4.43E-02          | 7.0E-02             | 4.91E-01    |
| PCBs                           |                |                   | 11102 02          | 7.02 02             | ,1201       |
| Aroclor-1254                   | 0.067          |                   | 1.00E-02          | 1.1E+00             | 2.77E-02    |
| Aroclor-1260                   | 0.014          |                   | 1.00E-02          | 1.1E+00             | 5.78E-03    |
| Pesticides                     |                |                   |                   |                     |             |
| 4,4'-DDE                       | 0.0076         |                   | 9.37E-03          | 1.3E+00             | 3.48E-03    |
| Metals                         |                |                   |                   |                     |             |
| Aluminum                       |                | 2.05              | 4.00E-03          | 2.2E-01             | 3.10E-01    |
| Arsenic                        | 104            |                   | 3.60E-02          | 1.1E-01             | 4.48E+00    |
| Cadmium                        | 0.8            | 5.4E-04           | 3.64E-01          | 9.6E-01             | 2.94E-01    |
| Chromium                       | 83.9           | 0.006             | 7.50E-03          | 1.0E-02             | 4.55E-01    |
| Cobalt                         | 91.9           |                   | 8.10E-02          | 1.2E-01             | 4.54E+00    |
| Copper                         | 130            | 0.0112            | 4.00E-01          | 4.0E-02             | 4.40E+00    |
| Iron                           |                | 3.4               | 4.00E-03          | 2.2E-01             | 5.15E-01    |
| Lead                           | 93.3           | 0.0263            | 4.50E-02          | 3.0E-02             | 1.34E+00    |
| Manganese                      | 14,900         |                   | 2.50E-01          | 5.4E-02             | 4.80E+02    |
| Mercury                        | 0.18           |                   | 3.75E-02          | 4.0E-02             | 3.18E-03    |
| Nickel                         | 153            | 3.6E-03           | 3.20E-02          | 2.0E-02             | 1.55E+00    |
| Selenium                       | 18             | 2.45E-03          | 1.60E-02          | 2.2E-01             | 1.48E+00    |
| Silver                         | 10.5           |                   | 4.00E-01          | 2.2E-01             | 1.04E+00    |
| Thallium                       | 21.5           |                   | 4.00E-03          | 2.2E-01             | 1.76E+00    |
| Vanadium                       | 69.4           |                   | 5.50E-03          | 2.2E-01             | 5.67E+00    |
| Zinc                           | 532            | 0.190             | 1.20E-12          | 5.6E-01             | 1.09E+02    |

COPC = Chemical of Potential Concern

 $EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration$ 

 $BAF = Bioaccumulation \ Factor \ (unitless)$ 

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

 $Is = Soil \; dietary \; (kg \; dry/day)$ 

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-5B**

# AMERICAN ROBIN (*Turdus migratorius* ) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                           |            |                   | Soil-To-Plant     | Soil-To-Soil         | 1              |
|---------------------------|------------|-------------------|-------------------|----------------------|----------------|
|                           |            |                   | Uptake Factor     | Invertebrate BAF     | Amorican Dobin |
|                           | Ditch Soil |                   | (mg COPC/kg dry   | (mg COPC/kg wet      | Ditch Soil     |
|                           | EPC        | Surface Water EPC |                   | ` 0                  |                |
| CODG                      |            |                   | tissue)/(mg       | tissue)/(mg          | Exposure       |
| COPC                      | (mg/kg)    | (mg/L)            | COPC/kg dry soil) | COPC/kg dry soil)    | (mg/kg/day)    |
| Semivolatile Organic Comp |            |                   |                   |                      |                |
| Acenaphthene              | 0.74       |                   | 2.10E-01          | 7.00E-02             | 3.29E-02       |
| Acenaphthylene            | 0.42       |                   | 1.72E-01          | 7.00E-02             | 1.86E-02       |
| Anthracene                | 1.8        |                   | 1.04E-01          | 7.00E-02             | 7.89E-02       |
| Benzo(a)anthracene        | 14         |                   | 2.02E-02          | 3.00E-02             | 3.75E-01       |
| Benzo(a)pyrene            | 16         |                   | 1.10E-02          | 7.00E-02             | 6.92E-01       |
| Benzo(b)fluoranthene      | 22         |                   | 1.01E-02          | 7.00E-02             | 9.52E-01       |
| Benzo(ghi)perylene        | 12         |                   | 5.70E-03          | 7.00E-02             | 5.19E-01       |
| Benzo(k)fluoranthene      | 23         |                   | 1.01E-02          | 8.00E-02             | 1.09E+00       |
| Butylbenzylphthalate      | 0.42       |                   | 7.15E-02          | 5.00E-02             | 1.49E-02       |
| Carbazole                 | 1.6        |                   | 2.74E-01          | 6.00E-02             | 6.52E-02       |
| Chrysene                  | 25         |                   | 1.87E-02          | 4.00E-02             | 7.73E-01       |
| Dibenz(a,h)anthracene     | 5          |                   | 6.40E-03          | 7.00E-02             | 2.16E-01       |
| Dibenzofuran              | 0.3555     |                   | 1.61E-01          | 5.00E-02             | 1.28E-02       |
| Fluoranthene              | 24         |                   | 3.72E-02          | 7.00E-02             | 1.04E+00       |
| Fluorene                  | 0.645      |                   | 1.49E-01          | 7.00E-02             | 2.85E-02       |
| Indeno(1,2,3-cd)pyrene    | 12         |                   | 3.90E-03          | 8.00E-02             | 5.68E-01       |
| Naphthalene               | 0.35       |                   | 4.20E-01          | 7.00E-02             | 1.60E-02       |
| Phenanthrene              | 6.25       |                   | 1.02E-01          | 7.00E-02             | 2.74E-01       |
| Phenol                    | 0.315      |                   | 5.55E+00          | 1.10E-01             | 2.97E-02       |
| Pyrene                    | 17         |                   | 4.43E-02          | 7.00E-02             | 7.39E-01       |
| PCBs                      |            |                   | •                 |                      | •              |
| Aroclor-1254              | 0.067      |                   | 1.00E-02          | 1.13E+00             | 3.22E-02       |
| Aroclor-1260              | 0.014      |                   | 1.00E-02          | 1.13E+00             | 6.73E-03       |
| Pesticides                | •          |                   | •                 |                      | •              |
| 4,4'-DDE                  | 0.00755    |                   | 9.37E-03          | 1.26E+00             | 4.04E-03       |
| Metals                    | •          |                   |                   |                      | '              |
| Aluminum                  |            | 2.05              | 4.00E-03          | 2.20E-01             | 2.81E-01       |
| Arsenic                   | 104        |                   | 3.60E-02          | 1.10E-01             | 6.23E+00       |
| Cadmium                   | 0.8        | 5.4E-04           | 3.64E-01          | 9.60E-01             | 3.30E-01       |
| Chromium                  | 83.9       | 0.01              | 7.50E-03          | 1.00E-02             | 1.55E+00       |
| Cobalt                    | 91.9       | 0.02              | 8.10E-02          | 1.22E-01             | 5.99E+00       |
| Copper                    | 130        | 0.01              | 4.00E-01          | 4.00E-02             | 4.33E+00       |
| Iron                      |            | 3.4               | 4.00E-03          | 2.20E-01             | 4.67E-01       |
| Lead                      | 93         | 0.03              | 4.50E-02          | 3.00E-02             | 2.52E+00       |
| Manganese                 | 14,900     | 0.00              | 2.50E-01          | 5.40E-02             | 5.68E+02       |
| Mercury                   | 0.18       |                   | 3.75E-02          | 4.00E-02             | 5.59E-03       |
| Nickel                    | 153        | 3.6E-03           | 3.20E-02          | 2.00E-02             | 3.48E+00       |
| Selenium                  | 18         | 2.5E-03           | 1.60E-02          | 2.20E-01             | 1.89E+00       |
| Silver                    | 10.5       | 2.02.00           | 4.00E-01          | 2.20E-01             | 1.13E+00       |
| Thallium                  | 21.5       |                   | 4.00E-03          | 2.20E-01             | 2.26E+00       |
| Vanadium                  | 69.4       |                   | 5.50E-03          | 2.20E-01<br>2.20E-01 | 7.30E+00       |
| Zinc                      | 532        | 0.19              | 1.20E-12          | 5.60E-01             | 1.31E+02       |
| ZIIIC                     | 334        | 0.17              | 1.20E-12          | J.00E-01             | 1.51E±02       |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

 $BAF = Bioaccumulation \ Factor \ (unitless)$ 

 $SP = Soil \ to \ plant \ uptake \ factor \ (unitless)$ 

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

 $SP = Soil \ tp \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

 $IDF = Invertebrate\ dietary\ fraction\ \ (unitless)$ 

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-5C**

# Short-Tailed Shrew (*Blarina brevicauda* ) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                          | Soil-To-Soil                 |                          |  |   |   |   |  |
|--------------------------|------------------------------|--------------------------|--|---|---|---|--|
| СОРС                     | Ditch Soil<br>EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | Small Mammal BAF<br>(mg COPC/kg wet<br>tissue)/(mg COPC/kg<br>dry soil) | Short-Tailed<br>Shrew Ditch<br>Soil Exposure<br>(mg/kg/day) |  |
| Semivolatile Organic Com | , , ,                        | , ,                      |  |   | ,   | , 0 0 t/  |  |
| Acenaphthene             | 0.74                         |                          | 2.10E-01   | 7.00E-02  | 4.61E-04  | 3.89E-02  |  |
| Acenaphthylene           | 0.42                         |                          | 1.72E-01   | 7.00E-02  | 4.61E-04  | 2.20E-02  |  |
| Anthracene               | 1.8                          |                          | 1.04E-01   | 7.00E-02  | 4.61E-04  | 9.33E-02  |  |
| Benzo(a)anthracene       | 14                           |                          | 2.02E-02   | 3.00E-02  | 1.46E-04  | 4.18E-01  |  |
| Benzo(a)pyrene           | 16                           |                          | 1.10E-02   | 7.00E-02  | 4.61E-04  | 8.20E-01  |  |
| Benzo(b)fluoranthene     | 22                           |                          | 1.01E-02   | 7.00E-02  | 5.46E-04  | 1.13E+00  |  |
| Benzo(ghi)perylene       | 12                           |                          | 5.70E-03   | 7.00E-02  | 4.61E-04  | 6.14E-01  |  |
| Benzo(k)fluoranthene     | 23                           |                          | 1.01E-02   | 8.00E-02  | 5.43E-04  | 1.30E+00  |  |
| Butylbenzylphthalate     | 0.42                         |                          | 7.15E-02   | 5.00E-02  | 4.49E-01  | 2.66E-02  |  |
| Carbazole                | 1.6                          |                          | 2.74E-01   | 6.00E-02  | 6.29E-01  | 1.27E-01  |  |
| Chrysene                 | 25                           |                          | 1.87E-02   | 4.00E-02  | 1.88E-04  | 8.80E-01  |  |
| Dibenz(a,h)anthracene    | 5                            |                          | 6.40E-03   | 7.00E-02  | 1.21E-03  | 2.56E-01  |  |
| Dibenzofuran             | 0.3555                       |                          | 1.61E-01   | 5.00E-02  | 5.50E-01  | 2.46E-02  |  |
| Fluoranthene             | 24                           |                          | 3.72E-02   | 7.00E-02  | 4.61E-04  | 1.23E+00  |  |
| Fluorene                 | 0.645                        |                          | 1.49E-01   | 7.00E-02  | 4.61E-04  | 3.36E-02  |  |
| Indeno(1,2,3-cd)pyrene   | 12                           |                          | 3.90E-03   | 8.00E-02  | 2.82E-03  | 6.80E-01  |  |
| Naphthalene              | 0.35                         |                          | 4.20E-01   | 7.00E-02  | 4.61E-04  | 1.89E-02  |  |
| Phenanthrene             | 6.25                         |                          | 1.02E-01   | 7.00E-02  | 4.61E-04  | 3.24E-01  |  |
| Phenol                   | 0.315                        |                          | 5.55E+00   | 1.10E-01  | 1.34E+00  | 5.57E-02  |  |
| Pyrene                   | 17                           |                          | 4.43E-02   | 7.00E-02  | 4.61E-04  | 8.75E-01  |  |
| PCBs                     | •                            | •                        |  |   |   |   |  |
| Aroclor-1254             | 0.067                        |                          | 1.00E-02   | 1.13E+00  | 5.52E-04  | 4.15E-02  |  |
| Aroclor-1260             | 0.014                        |                          | 1.00E-02   | 1.13E+00  | 5.52E-04  | 8.68E-03  |  |
| Pesticides               | •                            | •                        |  |   |   |   |  |
| 4,4'-DDE                 | 0.00755                      |                          | 9.37E-03   | 1.26E+00  | 6.18E-04  | 5.21E-03  |  |
| Metals                   | •                            | •                        |  |   | •   |   |  |
| Aluminum                 |                              | 2.05                     | 4.00E-03   | 2.20E-01  | 1.50E-03  | 3.10E-01  |  |
| Arsenic                  | 104                          |                          | 3.60E-02   | 1.10E-01  | 2.00E-03  | 7.59E+00  |  |
| Cadmium                  | 0.8                          | 5.4E-04                  | 3.64E-01   | 9.60E-01  | 5.50E-04  | 4.25E-01  |  |
| Chromium                 | 83.9                         | 0.01                     | 7.50E-03   | 1.00E-02  | 5.50E-03  | 1.62E+00  |  |
| Cobalt                   | 91.9                         |                          | 8.10E-02   | 1.22E-01  | 2.00E-02  | 7.40E+00  |  |
| Copper                   | 130                          | 0.01                     | 4.00E-01   | 4.00E-02  | 1.00E-02  | 4.97E+00  |  |
| Iron                     |                              | 3.4                      | 4.00E-03   | 2.20E-01  | 2.00E-02  | 5.15E-01  |  |
| Lead                     | 93                           | 0.03                     | 4.50E-02   | 3.00E-02  | 3.00E-04  | 2.80E+00  |  |
| Manganese                | 14,900                       |                          | 2.50E-01   | 5.40E-02  | 4.00E-04  | 6.59E+02  |  |
| Mercury                  | 0.18                         |                          | 3.75E-02   | 4.00E-02  | 2.50E-01  | 8.61E-03  |  |
| Nickel                   | 153                          | 3.6E-03                  | 3.20E-02   | 2.00E-02  | 6.00E-03  | 3.80E+00  |  |
| Selenium                 | 18                           | 2.5E-03                  | 1.60E-02   | 2.20E-01  | 1.50E-02  | 2.38E+00  |  |
| Silver                   | 10.5                         |                          | 4.00E-01   | 2.20E-01  | 3.00E-03  | 1.41E+00  |  |
| Thallium                 | 21.5                         |                          | 4.00E-03   | 2.20E-01  | 4.00E-02  | 2.87E+00  |  |
| Vanadium                 | 69.4                         |                          | 5.50E-03   | 2.20E-01  | 2.50E-03  | 9.14E+00  |  |
| Zinc                     | 532                          | 0.19                     | 1.20E-12   | 5.60E-01  | 1.00E-01  | 1.70E+02  |  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

 $CF = Dry \ weight \ to \ wet \ weight \ plant \ matter \ conversion \ factor = 0.2 \ \ (unitless)$ 

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

 $Is = Soil \ dietary \ (kg/day)$ 

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-5D**

# MEADOW VOLE (*Microtus pennsylvanicus* ) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                           |            |                   | Soil-To-Plant Uptake | Soil-To-Soil        |             |
|---------------------------|------------|-------------------|----------------------|---------------------|-------------|
|                           |            |                   | Factor               | Invertebrate BAF    | Meadow Vole |
|                           | Ditch Soil |                   | (mg COPC/kg dry      | (mg COPC/kg wet     | Ditch Soil  |
|                           | EPC        | Surface Water EPC | tissue)/(mg COPC/kg  | tissue)/(mg COPC/kg | Exposure    |
| COPC                      | (mg/kg)    | (mg/L)            | dry soil)            | dry soil)           | (mg/kg/day) |
| Semivolatile Organic Comp | pounds     |                   |                      |                     |             |
| Acenaphthene              | 0.74       |                   | 2.10E-01             | 7.00E-02            | 6.67E-02    |
| Acenaphthylene            | 0.42       |                   | 1.72E-01             | 7.00E-02            | 3.65E-02    |
| Anthracene                | 1.8        |                   | 1.04E-01             | 7.00E-02            | 1.46E-01    |
| Benzo(a)anthracene        | 14         |                   | 2.02E-02             | 3.00E-02            | 1.03E+00    |
| Benzo(a)pyrene            | 16         |                   | 1.10E-02             | 7.00E-02            | 1.16E+00    |
| Benzo(b)fluoranthene      | 22         |                   | 1.01E-02             | 7.00E-02            | 1.60E+00    |
| Benzo(ghi)perylene        | 12         |                   | 5.70E-03             | 7.00E-02            | 8.68E-01    |
| Benzo(k)fluoranthene      | 23         |                   | 1.01E-02             | 8.00E-02            | 1.67E+00    |
| Butylbenzylphthalate      | 0.42       |                   | 7.15E-02             | 5.00E-02            | 3.28E-02    |
| Carbazole                 | 1.6        |                   | 2.74E-01             | 6.00E-02            | 1.53E-01    |
| Chrysene                  | 25         |                   | 1.87E-02             | 4.00E-02            | 1.84E+00    |
| Dibenz(a,h)anthracene     | 5          |                   | 6.40E-03             | 7.00E-02            | 3.62E-01    |
| Dibenzofuran              | 0.3555     |                   | 1.61E-01             | 5.00E-02            | 3.05E-02    |
| Fluoranthene              | 24         |                   | 3.72E-02             | 7.00E-02            | 1.80E+00    |
| Fluorene                  | 0.645      |                   | 1.49E-01             | 7.00E-02            | 5.47E-02    |
| Indeno(1,2,3-cd)pyrene    | 12         |                   | 3.90E-03             | 8.00E-02            | 8.66E-01    |
| Naphthalene               | 0.35       |                   | 4.20E-01             | 7.00E-02            | 3.80E-02    |
| Phenanthrene              | 6.25       |                   | 1.02E-01             | 7.00E-02            | 5.04E-01    |
| Phenol                    | 0.315      |                   | 5.55E+00             | 1.10E-01            | 1.76E-01    |
| Pyrene                    | 17         |                   | 4.43E-02             | 7.00E-02            | 1.29E+00    |
| PCBs                      |            |                   |                      |                     |             |
| Aroclor-1254              | 0.067      |                   | 1.00E-02             | 1.13E+00            | 4.87E-03    |
| Aroclor-1260              | 0.014      |                   | 1.00E-02             | 1.13E+00            | 1.02E-03    |
| Pesticides                | •          |                   | •                    |                     |             |
| 4,4'-DDE                  | 0.00755    |                   | 9.37E-03             | 1.26E+00            | 5.48E-04    |
| Metals                    |            |                   | •                    |                     |             |
| Aluminum                  |            | 2.05              | 4.00E-03             | 2.20E-01            | 4.31E-01    |
| Arsenic                   | 104        |                   | 3.60E-02             | 1.10E-01            | 7.79E+00    |
| Cadmium                   | 0.8        | 5.4E-04           | 3.64E-01             | 9.60E-01            | 8.30E-02    |
| Chromium                  | 83.9       | 0.01              | 7.50E-03             | 1.00E-02            | 6.08E+00    |
| Cobalt                    | 91.9       |                   | 8.10E-02             | 1.22E-01            | 7.25E+00    |
| Copper                    | 130        | 0.01              | 4.00E-01             | 4.00E-02            | 1.39E+01    |
| Iron                      |            | 3.4               | 4.00E-03             | 2.20E-01            | 7.16E-01    |
| Lead                      | 93         | 0.03              | 4.50E-02             | 3.00E-02            | 7.07E+00    |
| Manganese                 | 14,900     |                   | 2.50E-01             | 5.40E-02            | 1.40E+03    |
| Mercury                   | 0.18       |                   | 3.75E-02             | 4.00E-02            | 1.35E-02    |
| Nickel                    | 153        | 3.6E-03           | 3.20E-02             | 2.00E-02            | 1.14E+01    |
| Selenium                  | 18         | 2.5E-03           | 1.60E-02             | 2.20E-01            | 1.32E+00    |
| Silver                    | 10.5       |                   | 4.00E-01             | 2.20E-01            | 1.12E+00    |
| Thallium                  | 21.5       |                   | 4.00E-03             | 2.20E-01            | 1.55E+00    |
| Vanadium                  | 69.4       |                   | 5.50E-03             | 2.20E-01            | 5.02E+00    |
| Zinc                      | 532        | 0.19              | 1.20E-12             | 5.60E-01            | 3.82E+01    |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

 $BAF = Bioaccumulation \ Factor \ (unitless)$ 

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

 $Cs = Soil\ concentration\ (mg/kg)$ 

 $SP = Soil \ tp \ plant \ uptake \ factor \ from \ literature$ 

 $CF = Dry \ weight \ to \ wet \ weight \ plant \ matter \ conversion \ factor = 0.2 \ \ (unitless)$ 

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

 $WR = Water\ intake\ rate\ (L/day)$ 

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-5E**

#### RED FOX (Vulpes vulpes) Exposure - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

|                          |            |                   | Soil-To-Plant   | Soil-To-Soil        |                     |               |
|--------------------------|------------|-------------------|-----------------|---------------------|---------------------|---------------|
|                          |            |                   | (mg COPC/kg     | Invertebrate BAF    | Small Mammal BAF    |               |
|                          | Ditch Soil |                   | dry tissue)/(mg | (mg COPC/kg wet     | (mg COPC/kg wet     | Red Fox Ditch |
|                          | EPC        | Surface Water EPC |                 | tissue)/(mg COPC/kg | tissue)/(mg COPC/kg | Soil Exposure |
| COPC                     | (mg/kg)    | (mg/L)            | soil)           | dry soil)           | dry soil)           | (mg/kg/day)   |
| Semivolatile Organic Com |            | , b /             |                 |                     |                     |               |
| Acenaphthene             | 0.74       |                   | 2.10E-01        | 7.00E-02            | 4.61E-04            | 2.12E-03      |
| Acenaphthylene           | 0.42       |                   | 1.72E-01        | 7.00E-02            | 4.61E-04            | 1.17E-03      |
| Anthracene               | 1.8        |                   | 1.04E-01        | 7.00E-02            | 4.61E-04            | 4.72E-03      |
| Benzo(a)anthracene       | 14         |                   | 2.02E-02        | 3.00E-02            | 1.46E-04            | 2.69E-02      |
| Benzo(a)pyrene           | 16         |                   | 1.10E-02        | 7.00E-02            | 4.61E-04            | 3.84E-02      |
| Benzo(b)fluoranthene     | 22         |                   | 1.01E-02        | 7.00E-02            | 5.46E-04            | 5.31E-02      |
| Benzo(ghi)perylene       | 12         |                   | 5.70E-03        | 7.00E-02            | 4.61E-04            | 2.87E-02      |
| Benzo(k)fluoranthene     | 23         |                   | 1.01E-02        | 8.00E-02            | 5.43E-04            | 5.81E-02      |
| Butylbenzylphthalate     | 0.42       |                   | 7.15E-02        | 5.00E-02            | 4.49E-01            | 2.82E-02      |
| Carbazole                | 1.6        |                   | 2.74E-01        | 6.00E-02            | 6.29E-01            | 1.50E-01      |
| Chrysene                 | 25         |                   | 1.87E-02        | 4.00E-02            | 1.88E-04            | 5.10E-02      |
| Dibenz(a,h)anthracene    | 5          |                   | 6.40E-03        | 7.00E-02            | 1.21E-03            | 1.25E-02      |
| Dibenzofuran             | 0.3555     |                   | 1.61E-01        | 5.00E-02            | 5.50E-01            | 2.92E-02      |
| Fluoranthene             | 24         |                   | 3.72E-02        | 7.00E-02            | 4.61E-04            | 5.91E-02      |
| Fluorene                 | 0.645      |                   | 1.49E-01        | 7.00E-02            | 4.61E-04            | 1.76E-03      |
| Indeno(1,2,3-cd)pyrene   | 12         |                   | 3.90E-03        | 8.00E-02            | 2.82E-03            | 3.41E-02      |
| Naphthalene              | 0.35       |                   | 4.20E-01        | 7.00E-02            | 4.61E-04            | 1.18E-03      |
| Phenanthrene             | 6.25       |                   | 1.02E-01        | 7.00E-02            | 4.61E-04            | 1.64E-02      |
| Phenol                   | 0.315      |                   | 5.55E+00        | 1.10E-01            | 1.34E+00            | 6.60E-02      |
| Pyrene                   | 17         |                   | 4.43E-02        | 7.00E-02            | 4.61E-04            | 4.22E-02      |
| PCBs                     |            |                   |                 |                     |                     |               |
| Aroclor-1254             | 0.067      |                   | 1.00E-02        | 1.13E+00            | 5.52E-04            | 9.73E-04      |
| Aroclor-1260             | 0.014      |                   | 1.00E-02        | 1.13E+00            | 5.52E-04            | 2.03E-04      |
| Pesticides               |            |                   |                 |                     |                     |               |
| 4,4'-DDE                 | 0.00755    |                   | 9.37E-03        | 1.26E+00            | 6.18E-04            | 1.21E-04      |
| Metals                   |            |                   |                 |                     |                     |               |
| Aluminum                 |            | 2.05              | 4.00E-03        | 2.20E-01            | 1.50E-03            | 1.77E-01      |
| Arsenic                  | 104        |                   | 3.60E-02        | 1.10E-01            | 2.00E-03            | 3.27E-01      |
| Cadmium                  | 0.8        | 5.4E-04           | 3.64E-01        | 9.60E-01            | 5.50E-04            | 1.08E-02      |
| Chromium                 | 83.9       | 0.01              | 7.50E-03        | 1.00E-02            | 5.50E-03            | 2.05E-01      |
| Cobalt                   | 91.9       |                   | 8.10E-02        | 1.22E-01            | 2.00E-02            | 5.51E-01      |
| Copper                   | 130        | 0.01              | 4.00E-01        | 4.00E-02            | 1.00E-02            | 5.67E-01      |
| Iron                     |            | 3.4               | 4.00E-03        | 2.20E-01            | 2.00E-02            | 2.94E-01      |
| Lead                     | 93         | 0.03              | 4.50E-02        | 3.00E-02            | 3.00E-04            | 1.89E-01      |
| Manganese                | 14,900     |                   | 2.50E-01        | 5.40E-02            | 4.00E-04            | 4.13E+01      |
| Mercury                  | 0.18       |                   | 3.75E-02        | 4.00E-02            | 2.50E-01            | 6.89E-03      |
| Nickel                   | 153        | 3.6E-03           | 3.20E-02        | 2.00E-02            | 6.00E-03            | 4.11E-01      |
| Selenium                 | 18         | 2.5E-03           | 1.60E-02        | 2.20E-01            | 1.50E-02            | 1.12E-01      |
| Silver                   | 10.5       |                   | 4.00E-01        | 2.20E-01            | 3.00E-03            | 5.67E-02      |
| Thallium                 | 21.5       |                   | 4.00E-03        | 2.20E-01            | 4.00E-02            | 2.11E-01      |
| Vanadium                 | 69.4       | 0.10              | 5.50E-03        | 2.20E-01            | 2.50E-03            | 3.05E-01      |
| Zinc                     | 532        | 0.19              | 1.20E-12        | 5.60E-01            | 1.00E-01            | 1.19E+01      |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \quad \text{Exposure} = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

 $Is = Soil \; dietary \; (kg \; dry/day)$ 

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### TABLE G-5F

# GREAT BLUE HERON (Ardea herodias) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС                       | Ditch Soil<br>EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | (mg COPC/kg | Soil-To-Invertebrate<br>BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Great Blue Heron<br>Ditch Soil and<br>Surface Water<br>Exposure<br>(mg/kg/day) |
|----------------------------|------------------------------|-----------------------------|-------------|--|---|--|
| Semivolatile Organic Compo | ounds                        |                             |             |  |   |  |
| Acenaphthene               | 0.74                         |                             | 2.10E-01    | 7.00E-02   | 4.61E-04  | 6.76E-03   |
| Acenaphthylene             | 0.42                         |                             | 1.72E-01    | 7.00E-02   | 4.61E-04  | 3.84E-03   |
| Anthracene                 | 1.8                          |                             | 1.04E-01    | 7.00E-02   | 4.61E-04  | 1.64E-02   |
| Benzo(a)anthracene         | 14                           |                             | 2.02E-02    | 3.00E-02   | 1.46E-04  | 1.25E-01   |
| Benzo(a)pyrene             | 16                           |                             | 1.10E-02    | 7.00E-02   | 4.61E-04  | 1.46E-01   |
| Benzo(b)fluoranthene       | 22                           |                             | 1.01E-02    | 7.00E-02   | 5.46E-04  | 2.01E-01   |
| Benzo(ghi)perylene         | 12                           |                             | 5.70E-03    | 7.00E-02   | 4.61E-04  | 1.10E-01   |
| Benzo(k)fluoranthene       | 23                           |                             | 1.01E-02    | 8.00E-02   | 5.43E-04  | 2.11E-01   |
| Butylbenzylphthalate       | 0.42                         |                             | 7.15E-02    | 5.00E-02   | 4.49E-01  | 3.70E-02   |
| Carbazole                  | 1.6                          |                             | 2.74E-01    | 6.00E-02   | 6.29E-01  | 1.92E-01   |
| Chrysene                   | 25                           |                             | 1.87E-02    | 4.00E-02   | 1.88E-04  | 2.24E-01   |
| Dibenz(a,h)anthracene      | 5                            |                             | 6.40E-03    | 7.00E-02   | 1.21E-03  | 4.63E-02   |
| Dibenzofuran               | 0.3555                       |                             | 1.61E-01    | 5.00E-02   | 5.50E-01  | 3.77E-02   |
| Fluoranthene               | 24                           |                             | 3.72E-02    | 7.00E-02   | 4.61E-04  | 2.19E-01   |
| Fluorene                   | 0.645                        |                             | 1.49E-01    | 7.00E-02   | 4.61E-04  | 5.89E-03   |
| Indeno(1,2,3-cd)pyrene     | 12                           |                             | 3.90E-03    | 8.00E-02   | 2.82E-03  | 1.15E-01   |
| Naphthalene                | 0.35                         |                             | 4.20E-01    | 7.00E-02   | 4.61E-04  | 3.20E-03   |
| Phenanthrene               | 6.25                         |                             | 1.02E-01    | 7.00E-02   | 4.61E-04  | 5.71E-02   |
| Phenol                     | 0.315                        |                             | 5.55E+00    | 1.10E-01   | 1.34E+00  | 7.72E-02   |
| Pyrene                     | 17                           |                             | 4.43E-02    | 7.00E-02   | 4.61E-04  | 1.55E-01   |
| PCBs                       |                              |                             |             |  |   |  |
| Aroclor-1254               | 0.067                        |                             | 1.00E-02    | 1.13E+00   | 5.52E-04  | 8.69E-04   |
| Aroclor-1260               | 0.014                        |                             | 1.00E-02    | 1.13E+00   | 5.52E-04  | 1.81E-04   |
| Pesticides                 |                              |                             |             |  |   |  |
| 4,4'-DDE                   | 0.00755                      |                             | 9.37E-03    | 1.26E+00   | 6.18E-04  | 1.01E-04   |
| Metals                     |                              |                             |             |  |   |  |
| Aluminum                   |                              | 2.05                        | 4.00E-03    | 2.20E-01   | 1.50E-03  | 9.23E-02   |
| Arsenic                    | 104                          |                             | 3.60E-02    | 1.10E-01   | 2.00E-03  | 9.93E-01   |
| Cadmium                    | 0.8                          | 5.4E-04                     | 3.64E-01    | 9.60E-01   | 5.50E-04  | 9.91E-03   |
| Chromium                   | 83.9                         | 0.01                        | 7.50E-03    | 1.00E-02   | 5.50E-03  | 8.23E-01   |
| Cobalt                     | 91.9                         | -                           | 8.10E-02    | 1.22E-01   | 2.00E-02  | 1.17E+00   |
| Copper                     | 130                          | 0.01                        | 4.00E-01    | 4.00E-02   | 1.00E-02  | 1.39E+00   |
| Iron                       |                              | 3.4                         | 4.00E-03    | 2.20E-01   | 2.00E-02  | 1.53E-01   |
| Lead                       | 93                           | 0.03                        | 4.50E-02    | 3.00E-02   | 3.00E-04  | 8.37E-01   |
| Manganese                  | 14,900                       |                             | 2.50E-01    | 5.40E-02   | 4.00E-04  | 1.35E+02   |
| Mercury                    | 0.18                         |                             | 3.75E-02    | 4.00E-02   | 2.50E-01  | 9.55E-03   |
| Nickel                     | 153                          | 3.6E-03                     | 3.20E-02    | 2.00E-02   | 6.00E-03  | 1.52E+00   |
| Selenium                   | 18                           | 2.5E-03                     | 1.60E-02    | 2.20E-01   | 1.50E-02  | 2.20E-01   |
| Silver                     | 10.5                         |                             | 4.00E-01    | 2.20E-01   | 3.00E-03  | 1.06E-01   |
| Thallium                   | 21.5                         |                             | 4.00E-03    | 2.20E-01   | 4.00E-02  | 3.58E-01   |
| Vanadium                   | 69.4                         |                             | 5.50E-03    | 2.20E-01   | 2.50E-03  | 6.96E-01   |
| Zinc                       | 532                          | 0.19                        | 1.20E-12    | 5.60E-01   | 1.00E-01  | 1.51E+01   |

COPC = Chemical of Potential Concern

 $EPC = Exposure\ Point\ Concentration,\ the\ maximum\ detected\ concentration$ 

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR)$ 

Cs = Soil concentration (mg/kg)

 $SP = Soil \ to \ plant \ uptake \ factor \ from \ literature$ 

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-6A DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

| СОРС                           | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Total Soil<br>(0-4 ft bgs) EPC<br>(mg/kg) | Surface Water EPC (mg/L) | SP (mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry soil) | Terrestrial<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Deer Mouse<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Deer Mouse<br>Total Soil Exposure<br>(mg/kg/day) |
|--------------------------------|---|---|--------------------------|--|--|---|--|
| Volatile Organic Compounds     |   |   |                          |  |  |   |  |
| Meta/Para Xylene               | 0.11  | 2.4                                       |                          | 5.48E-01   | 2.4E-01  | 1.26E-02  | 2.72E-01   |
| Semivolatile Organic Compounds |   |   |                          |  |  |   |  |
| Phenanthrene                   | 1.3   | 0.95                                      |                          | 1.02E-01   | 7.0E-02  | 3.97E-02  | 2.98E-02   |
| Pyrene                         | 1.9   | 1.4                                       |                          | 4.43E-02   | 7.0E-02  | 5.58E-02  | 4.14E-02   |
| PCBs                           |   |   |                          |  |  |   |  |
| Aroclor-1254                   | 0.06  | 0.04                                      |                          | 1.00E-02   | 1.1E+00  | 2.28E-02  | 1.74E-02   |
| Pesticides                     |   |   |                          |  |  |   |  |
| 4,4'-DDT                       | 0.01  | 0.01                                      |                          | 9.37E-03   | 1.3E+00  | 2.99E-03  | 2.48E-03   |
| Metals                         |   |   |                          |  |  |   | •  |
| Antimony                       | 10  | 7.5                                       |                          | 2.00E-01   | 2.2E-01  | 9.22E-01  | 6.80E-01   |
| Barium                         | 231   | 199                                       |                          | 1.50E-01   | 9.1E-02  | 9.53E+00  | 8.23E+00   |
| Cadmium                        | 4.1   | 3.0                                       | 0.0195                   | 3.64E-01   | 9.6E-01  | 1.50E+00  | 1.11E+00   |
| Copper                         | 515   | 408                                       | 1.16                     | 4.00E-01   | 4.0E-02  | 1.76E+01  | 1.40E+01   |
| Lead                           | 735   | 550                                       | 0.839                    | 4.50E-02   | 3.0E-02  | 1.07E+01  | 8.03E+00   |
| Silver                         | 1.6   | 1.2                                       | 0.008                    | 4.00E-01   | 2.2E-01  | 1.61E-01  | 1.21E-01   |
| Thallium                       | 0.4   | 0.4                                       |                          | 4.00E-03   | 2.2E-01  | 3.10E-02  | 3.18E-02   |
| Zinc                           | 450   | 355                                       | 6.91                     | 1.20E-12   | 5.6E-01  | 9.35E+01  | 7.40E+01   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-6B**

## AMERICAN ROBIN (Turdus migratorius ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                       | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Total Soil<br>(0-4 ft bgs) EPC<br>(mg/kg) | Surface Water EPC<br>(mg/L) | Soil-To-Plant<br>Uptake Factor<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | American Robin<br>Surface Soil<br>Exposure<br>(mg/kg/day) | American Robin<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|----------------------------|---|---|-----------------------------|--|---|---|---|
| Volatile Organic Compounds |   |   |                             |  |   |   |   |
| Meta/Para Xylene           | 0.11  | 2.4                                       |                             | 5.48E-01   | 2.40E-01  | 1.30E-02  | 2.80E-01  |
| Semivolatile Organic Compo |   |   |                             |  |   |   |   |
| Phenanthrene               | 1.3   | 0.95                                      |                             | 1.02E-01   | 7.00E-02  | 5.53E-02  | 4.15E-02  |
| Pyrene                     | 1.9   | 1.4                                       |                             | 4.43E-02   | 7.00E-02  | 8.39E-02  | 6.23E-02  |
| PCBs                       |   |   |                             |  |   |   |   |
| Aroclor-1254               | 0.06  | 0.04                                      |                             | 1.00E-02   | 1.13E+00  | 2.65E-02  | 2.03E-02  |
| Pesticides                 |   |   |                             |  |   |   |   |
| 4,4'-DDT                   | 0.01  | 0.01                                      |                             | 9.37E-03   | 1.26E+00  | 3.48E-03  | 2.88E-03  |
| Metals                     |   |   |                             |  |   |   |   |
| Antimony                   | 10  | 7.5                                       |                             | 2.00E-01   | 2.20E-01  | 1.08E+00  | 8.00E-01  |
| Barium                     | 231   | 199                                       |                             | 1.50E-01   | 9.10E-02  | 1.22E+01  | 1.05E+01  |
| Cadmium                    | 4.1   | 3.0                                       | 0.0195                      | 3.64E-01   | 9.60E-01  | 1.69E+00  | 1.25E+00  |
| Copper                     | 515   | 408                                       | 1.16                        | 4.00E-01   | 4.00E-02  | 1.73E+01  | 1.37E+01  |
| Lead                       | 735   | 550                                       | 0.839                       | 4.50E-02   | 3.00E-02  | 1.99E+01  | 1.50E+01  |
| Silver                     | 1.6   | 1.2                                       | 0.008                       | 4.00E-01   | 2.20E-01  | 1.74E-01  | 1.31E-01  |
| Thallium                   | 0.4   | 0.4                                       |                             | 4.00E-03   | 2.20E-01  | 3.99E-02  | 4.09E-02  |
| Zinc                       | 450   | 355                                       | 6.91                        | 1.20E-12   | 5.60E-01  | 1.12E+02  | 8.82E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-6C**

## SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                        | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Total Soil<br>(0-4 ft bgs) EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg<br>dry tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate BAF<br>(mg COPC/kg wet<br>tissue)/(mg<br>COPC/kg dry soil) | Small Mammal<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Short-Tailed<br>Shrew Surface<br>Soil Exposure<br>(mg/kg/day) | Short-Tailed Shrew<br>Total Soil Exposure<br>(mg/kg/day) |
|-----------------------------|---|---|--------------------------|---|---|---|---|--|
| Volatile Organic Compounds  | · · · · · · · · · · · · · · · · · · ·       |   |                          |   | 8 , /   |   | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \                         | ( 8 8 47   |
| Meta/Para Xylene            | 0.11  | 2.4                                       |                          | 5.48E-01  | 2.40E-01  | 7.48E-01  | 2.05E-02  | 4.41E-01   |
| Semivolatile Organic Compou | nds   |   |                          |   |   |   |   |  |
| Phenanthrene                | 1.3   | 0.95                                      |                          | 1.02E-01  | 7.00E-02  | 4.61E-04  | 6.54E-02  | 4.91E-02   |
| Pyrene                      | 1.9   | 1.4                                       |                          | 4.43E-02  | 7.00E-02  | 4.61E-04  | 9.93E-02  | 7.37E-02   |
| PCBs                        |   |   |                          |   |   |   |   |  |
| Aroclor-1254                | 0.06  | 0.04                                      |                          | 1.00E-02  | 1.13E+00  | 5.52E-04  | 3.42E-02  | 2.61E-02   |
| Pesticides                  |   |   |                          |   |   |   |   |  |
| 4,4'-DDT                    | 0.01  | 0.01                                      |                          | 9.37E-03  | 1.26E+00  | 6.18E-04  | 4.48E-03  | 3.72E-03   |
| Metals                      |   |   |                          |   |   |   |   |  |
| Antimony                    | 10  | 7.5                                       |                          | 2.00E-01  | 2.20E-01  | 1.00E-03  | 1.36E+00  | 1.00E+00   |
| Barium                      | 231   | 199                                       |                          | 1.50E-01  | 9.10E-02  | 1.50E-04  | 1.47E+01  | 1.27E+01   |
| Cadmium                     | 4.1   | 3.0                                       | 0.0195                   | 3.64E-01  | 9.60E-01  | 5.50E-04  | 2.17E+00  | 1.61E+00   |
| Copper                      | 515   | 408                                       | 1.16                     | 4.00E-01  | 4.00E-02  | 1.00E-02  | 1.99E+01  | 1.58E+01   |
| Lead                        | 735   | 550                                       | 0.839                    | 4.50E-02  | 3.00E-02  | 3.00E-04  | 2.22E+01  | 1.66E+01   |
| Silver                      | 1.6   | 1.2                                       | 0.008                    | 4.00E-01  | 2.20E-01  | 3.00E-03  | 2.17E-01  | 1.63E-01   |
| Thallium                    | 0.4   | 0.4                                       |                          | 4.00E-03  | 2.20E-01  | 4.00E-02  | 5.07E-02  | 5.19E-02   |
| Zinc                        | 450   | 355                                       | 6.91                     | 1.20E-12  | 5.60E-01  | 1.00E-01  | 1.45E+02  | 1.14E+02   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-6D**

## MEADOW VOLE (*Microtus pennsylvanicus* ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                       | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Total Soil<br>(0-4 ft bgs) EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>Uptake Factor<br>(mg COPC/kg dry<br>tissue)/(mg<br>COPC/kg dry<br>soil) | Soil-To-Soil<br>Invertebrate<br>BAF<br>(mg COPC/kg<br>wet tissue)/(mg<br>COPC/kg dry<br>soil) | Meadow Vole<br>Surface Soil<br>Exposure<br>(mg/kg/day) | Meadow Vole<br>Total Soil<br>Exposure<br>(mg/kg/day) |
|----------------------------|---|---|--------------------------|--|---|--|--|
| Volatile Organic Compounds |   |   |                          |  |   |  |  |
| Meta/Para Xylene           | 0.11  | 2.4                                       |                          | 5.48E-01   | 2.40E-01  | 1.33E-02   | 2.87E-01   |
| Semivolatile Organic Compo | unds  |   |                          | •  |   |  |  |
| Phenanthrene               | 1.3   | 0.95                                      |                          | 1.02E-01   | 7.00E-02  | 1.02E-01   | 7.64E-02   |
| Pyrene                     | 1.9   | 1.4                                       |                          | 4.43E-02   | 7.00E-02  | 1.46E-01   | 1.08E-01   |
| PCBs                       |   |   |                          | •  |   |  |  |
| Aroclor-1254               | 0.06  | 0.04                                      |                          | 1.00E-02   | 1.13E+00  | 4.01E-03   | 3.07E-03   |
| Pesticides                 |   |   |                          | •  |   |  |  |
| 4,4'-DDT                   | 0.01  | 0.01                                      |                          | 9.37E-03   | 1.26E+00  | 4.72E-04   | 3.92E-04   |
| Metals                     |   |   |                          | •  |   |  |  |
| Antimony                   | 10  | 7.5                                       |                          | 2.00E-01   | 2.20E-01  | 9.10E-01   | 6.71E-01   |
| Barium                     | 231   | 199                                       |                          | 1.50E-01   | 9.10E-02  | 1.96E+01   | 1.69E+01   |
| Cadmium                    | 4.1   | 3.0                                       | 0.0195                   | 3.64E-01   | 9.60E-01  | 4.28E-01   | 3.17E-01   |
| Copper                     | 515   | 408                                       | 1.16                     | 4.00E-01   | 4.00E-02  | 5.53E+01   | 4.38E+01   |
| Lead                       | 735   | 550                                       | 0.839                    | 4.50E-02   | 3.00E-02  | 5.58E+01   | 4.19E+01   |
| Silver                     | 1.6   | 1.2                                       | 0.008                    | 4.00E-01   | 2.20E-01  | 1.74E-01   | 1.30E-01   |
| Thallium                   | 0.4   | 0.4                                       |                          | 4.00E-03   | 2.20E-01  | 2.74E-02   | 2.80E-02   |
| Zinc                       | 450   | 355                                       | 6.91                     | 1.20E-12   | 5.60E-01  | 3.38E+01   | 2.70E+01   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

## TABLE G-6E RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

|                             |                  |                  |               |                 |                   | Small Mammal    |              |                    |
|-----------------------------|------------------|------------------|---------------|-----------------|-------------------|-----------------|--------------|--------------------|
|                             |                  |                  |               | Soil-To-Plant   | Soil-To-Soil      | BAF             | B 15         |                    |
|                             |                  |                  |               | (mg COPC/kg     | Invertebrate BAF  | (mg COPC/kg     | Red Fox      |                    |
|                             | Surface Soil     | Total Soil       |               | dry tissue)/(mg | (mg COPC/kg wet   | wet tissue)/(mg | Surface Soil | Red Fox Total Soil |
|                             | (0-2 ft bgs) EPC | (0-4 ft bgs) EPC | Surface Water | COPC/kg dry     | tissue)/(mg       | COPC/kg dry     | Exposure     | Exposure           |
| COPC                        | (mg/kg)          | (mg/kg)          | EPC (mg/L)    | soil)           | COPC/kg dry soil) | soil)           | (mg/kg/day)  | (mg/kg/day)        |
| Volatile Organic Compounds  |                  |                  |               |                 |                   |                 |              |                    |
| Meta/Para Xylene            | 0.11             | 2.4              |               | 5.48E-01        | 2.40E-01          | 7.48E-01        | 1.27E-02     | 2.73E-01           |
| Semivolatile Organic Compou | ınds             |                  |               |                 |                   |                 |              |                    |
| Phenanthrene                | 1.3              | 0.95             |               | 1.02E-01        | 7.00E-02          | 4.61E-04        | 3.30E-03     | 2.48E-03           |
| Pyrene                      | 1.9              | 1.4              |               | 4.43E-02        | 7.00E-02          | 4.61E-04        | 4.79E-03     | 3.55E-03           |
| PCBs                        |                  |                  |               |                 |                   |                 |              |                    |
| Aroclor-1254                | 0.06             | 0.04             |               | 1.00E-02        | 1.13E+00          | 5.52E-04        | 8.01E-04     | 6.13E-04           |
| Pesticides                  |                  |                  |               |                 |                   |                 |              |                    |
| 4,4'-DDT                    | 0.01             | 0.01             |               | 9.37E-03        | 1.26E+00          | 6.18E-04        | 1.04E-04     | 8.64E-05           |
| Metals                      |                  |                  |               |                 |                   |                 |              |                    |
| Antimony                    | 10               | 7.5              |               | 2.00E-01        | 2.20E-01          | 1.00E-03        | 4.73E-02     | 3.49E-02           |
| Barium                      | 231              | 199              |               | 1.50E-01        | 9.10E-02          | 1.50E-04        | 6.76E-01     | 5.83E-01           |
| Cadmium                     | 4.1              | 3.0              | 0.0195        | 3.64E-01        | 9.60E-01          | 5.50E-04        | 5.65E-02     | 4.22E-02           |
| Copper                      | 515              | 408              | 1.16          | 4.00E-01        | 4.00E-02          | 1.00E-02        | 2.35E+00     | 1.88E+00           |
| Lead                        | 735              | 550              | 0.839         | 4.50E-02        | 3.00E-02          | 3.00E-04        | 1.54E+00     | 1.17E+00           |
| Silver                      | 1.6              | 1.2              | 0.008         | 4.00E-01        | 2.20E-01          | 3.00E-03        | 9.38E-03     | 7.18E-03           |
| Thallium                    | 0.4              | 0.4              |               | 4.00E-03        | 2.20E-01          | 4.00E-02        | 3.73E-03     | 3.82E-03           |
| Zinc                        | 450              | 355              | 6.91          | 1.20E-12        | 5.60E-01          | 1.00E-01        | 1.07E+01     | 8.55E+00           |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7A**

## DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil EPC (mg/kg) | Surface Water EPC (mg/L) | SP (mg COPC/kg dry<br>tissue)/(mg COPC/kg<br>dry soil) | Terrestrial Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Deer Mouse<br>Ditch Soil<br>Exposure<br>(mg/kg/day) |
|----------|------------------------|--------------------------|--|---|---|
| Metals   |                        |                          |  |   |   |
| Aluminum |                        | 8.76                     | 4.00E-03   | 2.2E-01   | 1.32E+00  |
| Antimony | 2.3                    |                          | 2.00E-01   | 2.2E-01   | 2.12E-01  |
| Cadmium  | 2.8                    | 0.0195                   | 3.64E-01   | 9.6E-01   | 1.02E+00  |
| Copper   | 177                    | 1.16                     | 4.00E-01   | 4.0E-02   | 6.15E+00  |
| Cyanide  | 0.83                   |                          | 1.00E+00   | 1.1E+00   | 3.78E-01  |
| Iron     |                        | 110                      | 4.00E-03   | 2.2E-01   | 1.66E+01  |
| Lead     | 144                    | 0.839                    | 4.50E-02   | 3.0E-02   | 2.20E+00  |
| Selenium | 1.0                    | 0.0046                   | 1.60E-02   | 2.2E-01   | 8.50E-02  |
| Zinc     | 291                    | 6.91                     | 1.20E-12   | 5.6E-01   | 6.08E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7B**

## AMERICAN ROBIN (*Turdus migratorius* ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | American Robin<br>Ditch Soil Exposure<br>(mg/kg/day) |
|----------|---------------------------|--------------------------|--|--|--|
| Metals   |                           |                          |  |  |  |
| Aluminum |                           | 8.76                     | 4.00E-03   | 2.20E-01   | 1.20E+00   |
| Antimony | 2.3                       |                          | 2.00E-01   | 2.20E-01   | 2.49E-01   |
| Cadmium  | 2.8                       | 0.0195                   | 3.64E-01   | 9.60E-01   | 1.14E+00   |
| Copper   | 177                       | 1.16                     | 4.00E-01   | 4.00E-02   | 6.04E+00   |
| Cyanide  | 0.83                      |                          | 1.00E+00   | 1.12E+00   | 4.02E-01   |
| Iron     |                           | 110                      | 4.00E-03   | 2.20E-01   | 1.51E+01   |
| Lead     | 144                       | 0.839                    | 4.50E-02   | 3.00E-02   | 4.00E+00   |
| Selenium | 1.0                       | 0.0046                   | 1.60E-02   | 2.20E-01   | 1.09E-01   |
| Zinc     | 291                       | 6.91                     | 1.20E-12   | 5.60E-01   | 7.24E+01   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7C**

## SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Short-Tailed<br>Shrew Ditch<br>Soil Exposure<br>(mg/kg/day) |
|----------|---------------------------|-----------------------------|--|--|---|---|
| Metals   |                           |                             |  |  |   |   |
| Aluminum |                           | 8.76                        | 4.00E-03   | 2.20E-01   | 1.50E-03  | 1.32E+00  |
| Antimony | 2.3                       |                             | 2.00E-01   | 2.20E-01   | 1.00E-03  | 3.11E-01  |
| Cadmium  | 2.8                       | 0.0195                      | 3.64E-01   | 9.60E-01   | 5.50E-04  | 1.47E+00  |
| Copper   | 177                       | 1.16                        | 4.00E-01   | 4.00E-02   | 1.00E-02  | 6.93E+00  |
| Cyanide  | 0.83                      |                             | 1.00E+00   | 1.12E+00   | 1.00E+00  | 5.58E-01  |
| Iron     |                           | 110                         | 4.00E-03   | 2.20E-01   | 2.00E-02  | 1.66E+01  |
| Lead     | 144                       | 0.839                       | 4.50E-02   | 3.00E-02   | 3.00E-04  | 4.45E+00  |
| Selenium | 1.0                       | 0.0046                      | 1.60E-02   | 2.20E-01   | 1.50E-02  | 1.36E-01  |
| Zinc     | 291                       | 6.91                        | 1.20E-12   | 5.60E-01   | 1.00E-01  | 9.39E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7D**

## MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC<br>(mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Meadow Vole<br>Ditch Soil<br>Exposure<br>(mg/kg/day) |
|----------|---------------------------|-----------------------------|--|--|--|
| Metals   |                           |                             |  |  |  |
| Aluminum |                           | 8.76                        | 4.00E-03   | 2.20E-01   | 1.84E+00   |
| Antimony | 2.3                       |                             | 2.00E-01   | 2.20E-01   | 2.09E-01   |
| Cadmium  | 2.8                       | 0.0195                      | 3.64E-01   | 9.60E-01   | 2.91E-01   |
| Copper   | 177                       | 1.16                        | 4.00E-01   | 4.00E-02   | 1.91E+01   |
| Cyanide  | 0.83                      |                             | 1.00E+00   | 1.12E+00   | 1.33E-01   |
| Iron     |                           | 110                         | 4.00E-03   | 2.20E-01   | 2.31E+01   |
| Lead     | 144                       | 0.839                       | 4.50E-02   | 3.00E-02   | 1.11E+01   |
| Selenium | 1.0                       | 0.0046                      | 1.60E-02   | 2.20E-01   | 7.60E-02   |
| Zinc     | 291                       | 6.91                        | 1.20E-12   | 5.60E-01   | 2.24E+01   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7E**

## RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Red Fox Ditch<br>Soil Exposure<br>(mg/kg/day) |
|----------|---------------------------|--------------------------|--|--|---|---|
| Metals   |                           |                          |  |  |   |   |
| Aluminum |                           | 8.76                     | 4.00E-03   | 2.20E-01   | 1.50E-03  | 7.56E-01                                      |
| Antimony | 2.3                       |                          | 2.00E-01   | 2.20E-01   | 1.00E-03  | 1.09E-02                                      |
| Cadmium  | 2.8                       | 0.0195                   | 3.64E-01   | 9.60E-01   | 5.50E-04  | 3.88E-02                                      |
| Copper   | 177                       | 1.16                     | 4.00E-01   | 4.00E-02   | 1.00E-02  | 8.69E-01                                      |
| Cyanide  | 0.83                      |                          | 1.00E+00   | 1.12E+00   | 1.00E+00  | 1.34E-01                                      |
| Iron     |                           | 110                      | 4.00E-03   | 2.20E-01   | 2.00E-02  | 9.49E+00                                      |
| Lead     | 144                       | 0.839                    | 4.50E-02   | 3.00E-02   | 3.00E-04  | 3.61E-01                                      |
| Selenium | 1.0                       | 0.0046                   | 1.60E-02   | 2.20E-01   | 1.50E-02  | 6.79E-03                                      |
| Zinc     | 291                       | 6.91                     | 1.20E-12   | 5.60E-01   | 1.00E-01  | 7.11E+00                                      |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*ADF*BAF*FR) + (Cs*ADF*BAF*$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-7F**

## GREAT BLUE HERON (Ardea herodias) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС     | Ditch Soil<br>EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Great Blue Heron Ditch<br>Soil and Surface Water<br>Exposure<br>(mg/kg/day) |
|----------|------------------------------|--------------------------|--|---|---|---|
| Metals   |                              |                          |  |   |   |   |
| Aluminum |                              | 8.76                     | 4.00E-03   | 2.20E-01  | 1.50E-03  | 3.94E-01  |
| Antimony | 2.3                          |                          | 2.00E-01   | 2.20E-01  | 1.00E-03  | 2.28E-02  |
| Cadmium  | 2.8                          | 0.0195                   | 3.64E-01   | 9.60E-01  | 5.50E-04  | 3.50E-02  |
| Copper   | 177                          | 1.16                     | 4.00E-01   | 4.00E-02  | 1.00E-02  | 1.94E+00  |
| Cyanide  | 0.83                         |                          | 1.00E+00   | 1.12E+00  | 1.00E+00  | 1.57E-01  |
| Iron     |                              | 110                      | 4.00E-03   | 2.20E-01  | 2.00E-02  | 4.95E+00  |
| Lead     | 144                          | 0.839                    | 4.50E-02   | 3.00E-02  | 3.00E-04  | 1.33E+00  |
| Selenium | 1.0                          | 0.0046                   | 1.60E-02   | 2.20E-01  | 1.50E-02  | 1.27E-02  |
| Zinc     | 291                          | 6.91                     | 1.20E-12   | 5.60E-01  | 1.00E-01  | 8.59E+00  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-8A**

### DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                           | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | SP<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Terrestrial Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Deer Mouse<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|--------------------------------|---|-----------------------------|---|---|---|
| Semivolatile Organic Compounds |   |                             |   |   |   |
| Anthracene                     | 0.7   |                             | 1.04E-01  | 7.0E-02   | 2.21E-02  |
| Benzo(a)anthracene             | 1.9   |                             | 2.02E-02  | 3.0E-02   | 2.55E-02  |
| Benzo(a)pyrene                 | 1.7   |                             | 1.10E-02  | 7.0E-02   | 4.78E-02  |
| Benzo(b)fluoranthene           | 1.9   |                             | 1.01E-02  | 7.0E-02   | 5.31E-02  |
| Benzo(ghi)perylene             | 1.7   |                             | 5.70E-03  | 7.0E-02   | 4.70E-02  |
| Benzo(k)fluoranthene           | 1.9   |                             | 1.01E-02  | 8.0E-02   | 5.76E-02  |
| Chrysene                       | 2.4   |                             | 1.87E-02  | 4.0E-02   | 4.08E-02  |
| Phenanthrene                   | 2.9   |                             | 1.02E-01  | 7.0E-02   | 9.27E-02  |
| Pyrene                         | 5.0   |                             | 4.43E-02  | 7.0E-02   | 1.44E-01  |
| Pesticides                     | •   |                             | •   |   |   |
| 4,4'-DDT                       | 0.0028                                      |                             | 9.37E-03  | 1.3E+00   | 1.27E-03  |
| Metals                         |   |                             |   |   |   |
| Antimony                       | 2.5   |                             | 2.00E-01  | 2.2E-01   | 2.22E-01  |
| Arsenic                        | 8.3   |                             | 3.60E-02  | 1.1E-01   | 3.59E-01  |
| Cadmium                        | 0.65  | 0.00054                     | 3.64E-01  | 9.6E-01   | 2.38E-01  |
| Chromium                       | 29  | 0.006                       | 7.50E-03  | 1.0E-02   | 1.59E-01  |
| Cobalt                         | 18  |                             | 8.10E-02  | 1.2E-01   | 8.76E-01  |
| Copper                         | 32  | 0.0112                      | 4.00E-01  | 4.0E-02   | 1.08E+00  |
| Cyanide                        | 0.36  |                             | 1.00E+00  | 1.1E+00   | 1.65E-01  |
| Lead                           | 30  | 0.0263                      | 4.50E-02  | 3.0E-02   | 4.31E-01  |
| Manganese                      | 15037                                       |                             | 2.50E-01  | 5.4E-02   | 4.85E+02  |
| Selenium                       | 6.3   | 0.0025                      | 1.60E-02  | 2.2E-01   | 5.18E-01  |
| Silver                         | 0.64  |                             | 4.00E-01  | 2.2E-01   | 6.40E-02  |
| Thallium                       | 6.5   |                             | 4.00E-03  | 2.2E-01   | 5.32E-01  |
| Vanadium                       | 21  |                             | 5.50E-03  | 2.2E-01   | 1.68E+00  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### TABLE G-8B

### AMERICAN ROBIN (Turdus migratorius) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                         | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | American Robin<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|------------------------------|---|--------------------------|--|--|---|
| Semivolatile Organic Compour | nds   |                          |  |  |   |
| Anthracene                   | 0.7   |                          | 1.04E-01   | 7.00E-02   | 3.08E-02  |
| Benzo(a)anthracene           | 1.9   |                          | 2.02E-02   | 3.00E-02   | 5.16E-02  |
| Benzo(a)pyrene               | 1.7   |                          | 1.10E-02   | 7.00E-02   | 7.55E-02  |
| Benzo(b)fluoranthene         | 1.9   |                          | 1.01E-02   | 7.00E-02   | 8.39E-02  |
| Benzo(ghi)perylene           | 1.7   |                          | 5.70E-03   | 7.00E-02   | 7.49E-02  |
| Benzo(k)fluoranthene         | 1.9   |                          | 1.01E-02   | 8.00E-02   | 8.81E-02  |
| Chrysene                     | 2.4   |                          | 1.87E-02   | 4.00E-02   | 7.49E-02  |
| Phenanthrene                 | 2.9   |                          | 1.02E-01   | 7.00E-02   | 1.29E-01  |
| Pyrene                       | 5.0   |                          | 4.43E-02   | 7.00E-02   | 2.17E-01  |
| Pesticides                   |   |                          |  |  | •   |
| 4,4'-DDT                     | 0.0028                                      |                          | 9.37E-03   | 1.26E+00   | 1.47E-03  |
| Metals                       |   |                          |  |  | •   |
| Antimony                     | 2.5   |                          | 2.00E-01   | 2.20E-01   | 2.61E-01  |
| Arsenic                      | 8.3   |                          | 3.60E-02   | 1.10E-01   | 4.99E-01  |
| Cadmium                      | 0.65  | 0.00054                  | 3.64E-01   | 9.60E-01   | 2.67E-01  |
| Chromium                     | 29  | 0.006                    | 7.50E-03   | 1.00E-02   | 5.42E-01  |
| Cobalt                       | 18  |                          | 8.10E-02   | 1.22E-01   | 1.16E+00  |
| Copper                       | 32  | 0.0112                   | 4.00E-01   | 4.00E-02   | 1.06E+00  |
| Cyanide                      | 0.36  |                          | 1.00E+00   | 1.12E+00   | 1.75E-01  |
| Lead                         | 30  | 0.0263                   | 4.50E-02   | 3.00E-02   | 8.06E-01  |
| Manganese                    | 15037                                       |                          | 2.50E-01   | 5.40E-02   | 5.74E+02  |
| Selenium                     | 6.3   | 0.0025                   | 1.60E-02   | 2.20E-01   | 6.63E-01  |
| Silver                       | 0.64  |                          | 4.00E-01   | 2.20E-01   | 6.94E-02  |
| Thallium                     | 6.5   |                          | 4.00E-03   | 2.20E-01   | 6.85E-01  |
| Vanadium                     | 21  |                          | 5.50E-03   | 2.20E-01   | 2.16E+00  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

 $Is = Soil \; dietary \; (kg \; dry/day)$ 

Cw = EPC in surface water (mg COPC/L)

 $WR = Water \ intake \ rate \ (L/day)$ 

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-8C**

## SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                           | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Short-Tailed<br>Shrew Surface<br>Soil Exposure<br>(mg/kg/day) |
|--------------------------------|---|-----------------------------|--|--|---|---|
| Semivolatile Organic Compounds |   |                             |  |  |   |   |
| Anthracene                     | 0.7   |                             | 1.04E-01   | 7.00E-02   | 4.61E-04  | 3.64E-02  |
| Benzo(a)anthracene             | 1.9   |                             | 2.02E-02   | 3.00E-02   | 1.46E-04  | 5.74E-02  |
| Benzo(a)pyrene                 | 1.7   |                             | 1.10E-02   | 7.00E-02   | 4.61E-04  | 8.94E-02  |
| Benzo(b)fluoranthene           | 1.9   |                             | 1.01E-02   | 7.00E-02   | 5.46E-04  | 9.94E-02  |
| Benzo(ghi)perylene             | 1.7   |                             | 5.70E-03   | 7.00E-02   | 4.61E-04  | 8.86E-02  |
| Benzo(k)fluoranthene           | 1.9   |                             | 1.01E-02   | 8.00E-02   | 5.43E-04  | 1.05E-01  |
| Chrysene                       | 2.4   |                             | 1.87E-02   | 4.00E-02   | 1.88E-04  | 8.52E-02  |
| Phenanthrene                   | 2.9   |                             | 1.02E-01   | 7.00E-02   | 4.61E-04  | 1.53E-01  |
| Pyrene                         | 5.0   |                             | 4.43E-02   | 7.00E-02   | 4.61E-04  | 2.57E-01  |
| Pesticides                     |   |                             |  |  |   |   |
| 4,4'-DDT                       | 0.0028                                      |                             | 9.37E-03   | 1.26E+00   | 6.18E-04  | 1.90E-03  |
| Metals                         |   | •                           |  |  |   |   |
| Antimony                       | 2.5   |                             | 2.00E-01   | 2.20E-01   | 1.00E-03  | 3.26E-01  |
| Arsenic                        | 8.3   |                             | 3.60E-02   | 1.10E-01   | 2.00E-03  | 6.07E-01  |
| Cadmium                        | 0.65  | 0.00054                     | 3.64E-01   | 9.60E-01   | 5.50E-04  | 3.44E-01  |
| Chromium                       | 29  | 0.006                       | 7.50E-03   | 1.00E-02   | 5.50E-03  | 5.66E-01  |
| Cobalt                         | 18  |                             | 8.10E-02   | 1.22E-01   | 2.00E-02  | 1.43E+00  |
| Copper                         | 32  | 0.0112                      | 4.00E-01   | 4.00E-02   | 1.00E-02  | 1.22E+00  |
| Cyanide                        | 0.36  |                             | 1.00E+00   | 1.12E+00   | 1.00E+00  | 2.44E-01  |
| Lead                           | 30  | 0.0263                      | 4.50E-02   | 3.00E-02   | 3.00E-04  | 8.97E-01  |
| Manganese                      | 15037                                       |                             | 2.50E-01   | 5.40E-02   | 4.00E-04  | 6.65E+02  |
| Selenium                       | 6.3   | 0.0025                      | 1.60E-02   | 2.20E-01   | 1.50E-02  | 8.35E-01  |
| Silver                         | 0.64  |                             | 4.00E-01   | 2.20E-01   | 3.00E-03  | 8.66E-02  |
| Thallium                       | 6.5   |                             | 4.00E-03   | 2.20E-01   | 4.00E-02  | 8.70E-01  |
| Vanadium                       | 21  |                             | 5.50E-03   | 2.20E-01   | 2.50E-03  | 2.71E+00  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \quad \text{Exposure} = \left[ ((\text{Cs*SP*CF*PDF*FR}) + (\text{Cs*IDF*BAF*FR}) + (\text{Cs*ADF*BAF*FR}) + (\text{Cs*Is}) + (\text{Cw*WR})) \right] \times (\text{Cw*WR}) \times ($ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

 $SFF = Site\ foraging\ frequency = 1\ \ (unitless)$ 

#### **TABLE G-8D**

## MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                           | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Meadow Vole<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|--------------------------------|---|-----------------------------|--|--|--|
| Semivolatile Organic Compounds |   |                             |  |  |  |
| Anthracene                     | 0.7   |                             | 1.04E-01   | 7.00E-02   | 5.68E-02   |
| Benzo(a)anthracene             | 1.9   |                             | 2.02E-02   | 3.00E-02   | 1.42E-01   |
| Benzo(a)pyrene                 | 1.7   |                             | 1.10E-02   | 7.00E-02   | 1.27E-01   |
| Benzo(b)fluoranthene           | 1.9   |                             | 1.01E-02   | 7.00E-02   | 1.41E-01   |
| Benzo(ghi)perylene             | 1.7   |                             | 5.70E-03   | 7.00E-02   | 1.25E-01   |
| Benzo(k)fluoranthene           | 1.9   |                             | 1.01E-02   | 8.00E-02   | 1.35E-01   |
| Chrysene                       | 2.4   |                             | 1.87E-02   | 4.00E-02   | 1.78E-01   |
| Phenanthrene                   | 2.9   |                             | 1.02E-01   | 7.00E-02   | 2.38E-01   |
| Pyrene                         | 5.0   |                             | 4.43E-02   | 7.00E-02   | 3.77E-01   |
| Pesticides                     |   |                             | •  |  | •  |
| 4,4'-DDT                       | 0.0028                                      |                             | 9.37E-03   | 1.26E+00   | 2.00E-04   |
| Metals                         |   |                             |  |  | •  |
| Antimony                       | 2.5   |                             | 2.00E-01   | 2.20E-01   | 2.19E-01   |
| Arsenic                        | 8.3   |                             | 3.60E-02   | 1.10E-01   | 6.24E-01   |
| Cadmium                        | 0.65  | 0.00054                     | 3.64E-01   | 9.60E-01   | 6.72E-02   |
| Chromium                       | 29  | 0.006                       | 7.50E-03   | 1.00E-02   | 2.12E+00   |
| Cobalt                         | 18  |                             | 8.10E-02   | 1.22E-01   | 1.40E+00   |
| Copper                         | 32  | 0.0112                      | 4.00E-01   | 4.00E-02   | 3.41E+00   |
| Cyanide                        | 0.36  |                             | 1.00E+00   | 1.12E+00   | 5.78E-02   |
| Lead                           | 30  | 0.0263                      | 4.50E-02   | 3.00E-02   | 2.26E+00   |
| Manganese                      | 15037                                       |                             | 2.50E-01   | 5.40E-02   | 1.41E+03   |
| Selenium                       | 6.3   | 0.0025                      | 1.60E-02   | 2.20E-01   | 4.62E-01   |
| Silver                         | 0.64  |                             | 4.00E-01   | 2.20E-01   | 6.88E-02   |
| Thallium                       | 6.5   |                             | 4.00E-03   | 2.20E-01   | 4.70E-01   |
| Vanadium                       | 21  |                             | 5.50E-03   | 2.20E-01   | 1.49E+00   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-8E**

#### RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 SOIL

#### SEAD-121C AND SEAD-121I RI Report

#### Seneca Army Depot Activity

| СОРС                        | Surface Soil<br>(0-2 ft bgs) EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Red Fox<br>Surface Soil<br>Exposure<br>(mg/kg/day) |
|-----------------------------|---|-----------------------------|--|--|---|--|
| Semivolatile Organic Compou | ınds  |                             |  |  |   |  |
| Anthracene                  | 0.7   |                             | 1.04E-01   | 7.00E-02   | 4.61E-04  | 1.84E-03   |
| Benzo(a)anthracene          | 1.9   |                             | 2.02E-02   | 3.00E-02   | 1.46E-04  | 3.70E-03   |
| Benzo(a)pyrene              | 1.7   |                             | 1.10E-02   | 7.00E-02   | 4.61E-04  | 4.19E-03   |
| Benzo(b)fluoranthene        | 1.9   |                             | 1.01E-02   | 7.00E-02   | 5.46E-04  | 4.68E-03   |
| Benzo(ghi)perylene          | 1.7   |                             | 5.70E-03   | 7.00E-02   | 4.61E-04  | 4.14E-03   |
| Benzo(k)fluoranthene        | 1.9   |                             | 1.01E-02   | 8.00E-02   | 5.43E-04  | 4.69E-03   |
| Chrysene                    | 2.4   |                             | 1.87E-02   | 4.00E-02   | 1.88E-04  | 4.94E-03   |
| Phenanthrene                | 2.9   |                             | 1.02E-01   | 7.00E-02   | 4.61E-04  | 7.71E-03   |
| Pyrene                      | 5.0   |                             | 4.43E-02   | 7.00E-02   | 4.61E-04  | 1.24E-02   |
| Pesticides                  |   |                             |  |  |   |  |
| 4,4'-DDT                    | 0.0028                                      |                             | 9.37E-03   | 1.26E+00   | 6.18E-04  | 4.42E-05   |
| Metals                      |   |                             |  |  |   | •  |
| Antimony                    | 2.5   |                             | 2.00E-01   | 2.20E-01   | 1.00E-03  | 1.14E-02   |
| Arsenic                     | 8.3   |                             | 3.60E-02   | 1.10E-01   | 2.00E-03  | 2.62E-02   |
| Cadmium                     | 0.65  | 0.00054                     | 3.64E-01   | 9.60E-01   | 5.50E-04  | 8.73E-03   |
| Chromium                    | 29  | 0.006                       | 7.50E-03   | 1.00E-02   | 5.50E-03  | 7.19E-02   |
| Cobalt                      | 18  |                             | 8.10E-02   | 1.22E-01   | 2.00E-02  | 1.06E-01   |
| Copper                      | 32  | 0.0112                      | 4.00E-01   | 4.00E-02   | 1.00E-02  | 1.40E-01   |
| Cyanide                     | 0.36  |                             | 1.00E+00   | 1.12E+00   | 1.00E+00  | 5.86E-02   |
| Lead                        | 30  | 0.0263                      | 4.50E-02   | 3.00E-02   | 3.00E-04  | 6.18E-02   |
| Manganese                   | 15037                                       |                             | 2.50E-01   | 5.40E-02   | 4.00E-04  | 4.17E+01   |
| Selenium                    | 6.3   | 0.0025                      | 1.60E-02   | 2.20E-01   | 1.50E-02  | 3.95E-02   |
| Silver                      | 0.64  |                             | 4.00E-01   | 2.20E-01   | 3.00E-03  | 3.48E-03   |
| Thallium                    | 6.5   |                             | 4.00E-03   | 2.20E-01   | 4.00E-02  | 6.40E-02   |
| Vanadium                    | 21  |                             | 5.50E-03   | 2.20E-01   | 2.50E-03  | 9.05E-02   |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*Is)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9A**

## DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                           | Ditch Soil EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | SP<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Terrestrial Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Deer Mouse<br>Ditch Soil<br>Exposure<br>(mg/kg/day) |
|--------------------------------|---------------------------|-----------------------------|---|---|---|
| Semivolatile Organic Compounds |                           |                             |   |   |   |
| Benzo(a)anthracene             | 2.51                      |                             | 2.02E-02  | 3.0E-02   | 3.32E-02  |
| Benzo(a)pyrene                 | 2.70                      |                             | 1.10E-02  | 7.0E-02   | 7.41E-02  |
| Benzo(b)fluoranthene           | 3.75                      |                             | 1.01E-02  | 7.0E-02   | 1.03E-01  |
| Benzo(k)fluoranthene           | 3.00                      |                             | 1.01E-02  | 8.0E-02   | 9.30E-02  |
| Chrysene                       | 3.56                      |                             | 1.87E-02  | 4.0E-02   | 5.99E-02  |
| Pyrene                         | 5.12                      |                             | 4.43E-02  | 7.0E-02   | 1.48E-01  |
| Metals                         | •                         |                             |   |   |   |
| Arsenic                        | 18                        |                             | 3.60E-02  | 1.1E-01   | 7.62E-01  |
| Cobalt                         | 19                        |                             | 8.10E-02  | 1.2E-01   | 9.32E-01  |
| Manganese                      | 3195                      |                             | 2.50E-01  | 5.4E-02   | 1.03E+02  |
| Selenium                       | 2.0                       | 0.00245                     | 1.60E-02  | 2.2E-01   | 1.69E-01  |
| Silver                         | 1.4                       |                             | 4.00E-01  | 2.2E-01   | 1.44E-01  |
| Thallium                       | 2.4                       |                             | 4.00E-03  | 2.2E-01   | 1.93E-01  |
| Vanadium                       | 21                        |                             | 5.50E-03  | 2.2E-01   | 1.72E+00  |
| Zinc                           | 142                       | 0.19                        | 1.20E-12  | 5.6E-01   | 2.92E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9B**

## AMERICAN ROBIN (Turdus migratorius ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                       | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | American Robin<br>Ditch Soil<br>Exposure<br>(mg/kg/day) |
|----------------------------|---------------------------|--------------------------|--|--|---|
| Semivolatile Organic Compo | unds                      |                          |  |  |   |
| Benzo(a)anthracene         | 2.51                      |                          | 2.02E-02   | 3.00E-02   | 6.72E-02  |
| Benzo(a)pyrene             | 2.70                      |                          | 1.10E-02   | 7.00E-02   | 1.17E-01  |
| Benzo(b)fluoranthene       | 3.75                      |                          | 1.01E-02   | 7.00E-02   | 1.62E-01  |
| Benzo(k)fluoranthene       | 3.00                      |                          | 1.01E-02   | 8.00E-02   | 1.42E-01  |
| Chrysene                   | 3.56                      |                          | 1.87E-02   | 4.00E-02   | 1.10E-01  |
| Pyrene                     | 5.12                      |                          | 4.43E-02   | 7.00E-02   | 2.23E-01  |
| Metals                     |                           |                          |  |  |   |
| Arsenic                    | 18                        |                          | 3.60E-02   | 1.10E-01   | 1.06E+00  |
| Cobalt                     | 19                        |                          | 8.10E-02   | 1.22E-01   | 1.23E+00  |
| Manganese                  | 3195                      |                          | 2.50E-01   | 5.40E-02   | 1.22E+02  |
| Selenium                   | 2.0                       | 0.00245                  | 1.60E-02   | 2.20E-01   | 2.16E-01  |
| Silver                     | 1.4                       |                          | 4.00E-01   | 2.20E-01   | 1.55E-01  |
| Thallium                   | 2.4                       |                          | 4.00E-03   | 2.20E-01   | 2.48E-01  |
| Vanadium                   | 21                        |                          | 5.50E-03   | 2.20E-01   | 2.21E+00  |
| Zinc                       | 142                       | 0.19                     | 1.20E-12   | 5.60E-01   | 3.50E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9C**

## SHORT-TAILED SHREW (Blarina brevicauda ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                     | Ditch Soil EPC<br>(mg/kg) | Surface Water<br>EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Short-Tailed<br>Shrew Ditch<br>Soil Exposure<br>(mg/kg/day) |
|--------------------------|---------------------------|-----------------------------|--|--|---|---|
| Semivolatile Organic Con | npounds                   |                             |  |  |   |   |
| Benzo(a)anthracene       | 2.51                      |                             | 2.02E-02   | 3.00E-02   | 1.46E-04  | 7.48E-02  |
| Benzo(a)pyrene           | 2.70                      |                             | 1.10E-02   | 7.00E-02   | 4.61E-04  | 1.38E-01  |
| Benzo(b)fluoranthene     | 3.75                      |                             | 1.01E-02   | 7.00E-02   | 5.46E-04  | 1.92E-01  |
| Benzo(k)fluoranthene     | 3.00                      |                             | 1.01E-02   | 8.00E-02   | 5.43E-04  | 1.70E-01  |
| Chrysene                 | 3.56                      |                             | 1.87E-02   | 4.00E-02   | 1.88E-04  | 1.25E-01  |
| Pyrene                   | 5.12                      |                             | 4.43E-02   | 7.00E-02   | 4.61E-04  | 2.64E-01  |
| Metals                   |                           |                             |  |  |   | _   |
| Arsenic                  | 18                        |                             | 3.60E-02   | 1.10E-01   | 2.00E-03  | 1.29E+00  |
| Cobalt                   | 19                        |                             | 8.10E-02   | 1.22E-01   | 2.00E-02  | 1.52E+00  |
| Manganese                | 3195                      |                             | 2.50E-01   | 5.40E-02   | 4.00E-04  | 1.41E+02  |
| Selenium                 | 2.0                       | 0.00245                     | 1.60E-02   | 2.20E-01   | 1.50E-02  | 2.72E-01  |
| Silver                   | 1.4                       |                             | 4.00E-01   | 2.20E-01   | 3.00E-03  | 1.94E-01  |
| Thallium                 | 2.4                       |                             | 4.00E-03   | 2.20E-01   | 4.00E-02  | 3.15E-01  |
| Vanadium                 | 21                        |                             | 5.50E-03   | 2.20E-01   | 2.50E-03  | 2.77E+00  |
| Zinc                     | 142                       | 0.19                        | 1.20E-12   | 5.60E-01   | 1.00E-01  | 4.54E+01  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9D**

## MEADOW VOLE (Microtus pennsylvanicus ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                           | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant Uptake Factor<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Meadow Vole<br>Ditch Soil<br>Exposure<br>(mg/kg/day) |  |  |  |
|--------------------------------|---------------------------|--------------------------|--|--|--|--|--|--|
| Semivolatile Organic Compounds |                           |                          |  |  |  |  |  |  |
| Benzo(a)anthracene             | 2.51                      |                          | 2.02E-02   | 3.00E-02   | 1.84E-01   |  |  |  |
| Benzo(a)pyrene                 | 2.70                      |                          | 1.10E-02   | 7.00E-02   | 1.97E-01   |  |  |  |
| Benzo(b)fluoranthene           | 3.75                      |                          | 1.01E-02   | 7.00E-02   | 2.73E-01   |  |  |  |
| Benzo(k)fluoranthene           | 3.00                      |                          | 1.01E-02   | 8.00E-02   | 2.18E-01   |  |  |  |
| Chrysene                       | 3.56                      |                          | 1.87E-02   | 4.00E-02   | 2.61E-01   |  |  |  |
| Pyrene                         | 5.12                      |                          | 4.43E-02   | 7.00E-02   | 3.88E-01   |  |  |  |
| Metals                         |                           |                          |  |  |  |  |  |  |
| Arsenic                        | 18                        |                          | 3.60E-02   | 1.10E-01   | 1.33E+00   |  |  |  |
| Cobalt                         | 19                        |                          | 8.10E-02   | 1.22E-01   | 1.49E+00   |  |  |  |
| Manganese                      | 3195                      |                          | 2.50E-01   | 5.40E-02   | 2.99E+02   |  |  |  |
| Selenium                       | 2.0                       | 0.00245                  | 1.60E-02   | 2.20E-01   | 1.50E-01   |  |  |  |
| Silver                         | 1.4                       |                          | 4.00E-01   | 2.20E-01   | 1.54E-01   |  |  |  |
| Thallium                       | 2.4                       |                          | 4.00E-03   | 2.20E-01   | 1.70E-01   |  |  |  |
| Vanadium                       | 21                        |                          | 5.50E-03   | 2.20E-01   | 1.52E+00   |  |  |  |
| Zinc                           | 142                       | 0.19                     | 1.20E-12   | 5.60E-01   | 1.03E+01   |  |  |  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9E**

## RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

#### **Seneca Army Depot Activity**

| СОРС                           | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Soil Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Red Fox Ditch<br>Soil Exposure<br>(mg/kg/day) |  |  |  |
|--------------------------------|---------------------------|--------------------------|--|--|---|---|--|--|--|
| Semivolatile Organic Compounds |                           |                          |  |  |   |   |  |  |  |
| Benzo(a)anthracene             | 2.51                      |                          | 2.02E-02   | 3.00E-02   | 1.46E-04  | 4.81E-03                                      |  |  |  |
| Benzo(a)pyrene                 | 2.70                      |                          | 1.10E-02   | 7.00E-02   | 4.61E-04  | 6.49E-03                                      |  |  |  |
| Benzo(b)fluoranthene           | 3.75                      |                          | 1.01E-02   | 7.00E-02   | 5.46E-04  | 9.05E-03                                      |  |  |  |
| Benzo(k)fluoranthene           | 3.00                      |                          | 1.01E-02   | 8.00E-02   | 5.43E-04  | 7.58E-03                                      |  |  |  |
| Chrysene                       | 3.56                      |                          | 1.87E-02   | 4.00E-02   | 1.88E-04  | 7.26E-03                                      |  |  |  |
| Pyrene                         | 5.12                      |                          | 4.43E-02   | 7.00E-02   | 4.61E-04  | 1.27E-02                                      |  |  |  |
| Metals                         | Metals                    |                          |  |  |   |   |  |  |  |
| Arsenic                        | 18                        |                          | 3.60E-02   | 1.10E-01   | 2.00E-03  | 5.55E-02                                      |  |  |  |
| Chromium                       | 20                        | 0.006                    | 7.50E-03   | 1.00E-02   | 5.50E-03  | 4.97E-02                                      |  |  |  |
| Cobalt                         | 19                        |                          | 8.10E-02   | 1.22E-01   | 2.00E-02  | 1.13E-01                                      |  |  |  |
| Manganese                      | 3195                      |                          | 2.50E-01   | 5.40E-02   | 4.00E-04  | 8.86E+00                                      |  |  |  |
| Selenium                       | 2.0                       | 0.00245                  | 1.60E-02   | 2.20E-01   | 1.50E-02  | 1.30E-02                                      |  |  |  |
| Silver                         | 1.4                       |                          | 4.00E-01   | 2.20E-01   | 3.00E-03  | 7.80E-03                                      |  |  |  |
| Thallium                       | 2.4                       |                          | 4.00E-03   | 2.20E-01   | 4.00E-02  | 2.32E-02                                      |  |  |  |
| Vanadium                       | 21                        |                          | 5.50E-03   | 2.20E-01   | 2.50E-03  | 9.26E-02                                      |  |  |  |
| Zinc                           | 142                       | 0.19                     | 1.20E-12   | 5.60E-01   | 1.00E-01  | 3.20E+00                                      |  |  |  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

#### **TABLE G-9F**

## GREAT BLUE HERON (Ardea herodias) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

**Seneca Army Depot Activity** 

| СОРС                           | Ditch Soil EPC<br>(mg/kg) | Surface Water EPC (mg/L) | Soil-To-Plant<br>(mg COPC/kg dry tissue)/<br>(mg COPC/kg dry soil) | Soil-To-Invertebrate BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Small Mammal BAF<br>(mg COPC/kg wet tissue)/<br>(mg COPC/kg dry soil) | Great Blue Heron<br>Ditch Soil and<br>Surface Water<br>Exposure<br>(mg/kg/day) |  |  |
|--------------------------------|---------------------------|--------------------------|--|---|---|--|--|--|
| Semivolatile Organic Compounds |                           |                          |  |   |   |  |  |  |
| Benzo(a)anthracene             | 2.51                      |                          | 2.02E-02   | 3.00E-02  | 1.46E-04  | 2.24E-02   |  |  |
| Benzo(a)pyrene                 | 2.70                      |                          | 1.10E-02   | 7.00E-02  | 4.61E-04  | 2.47E-02   |  |  |
| Benzo(b)fluoranthene           | 3.75                      |                          | 1.01E-02   | 7.00E-02  | 5.46E-04  | 3.43E-02   |  |  |
| Benzo(k)fluoranthene           | 3.00                      |                          | 1.01E-02   | 8.00E-02  | 5.43E-04  | 2.75E-02   |  |  |
| Chrysene                       | 3.56                      |                          | 1.87E-02   | 4.00E-02  | 1.88E-04  | 3.20E-02   |  |  |
| Pyrene                         | 5.12                      |                          | 4.43E-02   | 7.00E-02  | 4.61E-04  | 4.68E-02   |  |  |
| Metals                         |                           |                          |  |   |   |  |  |  |
| Arsenic                        | 18                        |                          | 3.60E-02   | 1.10E-01  | 2.00E-03  | 1.69E-01   |  |  |
| Cobalt                         | 19                        |                          | 8.10E-02   | 1.22E-01  | 2.00E-02  | 2.41E-01   |  |  |
| Manganese                      | 3195                      |                          | 2.50E-01   | 5.40E-02  | 4.00E-04  | 2.90E+01   |  |  |
| Selenium                       | 2.0                       | 0.00245                  | 1.60E-02   | 2.20E-01  | 1.50E-02  | 2.52E-02   |  |  |
| Silver                         | 1.4                       |                          | 4.00E-01   | 2.20E-01  | 3.00E-03  | 1.46E-02   |  |  |
| Thallium                       | 2.4                       |                          | 4.00E-03   | 2.20E-01  | 4.00E-02  | 3.93E-02   |  |  |
| Vanadium                       | 21                        |                          | 5.50E-03   | 2.20E-01  | 2.50E-03  | 2.11E-01   |  |  |
| Zinc                           | 142                       | 0.19                     | 1.20E-12   | 5.60E-01  | 1.00E-01  | 4.06E+00   |  |  |

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW + (Cs*ADF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*ADF*BAF*$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# APPENDIX H RESPONSE TO COMMENTS

#### Army's Response to Comments from the US Environmental Protection Agency

**Subject**: Draft Field Sampling Report for SEAD 121C & 121I Seneca Army Depot Romulus, New York

Comments Dated: March 24, 2004 (received by email)

Date of Comment Response: November 4, 2004

#### **Army's Response to Comments**

#### I. GENERAL COMMENTS

**Comment 1**: The areas at SEAD-121C that are referred to frequently throughout the document as containment area," "storage cells," and the "former concrete storage pad" should be shown on all appropriate figures (i.e., Figure 1-3, Figure 3-1, etc..) Numerous references to, these objects relative to associated samples are made in the document, yet they are not shown on any figure. Provide additional documentation of these areas.

**Response 1:** Based on field notes collected during the 2002 field effort, and after review of GIS aerial photographs from 2000 obtained from the State of New York, storage cells, concrete barriers, and debris piles have been known to exist at the DRMO Yard. It should be noted that these features are transitory; changing as material has been moved into and out of the Yard. However, for the purposes of presentation, the approximate locations of these based on the 2000 photographs have been added.

As stated in response to USEPA comments on the Work Plan, there is no available information regarding the location of a rumored concrete pad. Therefore, this feature is not included on site figures.

**Comment 2:** The various discussions related to surface and subsurface soil samples are unclear and inconsistent. For example, four samples were collected at depths of 0 to 2 inches bgs at the DRMO Yard during the EBS sampling, and are described as soil borings (Page 3-2). However, the twenty samples collected from soil borings at locations in the DRMO Yard during the RI are considered to be surface samples, although they were collected from 0 to 2 feet bgs (Page 3-3). List the sample depths in Table 3-2 (or similar table) and revise callouts accordingly.

**Response 2:** The Army collected surface soil samples from a depth of 0 to 2 inches below grade surface or beneath the vegetative root ball/cover material. A split spoon was advanced to 2 ft., but the sample was collected from the top 2 inches of the spoon, where vegetative root material, asphalt, or cover materials were not found. The text has been clarified.

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 2 of 9

The depth of each sample has been added to the revised Table 3-2

Comment 3: Text indicates that the purpose of surface water sampling at SEAD-1211 was to determine background surface water concentrations at areas at the site that have not been impacted by site activities as well as to delineate the extent of contamination at the site. However, as described in Section 3.2.5, four surface water samples were collected immediately around the site (only two upgradient), while the other three were collected at a drainage ditch downgradient of the site that serves as the outfall for drainage from a large area. Therefore, it does not appear that sufficient surface water samples were collected upgradient of the site to provide a baseline for background (or areas not impacted by the site) to characterize background surface water concentrations. In addition, the three samples collected in the downgradient drainage ditch may contain runoff materials from other sites. Additional upgradient (background) samples and delineation samples should be collected.

**Response 3:** The Army wishes to emphasize that there is no continuous source of surface water located within the bounds of the Rumored Cosmoline Oil Disposal Area. All surface water located at this site is temporal, generally associated with either storm or snowmelt events. Surface water locations that are present within the bounds of the site are restricted to runoff ditches, culverts or infiltration galleries and buried stormwater sewers that convey storm event runoff to locations west of the warehousing area where it is discharged into the headwaters of Kendaia Creek. Additionally, the Army must reiterate that a work plan for this investigation was provided to the EPA prior to the initiation of this effort, and no comments were received indicating that the proposed sampling plan for surface water was insufficient.

Having said this, the Army believes that the surface water in the vicinity of the Rumored Cosmoline Oil Disposal Area has been adequately characterized. Two upgradient, three downgradient and two surface water samples from locations within the site were collected and characterized. No organic contaminants, including TPH, were identified in either of the upgradient samples, while a total of 14 different metals were found in one or more of the two upgradient samples. However, of the 14 metals detected, only lead and aluminum were found at levels above the New York Class C surface water standards, and these were both collocated in the same sample. Similarly, 14 metals and no organic contaminants or TPH, were found at the downgradient sample locations, but in this case none of the detected concentrations were found at levels exceeding the New York Class C standards. Finally, two organic, but not TPH, and up to 17 metal contaminants were identified in the temporal surface water samples that were collected from within the bounds of the Cosmoline oil site. Of these 19 identified contaminants, only four of the metals were found at levels exceeding the Class C surface water standards. Given this information, it is clear that there is no evidence of contaminant transport

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 3 of 9

to locations downgradient of the Cosmoline oil site. Therefore, the Army does not consider further surface water sampling necessary.

**Comment 4:** For reference, the New York State DEC Technical and Administrative Guidance Memorandum (TAGM) #4046 values should be included in the text where appropriate in Section 4. This will provide the information necessary while reviewing the site- and media- specific analytic results.

**Response 4:** For the purposes of comparison, the TAGM #4046 guidance value for each parameter and the number of times the TAGM value was exceeded have been added to the summary statistics tables for soils presented in Section 4 (Tables 4-1, 4-2, 4-6, 4-7, and 4-9).

#### II. SPECIFIC COMMENTS

**Comment 1:** Executive Summary, Page E-1: Include chemical oxygen demand (COD), alkalinity, ammonia, hardness, phosphates, and nitrate-nitrite/nitrogen in the list of chemical analyses performed, because these analyses were performed on samples collected during the RI portion of the investigation (as per Table 2-5).

**Response 1:** The text of the *Executive Summary* is correct, and the list of analytes included in Table 2-5 is in error. Analysis for COD, hardness, nitrate-nitrite/nitrogen, and TDS were not performed. Table 2-5 has been revised accordingly. In addition, Tables 2-2 through 2-4 were revised to accurately reflect the analysis performed for each media.

**Comment 2:** Section 1.3.2. Page 1-3: One goal of the investigation at SEAD-121I was to investigate the potential for contamination at the site resulting from Cosmoline. However, minimal description or discussion of this compound or its military use has been included in the text. Revise this section to describe the nature and use of Cosmoline, and potential contaminants associated with it.

**Response 2:** Cosmoline is a substance used to prevent corrosion, and it is commonly used to protect metallic components during shipment and storage. According to a material safety data sheet (MSDS) prepared by Goodson Shop Supplies, Cosmoline is composed of a complex mixture of petroleum hydrocarbons, severely hydrotreated heavy naphthenic distillate, Stoddard solvent, wool grease, and butyl stearate. No adverse chronic health effects have been reported due to exposure to Cosmoline. Acute health effects are generally limited to irritation, depending on the duration of the contact. A MSDS for Cosmoline has been included as Appendix D.

This information has been added to the text.

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 4 of 9

**Comment 3:** Section 2.2.1, Page 2-3: In the second paragraph of this section, revise text to read "This survey procedure was not employed during the EBS sampling program because the wells installed during this investigation were temporary."

**Response 3:** The text has been revised accordingly.

**Comment 4:** Section 2.2.3, Page 2-7: Include in this section the season(s) in which the surface water samples were collected at both SEAD-121C and SEAD-121I.

**Response 4:** The surface water samples were collected in the fall of 2002. This information has been added to the text.

**Comment 5:** Section 2.2.4.3, Page 2-11: The fifth full paragraph of this section indicates the sampling order for groundwater samples collected during the RI portion of the investigation. This order includes VOCs, SVOCs, metals, pesticides/PCBs, cyanide, and TOC/COD. Table 2-5 indicates that groundwater was also sampled for total petroleum hydrocarbons (TPH), hardness. nitrate-nitrite/nitrogen, and total dissolved solids (TDS). Revise the sampling order to include all analyses performed. The same comment applies to text in Section 4.1 on Page 4-2, which excludes these same analyses.

**Response 5:** The analyte list provided in this section was written in error. As discussed in Response to Specific Comment 1, analysis for TOC and COD were not performed, while analysis for TRPH was performed.

For groundwater, the correct sampling order is (1) VOCs, (2) SVOCs, (3) Metals, (4) pesticides/PCBs, (5) cyanide, and (6) TRPH. The text has been revised accordingly. Response 1 notes that Table 2-5 has been revised as well.

Section 4.1 is correct and does not require revision.

**Comment 6:** Section 3.1.4.1, Page 3-2: The text in the "RI Program" section contains should be revised. The sentence, "The sampling interval from 2-4 ft...as one sample" erroneously appears to refer to the four soil borings that contained large amounts of rock which was discussed in the previous sentence (SB121C-2, -8, -15, and -19), and which were sampled only from 0-2 ft bgs.

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 5 of 9

Revise discussion of sampling depths in the first paragraph, and discussion of sampling of borings SB121C-2, -8, -15, and -19. Clarify that the VOC samples in the composited 2-4 and 4-6 ft bgs sampling intervals were not composited.

Also, confirm that these four borings were sampled from 0 to 2 *feet* bgs, not 0 to 2 *inches* bgs as indicated in the fifth sentence of this section and also on Page 2-5 of Section 2.2.2.1.

**Response 6:** The text has been revised to state,

"At these four soil borings, a substantial sample could not be collected from the deeper sampling interval; thus the interval from 0 to 2 ft. was the only one collected for analysis. At the other twelve soil borings, the sampling interval from 2-4 ft. bgs and 4-6 ft. bgs were composited at each hole location as a result of the high rock content and collected as one sample."

The VOC samples were not composited; rather, the soil samples for VOC analysis were collected from the depth interval of 2-4 ft. only.

The first interval is 0 to 2 feet. Thus, the text in this section has been revised to indicate 0 to 2 feet, as shown above. The text on page 2-5 has been revised as well.

**Comment 7:** Section 3.1.4.2, Page 3-3: Include sample depths of surface soil samples in the text. Also clarify that these samples were the top interval of the soil borings described in the first portion of Section 3.1.4.1.

**Response 7:** The text has been clarified.

**Comment 8:** Section 3.5, Page 3-3; Confirm that ditch soil samples described in this section were collected from 0 to 2 inches bgs.

**Response 8:** The depth range for ditch soil is defined as 0 to 2 inches. In practice, ditch soil samples were collected from the top of the depth interval. Because the ditch soil samples did not seem to vary in character or nature from the surface soil samples (collected from 0 to 2 inches), the ditch soil samples were grouped as surface soil for the purpose of discussion. The text has been clarified.

**Comment 9:** Section 3.1.6, Page 3-4: Revise the first sentence to read that "There were *no* surface water... field program."

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 6 of 9

**Response 9:** The text has been revised accordingly.

**Comment 10:** Section 3.1.7.1, Page 3-6: The section entitled "RI Program" indicates that four wells with a designation starting with "MWDRMO" were installed in the DRMO Yard during the RI investigation. However, the groundwater sampling section, Section 3.1.7.3 refers to permanent well locations with designations starting with "MWI2IC." Additionally, wells with a designation "MWDRMO" are not included in Tables 3-1, 3-7, 3-8, 3-9, 3-10, or 3-11, all of which include information related to the permanent wells at the DRMO Yard. Clarify text if necessary to report on permanent wells installed at the DRMO Yard.

**Response 10:** The well designations should start with "MW121C" and not "DRMO". The text has been revised accordingly.

**Comment 11:** Section 3.1.8.1, Page 3-7: Text in this section indicates that the first round of elevation data was collected on the day of well development. For consistency, include the date of this activity (apparently mid-January 2003) in this section (as well as in Table 3-11) to facilitate comparison to the second, third, and final rounds of measurements.

**Response 11:** Groundwater elevations were collected on October 29, 2002, January 17, 2003, and February 2, 2003, and May 7, 2003. The text and Table 3-11 have been revised to include this information.

**Comment 12:** Section 3.2.4.2, Page 3-8: The text in this section indicates that five soil borings were completed at SEAD-121I during the RI investigation. Indicate in this section whether the borings were sampled, and if so, the number of samples collected per boring.

**Response 12:** A soil sample was collected from each boring at a depth interval of 0 to 2 ft. The text has been revised to incorporate this information. A soil boring was advanced and a sample was collected from the top interval at 0-2 inches in each of the five borings. The auger encountered refusal, therefore additional samples at greater depths were not collected.

**Comment 13:** Section 3.2.4.3, Page 3-8: Include the sample depths for the four surface soil samples collected at SEAD-121I during the EBS sampling round.

**Response 13:** The surface soil samples were collected from a depth range of 0-0.2 ft. This information has been added to the text.

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 7 of 9

**Comment 14:** Section 3.2.6, Page 3-11: The text in this section indicates that no groundwater monitoring wells were installed at SEAD-121I due to shallow refusal. In lieu of discussion of groundwater at this site, include a discussion of the nearest monitoring wells to SEAD121I and the results of any sampling of these wells that is applicable to SEAD-121I.

**Response 14:** There are no wells at SEAD-121I (as well as at the neighboring SWMU, SEAD-68) since the site is located very near, or at, the top of the apparent groundwater divide, and there is no saturated thickness in the overburden aquifer. A few wells are located downgradient of SEAD-121I, and they are associated with other SWMUs and are potentially impacted by CERCLA and non-CERCLA releases that have occurred in the overall PID Area. Therefore, any attempt to correlate offsite wells with conditions present at SEAD-121I would have many interferences that would make such comparisons virtually meaningless. Therefore, the Army will not provide any discussion of chemistry and will limit its discussion of offsite wells merely to the fact that they exist and do.

**Comment 15:** Section 4.2, Page 4-3: It appears as though discussion of cyanide results has been omitted from this section even though Tables 2-2 through 2-4 indicate that it was included in the sample analyses for soils, surface water, and ditch soil at SEAD-121C. Similarly, the groundwater section does not include results of COD, hardness, nitrite-nitrate/nitrogen, or TDS although these analyses were reportedly collected from wells at SEAD-121C. Revise as appropriate.

**Response 15:** At the DRMO Yard, cyanide (total and amenable) was not detected in any surface soil, subsurface soil, surface water, and groundwater samples. Cyanide was detected once in ditch soil at SDDRMO-4 at an estimated concentration of 2.36 J mg/Kg. At SEAD-121I, total cyanide was detected at three surface soil locations, with a maximum concentration of 2.73 mg/Kg at SS121I-29. Cyanide was not detected in the surface water or ditch soil at SEAD-121I. Discussions of cyanide results for each media where cyanide was detected have been added to the text. As noted in previous responses, analysis for COD, hardness, nitrite-nitrate/nitrogen, and TDS was not performed. Any reference to these analyses has been removed from the text.

**Comment 16:** Section 4.2, Page 4-7: Signs of soil contamination beyond the boundaries of SEAD-121C are discussed throughout this section. However, those signs are dismissed as either anthropogenic background or source unrelated to SEAD-121C. Please note that any exceedances beyond EPA Region 9 preliminary remedial goals (PRGs) industrial screening levels need further investigation and/or remedial action as per CERCLA. Your anthropological background position has never been formally presented or accepted by the

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 8 of 9

regulatory agencies, and it is considered highly unlikely that such levels of contaminants would have found their way to these areas apart from Army-related operations.

**Response 16:** The Army has been unable to identify any promulgated standard or law that states that Region 9 PRGs trigger the need for further investigation or action. However, the Army has identified the October 1, 2002 EPA Region 9 PRG update, which states that chemical concentrations exceeding PRG levels do not "trigger a response action."

"Exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. Further evaluation may include additional sampling, consideration of ambient levels in the environment, or a reassessment of the assumptions contained in these screening-level estimates."

There is no mention that exceeding a PRG warrants remedial action. "The PRG table is specifically not intended as a . . . set of final cleanup or action levels to be applied at contaminated sites".

In the Sampling Report, the Army presented specific site conditions that could be potential sources for elevated chemical concentrations detected in locations beyond the boundary of the site. If EPA disagrees with this statement, the Army requests that they present an argument to that effect; EPA's statement that this contention "is considered highly unlikely" is insufficient and unsupported.

**Comment 17:** Figures 3-1 and 3-2: Include the direction of flow of surface water on these figures.

**Response 17:** The figures have been revised accordingly.

**Comment 18:** <u>Table 2-5:</u> The table summarizes the groundwater sampling completed at SEAD-121C, but the internal heading in the table refers to SEAD-121I. Revise accordingly.

**Response 18:** The table has been revised accordingly.

**Comment 19:** Tables 4-1, 4-2, 4-6, 4-7, 4-9: For consistency, revise these tables to include the appropriate TAGM #4046 values ("criteria") for each parameter as was done in Tables 4-3 through 4-5 and 4-8 (groundwater and Surface water).

**Response 19:** The TAGM #4046 values are guidance values or criteria to be considered (TBCs) and not ARARs. However, for the purposes of comparison, the TAGM #4046 guidance value for each parameter and the number of times the TAGM value was exceeded have been added to the summary statistics tables for soils presented in Section 4.

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 9 of 9

**Comment 20:** Section 4.3, Page 4-21: The second to last paragraph erroneously locates SD121I samples 1, 2 and 3 east of SEAD-121I.

**Response 20:** These samples are located to the west of the site. The text has been revised accordingly.

**Comment 21:** Section 4.3, page 4-7: See comment 16 above. This section presents the same types of justification for contaminants found outside the site boundaries.

**Response 21:** See response to comment 16 above.

**Comment 22:** Section 6.2, Page 6-1: We do not agree with the "no further investigation/no action" recommendation for this site. Section 4.2 shows significant levels of metal concentrations related to the existing ferrous-manganese ores at this site. Therefore, some kind of controls or remedial work seems to be needed at this site.

Response 22: The site that is the subject of this investigation is the Rumored Cosmoline Oil Disposal Area, and the BRAC program was tasked with investigating this site for contamination associated with Cosmoline oil. Contaminants detected at the site are not consistent with the presence of Cosmoline oil. According to information provided in the MSDS, the main components of Cosmoline oil are a mixture of complex hydrocarbons (e.g., Stoddard solvent), and naphthenic distillate. Naphthalene was detected in only 7 of 52 samples and never exceeded the TAGM level. If Cosmoline oil were present at the site, then it seems likely that heavy hydrocarbons would have been detected in the soils. As the best indicator, the TPH data was reviewed. TPH was detected at 14 locations in the surface soils at scattered locations across SEAD-121I. Due to the delocalized presence of TPH and the absence of significant levels of naphthalene, there is no evidence of a systemic release of Cosmoline oil at the site.

Currently, the location of SEAD-121I is being used as a staging site for planned strategic stockpiles of ferrous-manganese ore. All metals detected appear to be associated with these ore piles. The stockpiles are strategic materials; they are not a waste and are not covered under the CERCLA program. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles. Therefore, no further action is warranted for this site under CERCLA by the BRAC office.

# **Response to US EPA Comments**

on the

Draft Final Remedial Investigation Report for SEAD-121C & 121I, Seneca Army Depot Activity, Romulus, New York Dated 10/31/05

Response Date: 4/27/06

## **GENERAL COMMENTS**

The subject document makes reference to non-CERCLA language in an effort to justify release exemption. Please note that there is no statutory or regulatory exemption for strategic/logistic materials (i.e., national strategic stockpile). As for the statement concerning "no indication of a systemic or wide-spread release" and "no evidence of a systematic release"— again, there is no exemption from CERCLA based on a de minimis or de micromis nature of a release. It does not matter that a release be systematic or not.

**Response:** The Army was not attempting to justify an exemption for the release of metals at SEAD-121I; however, phrases that may have been interpreted as such by the EPA (see page 6-48, 6-50, 7-50, and 7-52, etc.) will be removed.

The Army's identification of the ferro-manganese ore piles as strategic materials is a statement of fact; these materials have been staged at the Seneca Army Depot as part of the United States' Strategic Stockpile program. In several locations throughout the document, the Army has indicated that it believes that metal contaminants found at SEAD-121I are associated with the management of the strategic ore piles. Additionally, the Army has evaluated and enumerated the apparent risks that the presence of the identified strategic stockpiles is posing to human health and the environment at the site.

The Army's use of phrases such as "no indication of a systemic or wide-spread release" or "no evidence of a systemic release" was not intended to request an exemption. Again, as was the case of the metals identified around the strategic ore piles, contaminants identified at both sites have been evaluated and their risks enumerated in the risk assessment that has been presented in this document. The risks at both sites have been summarized.

SEAD-121I is known as the Rumored Cosmoline Disposal Area; investigations performed at this site were implemented to address concerns that Cosmoline oil or similar materials may have been released during the historic unpacking and cleanup of equipment and parts previously delivered to the Depot. Based on the data collected and evaluated at SEAD-121I as part of these investigations, there is no evidence that any significant risk results from Cosmoline oil-like substances (i.e., organic hazardous

substances) at the site. Therefore, the Army believes that this site, SEAD-121I, the Rumored Cosmoline Oil Disposal Area does not pose a problem that is subject to further regulatory review under CERCLA.

The data and information collected during the investigations indicate that metals are present at the site and that the identified metals are associated with the United States' long-term management of the strategic stockpiles of ferro-manganese at this site. Metal compound residues that remain at SEAD-121I once the ore piles are removed will be addressed as part of the United States' stockpile management program. SEDA has notified personnel responsible for the removal and relocation of the ore piles that metal contamination is present; and have indicated that it currently poses a risk to human receptors.

## **SPECIFIC COMMENTS**

## **Comment:**

Page 6-4, first paragraph - This paragraph explains potential sources of the PAHs that were detected in the soil at SEAD-121I. Although the roofing and maintenance operations may contribute to the PAHs detected at the site, there may be other potential sources, such as runoff from the roads (e.g., asphalt, oil from vehicles, creosote from railroad ties [as mentioned on page 6-6, second paragraph]) and oil leaks from vehicles that utilize the area associated with SEAD-121I, as well as atmospheric deposition. In order to better characterize the source, it would be beneficial to provide documented evidence that the type of PAHs, as well as the ratios observed, are similar to the hypothesized source(s). In addition, comparison to background levels, again by type and ratio of PAHs, observed in soils from other areas that are not impacted by site-related PAHs would enhance this paragraph.

**Response:** The Army agrees that there may be other sources, such as roadway runoff, leaching from railroad ties, dripping from railroad equipment, etc. contributing to the identified PAH levels detected at SEAD-121I. The Army's purpose for mentioning roofing activities and truck traffic was to use knowledge of activities performed in the area to tag sources that are most likely to have contributed to the PAH contamination identified.

While the information identified by the EPA commenter would most probably add to the overall discussion, it is not the Army's intention to mount a research study to obtain the information. Further, and more importantly, contaminants identified at the site have been documented, and their risk potential has been enumerated.

Table 6-12B summarizes the risks determined for an Industrial Worker, a Construction Worker, and an Adolescent Trespasser in SEAD-121I. Hazardous Indices (HIs) in excess of 1 are calculated for the Industrial Worker and Construction Worker when they are exposed to either soil or ditch soil at either

Reasonable Maximum Exposure (RME) or Central Tendency (CT) concentrations. Metals contaminants, primarily manganese, are the primary cause of the elevated His reported. Cancer Risks in the range of 1 x  $10^{-4}$  to 1 x  $10^{-6}$  were calculated for the Industrial Worker and the Construction Worker when they are exposed to either soil or ditch soil at RME and CT concentrations. The Adolescent Trespasser also exhibited a cancer risk of 1 x  $10^{-6}$  when exposed to RME concentrations of ditch soil. The PAHs are the principal contaminants identified in the soil/ditch soil that account for the identified levels of cancer risk, although Arsenic is also a noted contributor.

As is noted above, the elevated HIs attributable to manganese and a few other metals will be addressed as part of the United States' Strategic Stockpile management program. While PAHs have been identified in the soil and ditch soils at SEAD-121I, they are found at concentrations that do not cause risk above normally accepted industrial scenario levels. A residential land use restriction has already been proposed and implemented for the Planned Industrial / Office Development (PID) Area at the Seneca Army Depot. Based on the PAH results found at SEAD-121I, the Army will proposed to maintain the identified institutional control at the PID Area.

#### **Comment:**

**Section 6.2.2 - Fate and Transport** - The section identifies if contaminant levels exceed TAGM values in a variety of media. As this part of the RI is addressing the risk assessment, which uses the Region IX PRGs for screening criteria, it is more applicable to report the number of compounds that exceeded the respective screening criteria.

**Response:** The Army screened SEAD-121C and SEAD-121I contaminant levels in ditch soil and soil against the Region IX Residential PRGs and the contaminant levels in groundwater and surface water versus the Region IX tap water PRGs. The approach applied by the Army is consistent with the approach documented by Chuck Nace of USEPA, Region II in his memorandum, dated November 8, 2004, related to human health risk assessment at SEAD-13. Tables 6-2 and 6-3 show the maximum concentrations detected and whether that value exceeded the PRG screening value for SEAD-121C and SEAD-121I, respectively.

The Army will update and modify the discussion presented in Section 6.2.2 to provide more discussion about the number of compounds identified in each media that exceed PRG screening levels.

# **Comment:**

**Page 6-5, first paragraph** - In this paragraph it is indicated that volatilization of metals from soil is not considered a realistic mechanism for pollutant migration. While generally true, there are some metals,

such as mercury, that can volatilize and migrate through the air. Suggest changing the sentence to say "For example, generally volatilization of metals from soil...." In addition, rationale is provided that indicates that leaching is a potential mechanism for metal transport, but it does not mention of the metals detected at the site were looked at from a leaching perspective (i.e., TLP analysis). Please include this information if the TLP analysis was conducted.

**Response:** The suggested wording will be used in the document for volatilization. Toxicity Characteristic Leaching Procedure (TCLP) analyses were not performed by the Army.

## **Comment:**

**Page 6-5, last paragraph** - Please clarify the purpose and use of the earthen bottomed, storage cells that are located on SEAD-121C.

**Response:** The DRMO Yard (SEAD-121C) at SEDA is inactive, and has been since the Depot closed in 2000. During its active period of operation, the DRMO received and screened all property (including hazardous property) turned in by military services for reutilization and reuse. No records have been identified that detail what materials were stored for what period of time at discrete areas of the DRMO. Based on information provided by USACE personnel remaining at the SEDA, materials stored within the DRMO Yard varied as government equipment and property was identified as surplus and sent for final disposition.

The Army and Parsons provided a detailed description of the materials that were found at various areas within the DRMO Yard in Section 1.3 of the Draft Final Remedial Investigation Report. As was stated in Section 1.3:

During site visits in 2002, 2003, and 2004, Parsons observed that scrap metal, military items, and old machines were stored in the earthen bottomed storage cell located along the northwest fence, while the ladle-shaped earthen bottomed cell was empty, except for small quantities of metal shavings.

At the time the DRMO Yard was last viewed by Parsons, the site was inactive. Parsons understands that the USACE has recently contracted to remove all remaining debris from the site.

#### **Comment:**

**Page 6-9** - For several exposure pathways, the subsurface soil is identified as being 2-6 feet in depth. Typically, Region 2 uses 2-10 feet depths to assess the potential risks and hazards from exposure to subsurface soil. It appears that the water table and bedrock are approximately 6 feet in depth, which is

why those depths were used. If this is the case, please clarify this in the text so that the discrepancy from the typical subsurface soil depth is documented and justified.

**Response:** During field activities completed as part of the ESI and the RI, the deepest soil interval sampled and analyzed was from 2 ft. to 6 ft bgs. Bedrock was generally encountered at approximately 6 ft. bgs. Therefore, references to 2-6 feet in depth are specific to SEAD-121C, and the text will be revised accordingly.

## **Comment:**

**Page 6-17, Section 6.4** - It is indicated that the maximum detected concentrations were screened against the USEPA Region IX PRGs that correspond to a hazard quotient of 1. Region 2 screens against the USEPA Region IX PRGs that correspond to a hazard quotient of 0.1.

**Response:** To incorporate the above procedures, the COPC screening was repeated using the residential Region IX PRGs corresponding to either a hazard quotient of 0.1 or a cancer risk of 10<sup>-6</sup>. As shown in the table below, several additional COPCs (mainly metals) are identified using the requested approach.

Additional COPCs By Using 0.1 PRGs for PRGs Based on Non-Carcinogenic Effects

| Medium                          | SEAD-121C  | SEAD-121I   |
|---------------------------------|--|---|
| Soil<br>(Surface/Total<br>Soil) | Aluminum, Barium,<br>Cadmium, Manganese,<br>Nickel, Thallium Vanadium,<br>Zinc | Aluminum, Antimony,<br>Cadmium, Cobalt, Nickel,<br>Selenium |
| Ditch Soil                      | Aluminum, Antimony,<br>Cadmium, Copper,<br>Manganese, Vanadium                 | Aluminum, Cobalt,<br>Vanadium                               |
| Groundwater                     | Antimony, Chromium,<br>Manganese   | NA  |
| Surface<br>Water                | Aluminum, Barium, Copper,<br>Mercury, Nickel, Zinc                             | Iron, Lead, Manganese,<br>Vanadium                          |

The risk assessment was repeated including all COPCs identified using this screening approach and the risk results in general confirm the conclusions presented in the previous report. Detailed discussion of the revised risk results is presented in Appendix I, Attachment 1 and 2.

## **Comment:**

**Page 6-20, last paragraph** - Please clarify why groundwater risks associated with SEAD-27 were included in this risk assessment. If there were no contaminants of potential concern associated with groundwater at SEAD-121C, then the assessment would be ended for groundwater at SEAD-121C. This issue is also raised on page 6-31 and 6-47.

## **Response:**

The Steam Cleaning Waste Tank at Building 360 (SEAD-27) abuts the eastern boundary of the DRMO Yard (SEAD-121C). The groundwater at SEAD-27 subsequently flows into SEAD-121C. One of the two monitoring wells (i.e., MW-2) installed to assess the possible release of contaminants from the Steam Cleaning Waste Tank (SEAD-27) is located within the DRMO Yard, and was sampled as part of the SEAD-121C investigation.

Groundwater contamination has been identified at SEAD-27, focused in the groundwater upgradient and beneath the building. As a result of the identified contamination, a groundwater use restriction was implemented at the site, and serves as the basis of the overall groundwater use restriction that the Army has proposed and implemented for the Planned Industrial/Office Development (PID) Area as a whole.

Temporary wells located in SEAD-121C for the preliminary Environmental Baseline Survey investigations conducted in 1998 showed several of the same contaminants as were found in the SEAD-27 groundwater wells. Permanent wells installed at SEAD-121C for the remedial investigation did not show the same contaminants. Therefore, the Army chose to provide a discussion of the SEAD-27 groundwater data to provide insight into upgradient sources that may impact the DRMO Yard in the future.

## **Comment:**

**Page 6-23, third paragraph** - Please provide additional details that explain why an exposure duration of 14 days was chosen for the adolescent trespasser. As the summer months, when children are not in school, would appear to be prime timing for adolescents to trespass, the exposure duration may need to be increased.

**Response:** USEPA guidance documents on human health risk assessments do not recommend a specific value for the exposure for an adolescent trespasser. The 14 days/year exposure frequency was selected based on best professional judgment and site-specific conditions. The Depot is situated in a sparsely populated rural area; it is fenced to limit access and is occasionally patrolled by site security personnel. The setting of SEAD-121C/121I is generally similar to the surrounding areas and there are no areas that may attract special attentions from potential adolescent trespassers. Therefore, trespassing at the sites is considered unlikely to occur frequently or for extended periods without individuals being challenged or

noticed. On this basis, a 14 days/year exposure frequency is considered a reasonable assumption for the sites. Nonetheless, an elevated exposure frequency (50 days/year) was evaluated and this evaluation indicates that no unacceptable risks are expected for SEAD-121C/121I. Although elevated non-cancer risk was observed at SEAD-121C for the trespasser, the elevated hazard index is mainly caused by manganese in soil.

#### **Comment:**

**Page 6-34, Section 6.5.3.7, first paragraph** - It is indicated that the adult lead model is based on the assumption of continuing long term exposure and that the risk for short-term exposure was not estimated. However, as stated, the adult lead model protects the developing fetus and as the fetus is the most sensitive receptor, which is at most 10 months of age prior to birth, the short-term exposure to a construction worker should be included in the risk assessment. This is also referenced on page 6-42.

**Response:** The Army does not see the need to include a short-term exposure for lead to a construction worker in the risk assessment conducted for the DRMO Yard (SEAD-121C). Although a few of the surficial soil samples collected from the area exhibit elevated concentrations of lead, the overall average value for lead found in soil from the former DRMO Yard is 735 mg/Kg, which is below the Region IX Industrial PRG. Similarly, the overall site average is lower that the state of New York's recently proposed restricted commercial and restricted industrial exposure levels for lead at brownfield site (1,000 and 3,900 mg/Kg, respectively). The DRMO Yard is located in within the PID Area at the SEDA, in an area that the Army has already imposed a use restriction prohibiting the use of the land for any residential purpose.

## **Comment:**

**Page 6-46, second paragraph** - The guidance that is referenced does present a revised approach for assessing carcinogenicity of mutagenic chemicals, however, the agency is still developing a plan for the implementation of the guidance as it relates to CERCLA risk assessments. The approach that was used is one option, however, it may not be the preferred option, thus please note that a different methodology may be required for future risk assessments.

| Resi | onse: |
|------|-------|
|------|-------|

Noted.

# **Comment:**

**Page 6-48, first paragraph** - This describes the strategic stockpiles of ferrous-manganese ore that are staged on SEAD-121I. The legal interpretation of the stockpiles (i.e., if they are CERCLA regulated wastes or not) was stated within the General Comments section above.

**Response:** See the first part of the response to General Comments above.

# Army's Response to Comments from the New York State Department of Environmental Conservation

Subject: Draft Final Remedial Investigation Report SEAD-121C and SEAD-121I Seneca Army Depot Romulus, New York

Comments Dated: January 30, 2006

Date of Comment Response: April 27, 2006

# **Army's Response to Comments**

## **SPECIFIC COMMENTS**

Comment 1: Section E.1.1, Page E-2

The statement shows the presence of the elevated level of Heavy Metals in the Surface Soil – FS report will need to address it.

# **Response 1:**

Disagree. The Army does not agree with the NYSDEC's direction that a feasibility study is needed to assess the possible remedial actions for SEADs 121C (the DRMO Yard) and 121I (the Rumored Cosmoline Oil Disposal Area). Both of these sites are located in the portion of the former Depot where the designated future land use is Planned Industrial / Office Development (PID). Due to prior decisions made and formally documented by all parties involved with the continuing closure of sites at the former Depot, institutional controls (ICs) prohibiting access to and use of groundwater, and use of the land within the PID area for residential purposes has been imposed on this area. The residential use restriction includes prohibiting the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds.

The results of the remedial investigation (RI) performed in these two areas, and discussed in the RI Report reviewed, confirm that contamination is present at locations within each of the sites. Generally, all computed industrial scenario human health risk levels are consistent with EPA's referenced ranges (HIs = 1 or less and cancer risks in range of 1E-04 to 1E-06 or less), with the exceptions of HIs computed for industrial and construction workers at SEAD-121I. The elevated HIs at SEAD-121I result primarily from manganese and are directly associated with the United States' continuing storage of strategic ferro-manganese ore piles in this area. Residues that remain once the strategic stockpiles are removed will be addressed by the authority responsible for their management.

The Army also acknowledges that chemical concentrations found at the two sites will preclude the future use of these two former solid waste management units for residential purposes without some remedial action. However, this is not considered to be an onerous restriction because the overall site is classified as an area where the most probable future land use is industrial / office development, and there are other areas in close proximity of these sites where necessary residential like (e.g., day care center, school, playground, and housing activities can be performed).

Therefore, the Army sees no reason to or benefit from preparing a feasibility study (FS) to assess potential remedial actions for either site. Its proposed path is to recommend that the area-wide groundwater use restriction remain in place in these areas, and that neither of these sites be used for residential purposes

Army's Response to NYSDEC Comments on Draft Final RI Report SEAD-121C and SEAD-121I Comments Dated January 30, 2006 Page 2 of 2

including residential housing, elementary and secondary schools, child care facilities and playgrounds. The Army reiterates that the groundwater restriction is not a punitive restriction because a distribution system is present throughout the PID area for potable water, and this system can be tapped to provide water that may be needed. The Army also does not believe that the residential use restriction is punitive, given the local redevelopment authorities decision to use this area for industrial/commercial purposes.

The CERCLA process does not mandate that a FS be completed for all sites, especially given the obvious remedial alternative option that exists for these sites. The Army proposes that the CERCLA process move forward to the preparation, review and approval of necessary proposed plans and records of decisions for these two sites, as are described above. In fact this exact path forward was used at other sites (SEAD-27, SEAD-64A, and SEAD-66) in the PID area at SEDA, and approved by the EPA with concurrence from the NYSDEC in September 2004.

## **Comment 2:** Section E.2.1, Page E-5

The statement shows the presence of elevated level of Iron and Manganese concentrations in the soil around the areas surrounding the two ferrous-manganese ore piles. Issue will need to be addressed in FS.

## **Response 2:**

See Response to Comment 1.

# **Comment 3:** Section 8.2, Page 8-1

DEC does not agree with the Recommendations from Remedial Investigation that "...the army recommends that these restrictions remain in effect for SEAD-121C and SEAD-121I until additional data is developed and evaluated to substantiate their removal at either or both of the sites" without specifying a time frame. When will the restrictions be removed? Specify that it will be at the time that the strategic piles are removed from SEAD-121I? Or is it at the time the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles (see Section 5.2.3, Page 5-11). Please clarify this further in your recommendations.

# **Response 3:**

The need for the continuance of the proposed ICs will be reviewed at five year intervals, consistent with the requirements of CERCLA, once the proposed plan and ROD are finalized. At this time, the Army does not anticipate collecting more data for the former DRMO Yard (SEAD-121C) because there is no industrial scenario human health risk defined, and a land use restriction is proposed for implementation in this area. Additional data will be collected in the area of the ferro-manganese ore stockpiles once the strategic reserves are used or moved. The Army currently does not have a timetable defined for removal of these piles.

**Comment 4:** The DEC ecological section reviewed the document and the data and agrees with the conclusions in perspective to move forward to the feasibility study. Please provide a hard copy of the draft final RI report for ecological section, to this office before we review the FS.

## **Response 4:**

The Army does not anticipate preparing a FS for these sites, as per discussions above. A copy of the RI will be forwarded to the NYSDEC per its request.

# APPENDIX I

# QUANTITATIVE UNCERTAINTY ANALYSIS FOR BASELINE HUMAN HEALTH RISK ASSESSMENT SEAD-121C AND SEAD-121I

# Appendix I, Attachment 1 Quantitative Uncertainty Analysis for Baseline Human Health Risk Assessment SEAD-121C and SEAD-121I

A risk assessment was re-performed for SEAD-121C and SEAD-121I under the RME scenario with the revised COPC screening protocol to evaluate potential uncertainty to the human health risk assessment. The COPC screening presented in the RI report was conducted by comparing the maximum detected concentrations with Region 9 PRGs corresponding to a target cancer risk of  $1 \times 10^{-6}$  or a target hazard quotient of 1, whichever is lower. To incorporate procedures requested in the USEPA comment letter dated 10/31/05, the COPC screening was revised by using Region 9 PRGs corresponding to a target cancer risk of  $1 \times 10^{-6}$  or a target hazard quotient of 0.1, whichever is lower. As shown in the table below, several additional COPCs (all metals) were identified using the revised approach.

Additional COPCs By Using 0.1PRGs for PRGs Based on Non-Carcinogenic Effects

| Medium                          | SEAD-121C  | SEAD-121I   |
|---------------------------------|--|---|
| Soil<br>(Surface/Total<br>Soil) | Aluminum, Barium,<br>Cadmium, Manganese,<br>Nickel, Thallium Vanadium,<br>Zinc | Aluminum, Antimony,<br>Cadmium, Cobalt, Nickel,<br>Selenium |
| Ditch Soil                      | Aluminum, Antimony,<br>Cadmium, Copper,<br>Manganese, Vanadium                 | Aluminum, Cobalt,<br>Vanadium                               |
| Groundwater                     | Antimony, Chromium,<br>Manganese   | NA  |
| Surface<br>Water                | Aluminum, Barium, Copper,<br>Mercury, Nickel, Zinc                             | Iron, Lead, Manganese,<br>Vanadium                          |

The risk calculation sheets are presented in **Attachment 2 Table 1A** through **Table 10G** and the risk results are summarized in **Table 11A** and **Table 11B** of **Attachment 2** for SEAD-121C and SEAD-121I, respectively. This section presents a discussion of the risk results and potential impact to the human health risk assessment conclusion caused by the above revision.

## 1 Quantitative Uncertainty Analysis Results Summary

**Section 1.1** and **Section 1.2** summarize quantitative uncertainty analysis results for SEAD-121C and SEAD-121I, respectively.

# 1.1 SEAD-121C Quantitative Uncertainty Analysis Results Summary

The cancer risks resulted from the revised COPC screening approach for all receptors based on the RME scenario are below the USEPA upper limit of  $1x10^{-4}$ . These results are summarized in **Table 11A.** 

The total non-cancer hazard indices based on the RME for the industrial worker and adolescent trespasser receptors are below the USEPA target limit of 1. The non-cancer hazard index for the construction worker exposed to soil and groundwater is 9 and the non-cancer hazard index for the construction worker exposed to ditch soil, surface water, and groundwater is 3.

With respect to the construction worker exposed to soil and groundwater, the potential non-cancer risks due to the inhalation of dust caused by construction activities, soil ingestion, and groundwater intake contribute 86%, 10%, and 4%, respectively, to the total non-cancer risk. Aluminum and manganese levels found in SEAD-121C soil contribute more than 98% to the non-cancer risk associated with inhalation of dust. Aluminum, iron, and manganese in SEAD-121C soil contribute more than 45% to the non-cancer risk associated with soil ingestion. However, the aluminum, iron, and manganese concentrations found in SEAD-121C soil are consistent with the Seneca background levels, as is discussed in **Section 2**. Further, the Army has proposed institutional controls in the form of a residential activity land use restriction, and access to or use of groundwater until Class GA Groundwater Standards are met on the PID parcel (including SEAD-121C and SEAD-121I). If non-cancer contributions from background concentrations of metals in soil were not included in the total risk, and with the imposition of the groundwater use restriction, the total non-cancer risk for the construction worker exposed to soil and groundwater at SEAD-121C would be below the USEPA limit of 1.

With reference to the construction worker exposed to ditch soil, surface water, and groundwater, the non-cancer risks associated with inhalation of dust caused by construction activities, ditch soil ingestion, and groundwater intake contribute 58%, 27%, and 13%, respectively, to the total non-cancer risk. Identified concentrations of aluminum and manganese in SEAD-121C ditch soil contribute more than 99% to the non-cancer risk associated with inhalation of dust in ambient air. Further, identified concentrations of aluminum, iron, and manganese in SEAD-121C ditch soil contribute more than 61% to the non-cancer risk associated with ditch soil ingestion. However, as discussed in **Section 2**, aluminum, iron, and manganese in SEAD-121C ditch soil are consistent with the Seneca soil background levels. Further, the Army has proposed institutional controls in the form of a residential activity land use restriction, and access to or use of groundwater until Class GA Groundwater Standards are met on the PID parcel (including SEAD-121C and SEAD-121I). Again, if the non-cancer contributions from background concentrations were not included in the total risk, and with the groundwater use/access restriction in place, the total non-cancer risk for the construction worker exposed to ditch soil, surface water, and groundwater at SEAD-121C would be below the USEPA limit of 1.

# 1.2 SEAD-121I Quantitative Uncertainty Analysis Results Summary

The cancer risks resulted from the revised COPC screening approach for all receptors based on the RME scenario are below the USEPA upper limit of  $1x10^{-4}$ . These results are summarized in **Table 11B.** 

The total non-cancer hazard indices based on the RME for the adolescent trespasser are below the USEPA target limit of 1. The non-cancer hazard indices for the industrial worker exposed to SEAD-121I soil and SEAD-121I ditch soil are approximately 30 and 4, respectively. The non-cancer hazard indices for the construction worker exposed to SEAD-121I soil and construction workers exposed to SEAD-121I ditch soil and surface water are approximately 200 and 30, respectively.

For the industrial worker exposed to SEAD-121I soil, the non-cancer risks associated with inhalation of dust, soil ingestion, and dermal soil contact contribute 82%, 16%, and 2%, respectively, to the total non-cancer risk. **Table 12** indicates that concentrations of manganese in SEAD-121I soil contribute almost 100% to the non-cancer risk that results from the inhalation of dust in ambient air. In addition, soil concentrations of manganese contribute approximately 95% and 97% to the non-cancer risks associated with soil ingestion and soil dermal contact, respectively.

With reference to the industrial worker exposed to ditch soil, the non-cancer risks associated with inhalation of dust, ditch soil ingestion, and dermal ditch soil contact contribute 93%, 6%, and 1%, respectively, to the total non-cancer risk. Again **Table 12** indicates that manganese in SEAD-121I ditch soil contributes approximately 98% to the non-cancer risk associated with inhalation of dust in ambient air. As discussed in Section 6.9.2 of the RI report, the levels of manganese detected at SEAD-121I are directly associated with the ferro-manganese ore piles that are present at the site, and which are also part of the United State's strategic stockpile of raw materials. When the Strategic Stockpiles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles. Therefore, manganese is not considered a COC at SEAD-121I. If manganese were not included in the risk assessment, the total non-cancer and cancer risks for the industrial worker would be below the USEPA target limits.

Similar results are found for the construction worker. For the construction worker exposed to SEAD-121I soil, the non-cancer risks associated with inhalation of dust, soil ingestion, and dermal soil contact contribute 91%, 9%, and 1%, respectively, to the total non-cancer risk. Again **Table 12** shows that manganese in SEAD-121I soil contributes almost 100% to the non-cancer risk associated with inhalation of dust in ambient air caused by construction activities. In

addition, manganese in SEAD-121I soil contributes approximately 95% and 97% to the non-cancer risks associated with soil ingestion and soil dermal contact, respectively.

With reference to the construction worker exposed to ditch soil and surface water, the non-cancer risks associated with inhalation of dust, ditch soil ingestion, and dermal ditch soil contact contribute 85%, 14%, and 1%, respectively, to the total non-cancer risk. Review of **Table 12** again indicates that concentrations of manganese in SEAD-121I ditch soil contribute approximately 98%, 56%, and 59% to the non-cancer risk associated with inhalation of dust, ditch soil ingestion, and ditch soil dermal contact, respectively. The iron concentrations in SEAD-121I ditch soil contribute approximately 9% to the non-cancer risk via ditch soil ingestion. In addition, the arsenic concentrations in SEAD-121I ditch soil contribute 30% to the non-cancer risk via ditch soil ingestion. The levels of manganese and iron detected at SEAD-121I are associated with strategic materials and therefore neither manganese nor iron is considered a COC at SEAD-121I. For arsenic in ditch soil, as discussed in **Section 2** below, there is no evidence that the levels in SEAD-121I ditch soil are significantly higher than the background levels in Seneca soil. If manganese in SEAD-121I soil and ditch soil and arsenic and iron in SEAD-121I ditch soil were not included in the risk assessment, the total non-cancer and cancer risks for all receptors would be below the USEPA target limits.

# 2 Background Comparison

As discussed in the previous section, aluminum, iron, and manganese in SEAD-121C soil and ditch soil resulted in non-cancer risks for potential construction workers exceeding the USEPA limit of 1. Arsenic in SEAD-121I ditch soil contributed significantly to the elevated risks for potential construction workers. This section presents a comparison of the Seneca background levels with the aluminum, iron, and manganese concentrations in SEAD-121C soil and ditch soil and with the arsenic concentrations in SEAD-121I ditch soil. Information of Seneca background data is presented in Section 6.3.2 of the RI report and the data are presented in Appendix D of the report.

Summary descriptive statistics are presented in **Table 13** that compare aluminum, iron, and manganese concentrations found in SEAD-121C soil and ditch soil with Seneca soil background, and in **Table 14** that compare arsenic concentrations measured in SEAD-121I ditch soil with Seneca soil background.

Review of **Table 13** shows that the four descriptive statistics parameters (i.e., maximum, minimum, arithmetic mean, and 95% UCL) computed for aluminum and manganese in SEAD-121C soil are all below or close to the corresponding statistics computed for these parameters for Seneca background. For iron in SEAD-121C soil, the maximum concentration is above the maximum level detected in Seneca background (54,100 mg/kg vs. 38,600 mg/kg); however, the

other three descriptive statistics parameters are below or close to the corresponding statistics parameters for Seneca background.

Comparably, for aluminum, iron, and manganese in SEAD-121C ditch soil, the four descriptive statistics parameters (i.e., maximum, minimum, arithmetic mean, and 95% UCL) are all below or close to the corresponding statistics parameters for Seneca background.

Results presented in **Table 14** for arsenic in SEAD-121I ditch soil show that the maximum concentration measured for arsenic in SEAD-121I ditch soil was 104 mg/kg, found at location SD121I-8, collocated with the maximum manganese concentration. The next highest level of arsenic observed in SEAD-121I ditch soil was 27.4 mg/kg, which is close to the maximum arsenic level observed in the background data set. The other three descriptive statistics parameters are elevated for arsenic in SEAD-121I ditch soil when compared with Seneca soil background. However, further statistical tests, as discussed below, do not demonstrate significant difference between the SEAD-121I ditch soil data set and the Seneca soil background data set.

In addition to the descriptive statistics comparison, both non-parametric (Mann-Whitney T test) and parametric (Student's T test) statistical test methods were used for the background comparison analysis. One-tailed (one-sided) or two-tailed (two-sided) Mann-Whitney tests and Student's T tests were conducted for the data using XLSTAT (Version 2006.2). Both tests assumed 0.05 as the significance level. The statistical test results are presented in **Table 15A** through **Table 21C**. It should be noted that although the Student's T test is based on normal distribution assumption, USEPA (2002c) recommends the use of Student's T Test if a larger number of data points are available (n > 25) and indicates that the parametric test will work well when the sample size is large.

The SEAD-121C soil data sets for aluminum, iron, and manganese and the Seneca background data sets for aluminum, arsenic, iron, and manganese all have more than 50 data points; therefore, the Student's T tests should perform sufficiently for the background comparison. The SEAD-121C ditch soil data sets for aluminum, iron, and manganese and the SEAD-121I ditch soil data set for arsenic have limited sample size ( $n \le 10$ ) and ultimately the power of the test (or chance to detect the difference between the two data sets) would be relatively low.

As shown in **Table 15A** through **Table 21C**, the results from the Student's T tests are consistent with the Mann-Whitney test results with the following exceptions.

- For manganese in SEAD-121C ditch soil, the Student's T test would reject the null hypothesis (the mean of the SEAD-121C ditch soil data is not significantly different from the mean of Seneca background) and accept the alternative hypothesis (the mean of the SEAD-121C ditch soil data is significantly smaller than the mean of Seneca background). The Man-Whitney test would accept the null hypothesis.
- For arsenic in SEAD-121I ditch soil, the Student's T test would accept the null hypothesis (the mean of the SEAD-121I ditch soil data is not significantly different from the mean of

Seneca background) while the Man-Whitney test would reject the null hypothesis and accept the alternative hypothesis (the mean of the SEAD-121I ditch soil data is significantly different from the mean of Seneca background) for arsenic. However, when the alternative hypothesis was revised to reflect that the mean of the SEAD-121I ditch soil data is significantly greater than the mean of Seneca background, the Man-Whitney test accepts the null hypothesis (the mean of the SEAD-121I ditch soil data is not significantly different from the mean of Seneca background).

In summary, although the two tests provide contradictory conclusions for the hypothesis tests, for both cases, the two tests indicate the same conclusion that the site data are not statistically above Seneca background. In brief, both the Student's T test and the Mann-Whitney test conclude that

- Aluminum, iron, and manganese in SEAD-121C soil is consistent with or below Seneca soil background,
- Aluminum, iron, and manganese in SEAD-121C ditch soil is consistent with or below Seneca soil background, and
- Arsenic levels in SEAD-121I ditch soil are not statistically above Seneca soil background.

# 3 Adolescent Trespasser Exposure Frequency Uncertainty Analysis

Table 9A through Table 10G present the risk calculation for an adolescent trespasser (ages 11-16 yr) with exposure to contaminants in SEAD-121C and SEAD-121I impacted mediums for an exposure frequency of 14 days/year. The 14 days/year exposure frequency was selected based on best professional judgment and knowledge of site-specific conditions. The Depot is situated in a sparsely populated rural area; it is fenced to limit access and is occasionally patrolled by site security personnel. SEAD-121C and SEAD-121I are both located in close proximity to the Army's current office locations, and both are typified as relatively open and generally flat. Further, the setting of SEAD-121C/121I is generally similar to the surrounding areas and there are no specific features (e.g., vehicles, buildings, towers, culverts, etc.) that would attract special attention from potential adolescent trespassers. Therefore, trespassing at SEAD-121C/121I is considered unlikely to occur frequently or for extended periods without individuals being challenged or noticed. On this basis, a 14 days/year exposure frequency is considered a reasonable assumption for the sites. Nonetheless, an elevated exposure frequency, 50 days/year (equivalent to two days a week for 25 weeks or approximately half a year), was evaluated for the uncertainty analysis.

The risks (including total cancer risk and non-cancer hazard index) are in linear relationship with the exposure frequency for the adolescent trespasser (as illustrated in the generic intake equation presented in Section 6.5.3 of the RI report, along with the risk characterization equation presented in Section 6.7 of the RI report; specific equations for each exposure pathway are also presented in the risk calculation sheets presented in Appendix G of the RI report). Therefore, the risks for the adolescent receptor with an exposure frequency of 50 days/year can be easily inferred from the

risks associated with 14 days/year exposure frequency (as presented in **Tables 9A** through **10G**) and are summarized in **Table 22**.

As shown in **Table 22**, the total cancer risks and non-cancer risks for the adolescent trespasser with an exposure frequency of 50 days/year at SEAD-121C are below the USEPA limits (1E-4 for cancer risk and 1 for hazard index).

The total cancer risk and non-cancer risk for the adolescent trespasser exposed to COPCs in SEAD-121I ditch soil and surface water with an exposure frequency of 50 days/year are below the USEPA limits (**Table 22**).

The total cancer risk for the adolescent trespasser exposed to COPCs in SEAD-121I soil with an exposure frequency of 50 days/year is below the USEPA limit. The hazard index for the adolescent trespasser exposed to COPCs in SEAD-121I soil with an exposure frequency of 50 days/year is slightly above the USEPA limit (2 vs. 1). The elevated hazard index is mainly caused by manganese in SEAD-121I soil, which contributes 100%, 95%, and 97% respectively to the ambient air inhalation, soil ingestion, and soil dermal contract exposure pathways. As discussed in **Section 1**, the levels of manganese detected at SEAD-121I are associated with strategic materials and therefore manganese is not considered a COC at SEAD-121I. If manganese in SEAD-121I soil were not included in the risk assessment, the total non-cancer and cancer risks for the adolescent trespasser with an exposure frequency of 50 days/year would be below the USEPA target limits.

In summary, the 14 days/year exposure frequency used for this risk assessment was a reasonable and conservative assumption based on the site-specific conditions and uses. However, even if an elevated exposure frequency (50 days/year) were applied, there would be no unacceptable risks to the adolescent trespasser at SEAD-121C or SEAD-121I once the strategic materials at SEAD-121I are removed and their associated residues are addressed.

# 4 Quantitative Uncertainty Analysis Conclusion

The risk assessment was repeated with the following revised approach/assumptions to evaluate potential uncertainty of the analysis.

- The COPC screening was conducted by comparing the maximum detected concentrations with Region 9 PRGs corresponding to a target cancer risk of 1x10<sup>-6</sup> or a target hazard quotient of 0.1, whichever is lower; and
- Risk assessment was repeated for an elevated exposure frequency of 50 days/year for the adolescent trespasser (ages 11-16 yr).

In summary, the above approach or assumption revisions are not expected to impact the overall

risk assessment conclusions at the sites. Although elevated non-cancer risks were identified for construction workers exposed to COPCs in the impacted mediums at SEAD-121C, the risks were caused by background metal levels at the site and groundwater intake. Elevated non-cancer risks were identified for industrial workers, construction workers, and adolescent trespassers with elevated exposure frequency (i.e., 50 days/year) who may potentially be exposed to COPCs in the impacted mediums at SEAD-121I, the risks were caused by manganese and iron associated with the ore piles and background metal levels at the site. Once the strategic materials at SEAD-121I and their associated residues are removed by the DoD, and with the recommended institutional control (i.e., restriction of groundwater use and access and prohibition of residential housing, school, childcare facility and playground development) in place for the sites, the sites would not pose unacceptable risks to human health.

# Attachment 2 Uncertainty Analysis Risk Calculation Tables

| 1A | SEAD-121C Total Soil – Occurrence, Distribution, and Selection of Chemicals of                     |
|----|--|
| 1B | Potential Concern<br>SEAD-121C Surface Soil – Occurrence, Distribution, and Selection of Chemicals |
|    | of Potential Concern   |
| 1C | SEAD-121C Ditch Soil - Occurrence, Distribution, and Selection of Chemicals of                     |
|    | Potential Concern  |
| 1D | SEAD-121C Groundwater - Occurrence, Distribution, and Selection of Chemicals                       |
|    | of Potential Concern   |
| 1E | SEAD-121C Surface Water - Occurrence, Distribution, and Selection of                               |
|    | Chemicals of Potential Concern   |
| 2A | SEAD-121I Surface Soil - Occurrence, Distribution, and Selection of Chemicals of                   |
|    | Potential Concern  |
| 2B | SEAD-121I Ditch Soil - Occurrence, Distribution, and Selection of Chemicals of                     |
|    | Potential Concern  |
| 2C | SEAD-121I Surface Water - Occurrence, Distribution, and Selection of Chemicals                     |
|    | of Potential Concern   |
| 3A | SEAD-121C Total Soil - Soil Exposure Point Concentration Summary                                   |
| 3B | SEAD-121C Surface Soil - Soil Exposure Point Concentration Summary                                 |
| 3C | SEAD-121C Ditch Soil - Soil Exposure Point Concentration Summary                                   |
| 3D | SEAD-121C Groundwater - Groundwater Exposure Point Concentration Summary                           |
| 3E | SEAD-121C Surface Water - Exposure Point Concentration Summary                                     |
| 4A | SEAD-121I Surface Soil - Soil Exposure Point Concentration Summary                                 |
| 4B | SEAD-121I Ditch Soil - Soil Exposure Point Concentration Summary                                   |
| 4C | SEAD-1211 Surface Warer - Surface Water Exposure Point Concentration                               |
|    | Summary  |
| 5A | SEAD-121C Surface Soil - Ambient Air Exposure Point Concentrations for                             |
|    | Industrial Workers and Adolescent Trespasser   |
| 5B | SEAD-121I Surface Soil - Ambient Air Exposure Point Concentrations for                             |
|    | Industrial Workers and Adolescent Trespasser   |
| 5C | SEAD-121I Surface Soil - Ambient Air Exposure Point Concentrations for                             |
|    | Construction Worker  |
| 6  | SEAD-121C Total Soil - Ambient Air Exposure Point Concentrations for                               |
|    | Construction Worker  |
| 7A | SEAD-121C Ditch Soil - Ambient Air Exposure Point Concentrations for                               |
|    | Industrial Workers and Adolescent Trespasser   |
| 7B | SEAD-121I Ditch Soil – Ambient Air Exposure Point Concentrations for Industrial                    |
|    | Workers and Adolescent Trespasser  |

# Attachment 2 Uncertainty Analysis Risk Calculation Tables (Continued)

| 7C        | SEAD-121C Ditch Soil - Ambient Air Exposure Point Concentrations for                               |
|-----------|--|
|           | Construction Worker  |
| 7D        | SEAD-121I Ditch Soil - Ambient Air Exposure Point Concentrations for                               |
|           | Construction Worker  |
| 8A        | Non-Cancer Toxicity Data - Oral/Dermal   |
| 8B        | Non-Cancer Toxicity Data – Inhalation  |
| 8C        | Cancer Toxicity Data – Oral/Dermal   |
| 8D        | Cancer Toxicity Data – Inhalation  |
| 9A        | SEAD-121C - Calculation of Intake and Risk from the Ingestion of Soil – RME                        |
| 9B        | SEAD-121C - Calculation of Absorbed Dose and Risk from Dermal Contact to                           |
| ,2        | Soil – RME   |
| 9C        | SEAD-121C - Calculation of Intake and Risk from Inhalation of Dust in Ambient                      |
|           | Air – Soil – RME   |
| 9D        | SEAD-121C - Calculation of Intake and Risk from the Ingestion of Ditch Soil –                      |
| OF.       | RME  |
| 9E        | SEAD-121C - Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – RME          |
| 9F        | SEAD-121C - Calculation of Intake and Risk from Inhalation of Dust in Ambient                      |
| <b>71</b> | Air – Ditch Soil – RME   |
| 9G        | SEAD-121C - Calculation of Absorbed Dose and Risk from Dermal Contact to                           |
|           | Surface Water – RME  |
| 9H        | SEAD-121C - Calculation of Intake and Risk from the Ingestion of Groundwater - RME                 |
| 9I        | SEAD-121C - Calculation of Absorbed Dose and Risk from Dermal Contact to                           |
|           | Groundwater – RME  |
| 10A       | SEAD-121I - Calculation of Intake and Risk from the Ingestion of Soil – RME                        |
| 10B       | SEAD-121I - Calculation of Absorbed Dose and Risk from Dermal Contact to                           |
| 10C       | Soil – RME<br>SEAD-121I - Calculation of Intake and Risk from Inhalation of Dust in Ambient        |
| 100       | Air – Soil – RME   |
| 10D       | SEAD-121I - Calculation of Intake and Risk from the Ingestion of Ditch Soil –                      |
|           | RME  |
| 10E       | SEAD-121I - Calculation of Absorbed Dose and Risk from Dermal Contact to                           |
|           | Ditch Soil – RME   |
| 10F       | SEAD-121I - Calculation of Intake and Risk from Inhalation of Dust in Ambient                      |
| 10C       | Air – Ditch Soil – RME<br>SEAD-1211 - Calculation of Absorbed Dose and Risk from Dermal Contact to |
| 10G       | Surface Water – RME  |
| 11A       | SEAD-121C – Calculation of Total Non-Carcinogenic and Carcinogenic Risk –                          |
|           | RME  |
| 11B       | SEAD-121I – Calculation of Total Non-Carcinogenic and Carcinogenic Risk –                          |
| 1115      | RME  |
| 12        | Contributing COPCs to Human Health Risk at SEAD-1211   |
| 1/        | CONTROLLO COPUS IO FURDAD FIRADO KISK ALMEADI-LA L   |

# Response to EPA Comments Dated 10/31/05 Attachment 2

| 13          | Comparison of SEAD-121C Aluminum, Iron, and Manganese Concentrations with Seneca Background |
|-------------|---|
| 14          | Comparison of SEAD-121I Arsenic Concentrations with Seneca Background                       |
| 15A         | Comparison Between Aluminum Concentrations in SEAD-121C Soil and Seneca                     |
|             | Background – Student's T Test   |
| 15B         | Comparison Between Aluminum Concentrations in SEAD-121C Soil and Seneca                     |
|             | Background – Mann-Whitney Test  |
| 16A         | Comparison Between Iron Concentrations in SEAD-121C Soil and Seneca                         |
|             | Background – Student's T Test   |
| 16B         | Comparison Between Iron Concentrations in SEAD-121C Soil and Seneca                         |
|             | Background - Mann-Whitney Test  |
| 17A         | Comparison Between Manganese Concentrations in SEAD-121C Soil and Seneca                    |
|             | Background – Student's T Test   |
| 17 <b>B</b> | Comparison Between Manganese Concentrations in SEAD-121C Soil and Seneca                    |
|             | Background - Mann-Whitney Test  |
| 18A         | Comparison Between Aluminum Concentrations in SEAD-121C Ditch Soil and                      |
|             | Seneca Background – Student's T Test  |
| 18 <b>B</b> | Comparison Between Aluminum Concentrations in SEAD-121C Ditch Soil and                      |
|             | Seneca Background – Mann-Whitney Test   |
| 19A         | Comparison Between Iron Concentrations in SEAD-121C Ditch Soil and Seneca                   |
|             | Background – Student's T Test   |
| 19B         | Comparison Between Iron Concentrations in SEAD-121C Ditch Soil and Seneca                   |
|             | Background - Mann-Whitney Test  |
| 20A         | Comparison Between Manganese Concentrations in SEAD-121C Ditch Soil and                     |
|             | Seneca Background – Student's T Test  |
| 20B         | Comparison Between Manganese Concentrations in SEAD-121C Ditch Soil and                     |
|             | Seneca Background – Mann-Whitney Test   |
| 21A         | Comparison Between Arsenic Concentrations in SEAD-121I Ditch Soil and                       |
|             | Seneca Background – Student's T Test  |
| 21B         | Comparison Between Arsenic Concentrations in SEAD-121I Ditch Soil and                       |
|             | Seneca Background – Mann-Whitney Test (Two-Tailed Test)                                     |
| 21C         | Comparison Between Arsenic Concentrations in SEAD-121I Ditch Soil and                       |
|             | Seneca Background - Mann-Whitney Test (Lower-Tailed Test)                                   |
| 22          | Total Non-Carcinogenic and Carcinogenic Risks for Adolescent Trespasser -                   |
|             | Uncertainty Analysis  |

#### Table 1A

#### OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future Medium: Soil Exposure Medium: Soil Exposure Point: SEAD-121C

| CAS                | Chemical                            | Minimum       | Q   | Maximum       | Q        | Location of            | Detection | Range of Reporting | Concentration | Maximum                               | Screening | Potential                     | COPC | Rationale for            |
|--------------------|-------------------------------------|---------------|-----|---------------|----------|------------------------|-----------|--------------------|---------------|---------------------------------------|-----------|-------------------------------|------|--------------------------|
| Number             |                                     | Detected      |     | Detected      |          | Maximum                | Frequency | Limits 1           | Used for      | Background                            | Value 4   | ARAR/                         | Flag | Contaminant              |
|                    | 1                                   | Concentration | n.  | Concentration |          | Concentration          | 1         | (mg/kg)            | Screening 2   | Value <sup>3</sup>                    | (mg/kg)   | TBC                           |      | Deletion or<br>Selection |
|                    |                                     | (mg/kg)       |     | (mg/kg)       |          |                        |           |                    | (mg/kg)       | (mg/kg)                               |           | Value <sup>5</sup><br>(mg/kg) |      | Selection                |
| Volatile Or        | ganic Compounds                     |               |     |               |          |                        |           |                    |               |                                       |           |                               |      |                          |
| 67-64-1            | Acetone                             | 0.0032        | J   | 0.028         | J        | SB121C-4               | 22 / 67   | 0.0022 - 0.03      | 0.028         |                                       | 1,400     | 0.2                           | NO   | BSL                      |
| 71-43-2            | Benzene                             | 0.002         | J   | 1.8           | J.       | SBDRMO-9               | 3 / 68    | 0.0022 - 0.012     | 1.8           | ALCOMO.                               | 0.64      | 0.06                          | YES  | ASL                      |
| 75-15-0            | Carbon disulfide                    | 0.0022        | J   | 0.0047        |          | SBDRMO-9               | 2 / 68    | 0.0022 - 0.012     | 0.0047        |                                       | 36        | 2.7                           | NO   | BSL                      |
|                    |                                     |               |     |               |          | SB121C-4               |           |                    |               |                                       |           |                               |      |                          |
| 67-66-3            | Chloroform                          | 0.002         | J   | 0.0048        | J        | (dup)                  | 4 / 68    | 0.0022 - 0.012     | 0.0048        |                                       | 0.22      | 0.3                           | NO   | BSL                      |
| 100-41-4           | Ethyl benzene                       | 0.001005      | J   | 24            | J        | SBDRMO-9               | 3 / 68    | 0.0022 - 0.012     | 24            |                                       | 400       | 5.5                           | NO   | BSL                      |
| SA0078             | Meta/Para Xylene                    | 0.002         | J   | 130           | J        | SBDRMO-9               | 4 / 56    | 0.0022 - 0.0033    | 130           |                                       | 27        |                               | NO   | BSL                      |
| 78-93-3            | Methyl ethyl ketone                 | 0.0032        | _   | 0.0076        | J        | SBDRMO-14              | 2 / 68    | 0.0022 - 0.012     | 0.0076        |                                       | 2,200     | 0.3                           | NO   | BSL                      |
| 75-09-2            | Methylene chloride                  | 0.0026        | J   | 0.0035        | <u> </u> | SBDRMO-24              | 3 / 68    | 0.00084 - 0.012    | 0.0035        |                                       | 9.1       | 0.1                           | NO   | BSL                      |
| 95-47-6            | Ortho Xylene                        | 0.016         | -   | 0.075         | ļ        | SBDRMO-9               | 2 / 56    | 0.0022 - 0.0033    | 0.075         |                                       | 27        |                               | NO   | BSL                      |
| 100-42-5           | Styrene                             | 0.0027        | J   | 0.0027        | J        | SBDRMO-9               | 1 / 68    | 0.0022 - 0.012     | 0.0027        |                                       | 1,700     |                               | NO   | BSL                      |
| 108-88-3           | Toluene                             | 0.002         | J   | 0.084         | <u> </u> | SBDRMO-9               | 13 / 68   | 0.0022 - 0.005     | 0.084         |                                       | 520       | 1.5                           | NO   | BSL                      |
|                    | e Organic Compounds                 |               | +-  |               | -        |                        |           |                    |               |                                       |           |                               |      |                          |
| 121-14-2           | 2,4-Dinitrotoluene                  | 0.045         | J   | 0.045         | i i      | SB121C-2               | 1 / 68    | 0.069 - 1.8        | 0.045         |                                       | 12        |                               | NO   | BSL                      |
| 91-57-6            | 2-Methylnaphthalene                 | 0.0055        | J   | 2.5           | J        | SBDRMO-12              | 13 / 68   | 0.069 - 1.8        | 2.5           |                                       | 31        | 36.4                          | NO   | BSL                      |
| 83-32-9            | Acenaphthene                        | 0.0065        | J   | 2.6           | ⊢        | SSDRMO-12              | 14 / 68   | 0.0715 - 1.8       | 2.6           |                                       | 370       | 50                            | NO   | BSL                      |
| 208-96-8           | Acenaphthylene                      | 0.042         | J   | 2.5           | -        | SBDRMO-24              | 12 / 68   | 0.069 - 1.8        | 2.5           |                                       | 2000      | 41                            | NO   | NSV                      |
| 120-12-7           | Anthracene                          | 0.0065        | 1   | 7.1           | ļ.       | SSDRMO-12              | 23 / 68   | 0.0715 - 1.8       | 7.1           | 1,21                                  | 2,200     | 50                            | NO   | BSL                      |
| 56-55-3<br>50-32-8 | Benzo(a)anthracene                  | 0.0046        | 1   | 8.7           | 1        | SSDRMO-12<br>SSDRMO-12 | 33 / 67   | 0.072 - 1.8        | - 10<br>8.7   |                                       | 0.62      | 0.224                         | YES  | ASL ASL                  |
| 205-99-2           | Benzo(a)pyrene Benzo(b)fluoranthene |               | 1   |               | 7        | SSDRMO-12<br>SSDRMO-12 | 38 / 66   | 0.0715 - 0.43      |               | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |           |                               |      | ASL                      |
| 203-99-2           | Benzo(b) liuorantnene               | 0.0058        | 13  | 12            | -        | SSDRMO-12<br>SSDRMO-7  | 38 / 00.  | 0.072 - 0.43       | 12            | 2 8 139458                            | 0.62      | 1.1                           | YES  | ASL                      |
| 191-24-2           | Benzo(ghi)perylene                  | 0.0062        | 1,  | 3.2           | ,        | (dup)                  | 32 / 66   | 0.0715 - 0.43      | 3.2           |                                       |           | 50                            | NO   | NSV                      |
| 207-08-9           | Benzo(k)fluoranthene                | 0.0057        | 1 . | 7.5           | 1        | SSDRMO-12              | 28 / 66   | 0.0715 - 0.43      | 7.5           |                                       | 6.2       | 1.1                           | YES  | ASL                      |
| 117-81-7           | Bis(2-Ethylhexyl)phthalate          | 0.0072        | +   | 0.2           | -        | SS121C-3               | 35 / 68   | 0.0713 - 0.43      | 0.2           | ·                                     | 35        | 50                            | NO   | BSL                      |
| 85-68-7            | Butylbenzylphthalate                | 0.0064        | 1-  | 0.12          | 1        | SSDRMO-14              | 8 / 68    | 0.0715 - 1.8       | 0.12          |                                       | 1,200     | 50                            | NO   | BSL                      |
| 86-74-8            | Carbazole                           | 0.014         | J   | 4.2           | 1        | SSDRMO-12              | 20 / 68   | 0.0715 - 1.8       | 4.2           |                                       | 24        | - 30                          | NO   | BSL                      |
| 218-01-9           | Chrysene                            | 0.0055        | 3   | 9.1           | 3        | SSDRMO-12              | 32 / 67   | 0.072 - 1.8        | 9.1           |                                       | 62        | 0.4                           | YES  | CSG                      |
|                    | - Children                          | 0.000         | 1   |               | -        | SSDRMO-7               |           | 0.072              | 7.2           | 35 1 1 1 N                            | . 17. 20. | 1. 125 y 2                    |      |                          |
| 53-70-3            | Dibenz(a,h)anthracene               | 0.0076        | ]]  | 0.47          | J        | (dup)                  | 15 / 66   | 0.0715 - 0.43      | 0.47          | Revision 1                            | 0.062     | 0.014                         | YES  | ASL                      |
| 132-64-9           | Dibenzofuran                        | 0.008         | J   | 1.7           | Ť        | SSDRMO-12              | 13 / 68   | 0.069 - 1.8        | 1.7           | -                                     | 15        | 6.2                           | NO   | BSL                      |
| 84-66-2            | Diethylphthalate                    | 0.0047        | J   | 0.25          | J        | SBDRMO-24              | 11 / 68   | 0.073 - 1.8        | 0.25          |                                       | 4,900     | 7.1                           | NO   | BSL                      |
|                    |                                     |               |     |               |          | SSDRMO-7               |           |                    | 7             |                                       | - 72 - 72 |                               |      |                          |
| 84-74-2            | Di-n-butylphthalate                 | 0.0053        | J   | 0.13          | J        | (dup)                  | 7 / 68    | 0.069 - 1.8        | 0.13          |                                       | 610       | 8.1                           | NO   | BSL                      |
|                    |                                     |               |     | *             |          | SB121C-1               |           |                    | 70.           |                                       |           |                               |      |                          |
| 117-84-0           | Di-n-octylphthalate                 | 0.0038        | J   | 0.023         | J        | (dup)                  | 5 / 68    | 0.0715 - 1.8       | 0.023         |                                       | 240       | 50                            | NO   | BSL                      |
| 206-44-0           | Fluoranthene                        | 0.0048        | J   | 27            |          | SSDRMO-12              | 43 / 68   | 0.072 - 1.8        | 27            |                                       | 230       | 50                            | NO   | BSL                      |
| 86-73-7            | Fluorene                            | 0.005         | J   | 3.5           | -        | SSDRMO-12              | 17 / 68   | 0.0715 - 1.8       | 3.5           |                                       | 270       | 50                            | NO   | BSL                      |
| 118-74-1           | Hexachlorobenzene                   | 0.0085        | J   | 0.0085        | J        | SB121C-2               | 1 / 68    | 0.069 - 1.8        | 0.0085        |                                       | 0.3       | 0.41                          | NO   | BSL                      |
| 100                | 1.0                                 | Family 1      |     | *             |          | SSDRMO-7               | West      |                    | 100, 100      | 1 J 7 J. 1 J. 1                       | 1000      | 244/44                        | j 11 | 17.50 (0.4)              |
| 193-39-5           | Indeno(1,2,3-cd)pyrene              | 0.0059        | J   | 0.97          | J        | (dup)                  | 28 / 68   | 0.0715 - 1.8       | 0.97          |                                       | 0.62      | 3.2                           | YES  | ASL                      |
| 91-20-3            | Naphthalene                         | 0.004         | J   | 1.9           | J        | SBDRMO-12              | 13 / 68   | 0.0715 - 1.8       | 1.9           |                                       | 5.6       | 13                            | NO   | BSL                      |

#### Table 1A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

# Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future

Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

|               | <del></del>            |  |                |  | 3        |   |                        |  |  |  |  |   |              |  |
|---------------|------------------------|--|----------------|--|----------|---|------------------------|--|--|--|--|---|--------------|--|
| CAS<br>Number | Chemical               | Minimum Detected Concentration 1 (mg/kg) | Q              | Maximum Detected Concentration 1 (mg/kg) | Q        | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
| 86-30-6       | N-Nitrosodiphenylamine | 0.0048                                   | J              | 0.0048                                   | J        | SB121C-2                                | 1 / 68                 | 0.069 - 1.8  | 0.0048   |  | 99   |   | NO           | BSL  |
| 85-01-8       | Phenanthrene           | 0.0059                                   | ī              | 29                                       | -        | SSDRMO-12                               | 33 / 68                | 0.072 - 1.8  | 29   |  |  | 50  | NO           | NSV  |
| 129-00-0      | Pyrene                 | 0.0047                                   | ī              | 34                                       | 1        | SSDRMO-12                               | 40 / 68                | 0.072 - 1.8  | 34   |  | 230  | 50  | NO           | BSL  |
| PCBs          | 1 yreac                | 0.0047                                   |                | - 54                                     | -        | BBBIGIO-12                              | 40 / 00                | 0.072 - 1.0  |  |  | 250  | - 50  | 1.0          | 202  |
|               | Aroclor-1242           | 0.058                                    | T              | 0.058                                    | I        | SS121C-4                                | 1 / 68                 | 0.0024 - 0.038                                       | 0.058  | 33.00  | 0.22                                       | 11, 11  | YES          | CSG  |
|               | Aroclor-1254           | 0.044                                    | j              | 0.93                                     | 1        | SBDRMO-18                               | 9 / 68                 | 0.011 - 0.038  | 0.93   | 100 100  | 0.22                                       | 10  | YES          | ASL  |
|               | Aroclor-1260           | 0.009                                    | ī              | 0.20                                     | 1        | SB121C-2                                | 8 / 68                 | 0.0021 - 0.038                                       | 0.20   | 1  | 0.22                                       | 10  | YES          | CSG  |
| Pesticides    | Arocioi-1200           | 0.009                                    | 1              | 0.20                                     | $\vdash$ | DDIZIC-Z                                | 07.00                  | 0.0021 - 0.030                                       | 0.20   |  | 0.22                                       |   | · I DO       |  |
| 72-54-8       | 4.4'-DDD               | 0.0019                                   | T              | 0.044                                    | T        | SBDRMO-18                               | 5 / 59                 | 0.00022 - 0.0039                                     | 0.044  |  | 2.4  | 2.9   | NO           | BSL  |
| 72-55-9       | 4,4'-DDE               | 0.0025                                   | Ť              | 0.069                                    | J        | SS121C-3                                | 18 / 67                | 0.00022 - 0.0038                                     | 0.069  |  | 1.7  | 2.1   | NO           | BSL  |
| 50-29-3       | 4,4'-DDT               | 0.0023                                   | Ť              | 0.005                                    | J        | SS121C-3                                | 16 / 67                | 0.00022 - 0.0038                                     | 0.10   |  | 1.7  | 2.1   | NO           | BSL  |
| 30-29-3       | 4,4-DD1                | 0.0021                                   | ١,             | 0.1                                      | 1        | SBDRMO-16                               | 10 / 0/                | 0.00022 - 0.0038                                     | 0.10   |  | 1.7  | 2.1   | 110          | BSL  |
| 200 00 2      | Aldein                 | 0.0045                                   | ļ              | 0.014                                    | ļ,       |   | 4 / 68                 | 0.00011 0.0022                                       | 0.014  |  | 0.029                                      | 0.041   | NO           | BSL  |
| 309-00-2      | Aldrin                 | 0.0043                                   | 1              | 0.014                                    | J        | (dup)<br>SBDRMO-16                      | 4 / 08                 | 0.00011 - 0.0022                                     | 0.014  |  | 0.029                                      | 0.041   | NO           | BSL  |
| £102.71.0     | 41.1 011 1             | 0.001                                    | 1.             | 0.002                                    | ١,       |   | 4 / 68                 | 0.00073 0.0033                                       | 0.063  |  | 1.6  |   | NO           | B\$L   |
| 5103-71-9     | Alpha-Chlordane        | 0.001                                    | Î              | 0.063                                    | 'n       | (dup)                                   |                        | 0.00032 - 0.0022                                     |  |  |  | 0.3   | NO           | BSL  |
| 319-86-8      | Delta-BHC              | 0.000975                                 | J              | 0.002                                    | J        | SS121C-4                                | 4 / 68                 | 0.00022 - 0.0022                                     | 0.002  |  | 0.09                                       | 0.3   | NO           | BSL  |
|               | Dieldrin               |  | 1.             |  |          | SBDRMO-16                               |                        |  | 004  | 134 134.28   | 0.000                                      |   | 1000         | 3 1,1 0 1  |
| 60-57-1       | Dieldrin               | 0.039                                    | 1              | 0.041                                    | J_       | (dup)                                   | 2 / 67                 | 0.00011 - 0.0038                                     | 0.041  | 17, 444  | 0.030                                      | 0.044   | YES          | ASL  |
|               |                        |  | 1              |  | ١.       | SSDRMO-7                                |                        |  |  |  |  |   | 370          | DGY  |
| 959-98-8      | Endosulfan I           | 0.0058                                   | ₩              | 0.19                                     | J        | (dup)                                   | 19 / 68                | 0.00054 - 0.0022                                     | 0.19   |  | 37   | 0.9   | NO           | BSL  |
|               | Endosulfan II          | 0.009                                    | <del> </del> _ | 0.009                                    |          | SBDRMO-24                               | 1 / 67                 | 0.00034 - 0.0038                                     | 0.009  |  | 37   | 0.9   | NO           | BŞL  |
| 72-20-8       | Endrin                 | 0.022                                    | J              | 0.023                                    | J        | SBDRMO-16                               | 2 / 67                 | 0.00086 - 0.0038                                     | 0.023  |  | 1.8  | 1.0   | NO           | BSL  |
|               | Endrin ketone          | 0.0034                                   | NJ             | 0.0097                                   | NJ       | SBDRMO-16                               | 4 / 68                 | 0.00011 - 0.0038                                     | 0.0097   |  | 1.8  |   | NO           | BSL  |
|               | Gamma-Chlordane        | 0.0012                                   | J              | 0.0012                                   | J        | SS121C-4                                | 1 / 68                 | 0.00032 - 0.0022                                     | 0.0012   |  | 1.6  | 0.54  | NO           | BSL  |
| 76-44-8       | Heptachlor             | 0.0021                                   | J              |  | J        | SBDRMO-18                               | 2 / 67                 | 0.0011 - 0.0022                                      | 0.014  |  | 0.11                                       | 0.1   | NO           | BSL  |
| 1024-57-3     | Heptachlor epoxide     | 0.0011                                   | J              | 0.0028                                   | J        | SS121C-3                                | 3 / 65                 | 0.00032 - 0.0022                                     | 0.0028   |  | 0.053                                      | 0.02  | NO           | BSL  |
| Inorganics    |                        |  | $\perp$        |  |          |   |                        |  |  |  |  |   |              |  |
| 7429-90-5     | Aluminum               | 1,730                                    |                | 17,600                                   |          | SBDRMO-13                               | 68 / 68                | <u> </u>   | 17,600   | 20,500   | 7,600                                      | 19,300  | YES          | ASL  |
| 7440-36-0     | Antimony               | 0.32                                     | J              | 236                                      |          | SSDRMO-24                               | 43 / 68                | 0.26 - 1.2   | 236  | 6.55   | 3.1  | 5.9   | YES          | ASL  |
| 7440-38-2     | Arsenic                | 2.4                                      | J              | 11.6                                     | 12       | SSDRMO-24                               | 68 / 68                | APPLICATION OF                                       | 11.6   | 21.5   | 0.39                                       | 8.2   | YES          | ASL  |
| 7440-39-3     | Barium                 | 18.1                                     |                | 2,030                                    | J        | SSDRMO-24                               | 68 / 68                |  | 2,030  | 159  | 540  | 300   | YES          | ASL  |
| 7440-41-7     | Beryllium              | 0.21                                     | 1-             | 1.2                                      |          | SBDRMO-8                                | 68 / 68                |  | 1.2  | 1.4  | 15   | 1.1   | NO           | BSL  |
| 7440-43-9     | Cadmium                | 0.06                                     | J              | 29.1                                     |          | SSDRMO-14                               | 31 / 68                | 0.06 - 0.16  | 29.1   | 2.9  | 3.7  | 2.3   | YES          | ASL  |
| 7440-70-2     | Calcium                | 2,100                                    | J              | 296,000                                  |          | SS121C-4                                | 68 / 68                |  | 296,000  | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT  |
| 7440-47-3     | Chromium               | 3.8                                      |                | 74.8                                     |          | SBDRMO-18                               | 68 / 68                |  | 74.8   | 32.7   | 210  | 29.6  | NO           | BSL  |
| 7440-48-4     | Cobalt                 | 3.5                                      |                | 19.7                                     |          | SB121C-4                                | 55 / 55                |  | 19.7   | 29.1   | 90   | 30  | NO           | BSL  |
| 7440-50-8     | Copper                 | 8.8                                      | J              | 9,750                                    |          | SB121C-2                                | 68 / 68                | F 10 10 10 10 10 10 10 10 10 10 10 10 10             | 9,750  | 62.8   | 310  | 33  | YES          | ASL  |
| 7439-89-6     | Iron                   | 4,230                                    |                | 54,100                                   |          | SB121C-2                                | 68 / 68                |  | 54,100   | 38,600   | 2,300                                      | 36,500  | YES          | ASL  |
| 7439-92-1     | Lead                   | 6.2                                      | J              | 18,900                                   |          | SSDRMO-24                               | 68 / 68                | 8 3.5 7  | 18,900   | 266  | 400  | 24.8  | YES          | ASL  |
| 7439-95-4     | Magnesium              | 3,610                                    | Ť              | 24,900                                   | J        | SBDRMO-23                               | 68 / 68                |  | 24,900   | 29,100   | 400,000                                    | 21,500  | NO           | NUT  |
|               | Manganese              | 213                                      | 1              | 858                                      | Ť        | SSDRMO-11                               | 68 / 68                | 317129 19 40 40 40 40                                | 858  | 2,380  | 180  | 1,060   | YES          | ASL  |
|               | Mercury                | 0.01                                     | 1-             | 0.47                                     |          | SBDRMO-18                               | 62 / 67                | 0.04 - 0.06  | 0.47   | 0.13   | 2.3  | 0.1   | NO           | BSL  |
| 7440-02-0     | Nickel                 | 11.6                                     |                | 224                                      |          | SS121C-2                                | 68 / 68                | 0.04 - 0.00  | 224  | 62.3   | 160  | 49  | YES          | ASL  |
|               |                        | 11.0                                     | 1 .            | 447                                      |          | JU1210-2                                | ,                      |  |  | 02.3   | 100  |   |              |  |

#### Table 1A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL

#### SEAD-121C

Seneca Army Depot Activity

| Scenario Timeframe: | Cuurent/Future |  |
|---------------------|----------------|--|
| Medium:             | Soil           |  |
| Exposure Medium:    | Soil           |  |
| Exposure Point:     | SEAD-121C      |  |

| CAS<br>Number | Chemical                     | Minimum<br>Detected<br>Concentration<br>1<br>(mg/kg) | Q  | Maximum Detected Concentration  (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening <sup>2</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|----|---|---|---|------------------------|--|---|--|--|---|-----|--|
| 7782-49-2     | Selenium                     | 0.49   | J  | 1.3                                     |   | SSDRMO-14                               | 10 / 68                | 0.36 - 1.1   | 1.3   | 1.7  | 39   | 2   | NO  | BSL  |
| 7440-22-4     | Silver                       | 0.34   |    | 21.8                                    |   | SS121C-1                                | 20 / 68                | 0.28 - 0.49  | 21.8  | 0.87   | 39   | 0.75  | NO  | BSL  |
| 7440-23-5     | Sodium                       | 58.2   |    | 478                                     |   | SSDRMO-14                               | 56 / 68                | 106 - 141  | 478   | 269  | 1,125,000                                  | 172   | NO  | NUT  |
| 7440-28-0     | Thallium                     | 0.5  | J. | 1.8                                     | J | SBDRMO-24                               | 12 / 68                | 0.32 - 1.5   | 1.8   | 1.2  | 0.52                                       | 0.7   | YES | ASL  |
| 7440-62-2     | Vanadium                     | 5.1  |    | 27                                      | J | SBDRMO-13                               | 68 / 68                | 医马氏氏线性坏疽 医乳化皮肤                                       | 27  | 32.7   | 7.8  | 150   | YES | ASL  |
| 7440-66-6     | Zinc                         | 29.8   | Ų. | 3,610                                   |   | SBDRMO-15                               | 68 / 68                | la sujite iz ajelika di la                           | 3,610   | 126  | 2,300                                      | 110   | YES | ASL  |
| Other Anal    | ytes                         | ·  |    |   |   |   |                        |  |   |  |  |   |     |  |
| SA0019        | Total Organic Carbon         | 2800   |    | 9,500                                   |   | SBDRMO-7                                | 56 / 56                |  |   |  |  |   | NO  | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 43   | J  | 7,600                                   | J | SBDRMO-17                               | 14 / 56                | 42.5 - 53  |   |  |  |   | NO  | ICE  |

#### Notes:

- Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
   (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient = 1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

The PRGs or RBCs corresponding to a hazard quotient of 1 were adjusted by multiplying 0.1 before they were used as screening values.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for gamma-chlordane was used as screening value for alpha-chlordane.

PRG for alpha-BHC was used as screening value for delta-BHC.

PRG for endosulfan was used as screening value for endosulfan I and endosulfan II.

PRG for endrin was used as screening value for endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason:

election Reason: Above Screening Levels (ASL)
Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

No Screening Value or Toxicity Value (NS)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier

J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

#### Attachment 2 Table 1B

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL SEAD-121C

## Seneca Army Depot Activity

| CAS<br>Number | Chemical                   | Minimum Detected Concentration | Q       | Maximum Detected Concentration | Q  | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting  Limits 1  (mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(ing/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|----------------------------|--------------------------------|---------|--------------------------------|----|---|------------------------|---------------------------------------|--|---|--|--|--------------|--|
|               |                            | (mg/kg)                        | <u></u> | (mg/kg)                        |    |   |                        |                                       |  |   |  | (mg/kg)  |              |  |
| Volatile Or   | ganic Compounds            |                                |         |                                |    |   |                        |                                       |  |   |  |  |              |  |
| 67-64-1       | Acetone                    | 0.0032                         | J       | 0.013                          | J  | SBDRMO-19                               |                        | 0.0025 - 0.021                        | 0.013                                      |   | 1,400                                      | 0.2  | NO           | BSL  |
| 71-43-2       | Benzene                    | 0.041                          |         | 0.041                          |    | SBDRMO-9                                | 1 / 48                 | 0.0025 - 0.012                        | 0.041                                      |   | 0.64                                       | 0.06   | NO           | BSL  |
| 75-15-0       | Carbon disulfide           | 0.0022                         | J       | 0.0047                         |    | SBDRMO-9                                | 2 / 48                 | 0.0025 - 0.012                        | 0.0047                                     |   | 36   | 2.7  | NO           | BSL  |
|               |                            |                                |         |                                |    | SB121C-4                                |                        |                                       |  |   | ! !  |  |              |  |
| 67-66-3       | Chloroform                 | 0.004                          | J       | 0.0048                         | J  | (dup)                                   | 2 / 48                 | 0.0025 - 0.012                        | 0.0048                                     |   | 0.22                                       | 0.3  | NO           | BSL  |
| 100-41-4      | Ethyl benzene              | 0.00101                        | J       | 3.3                            | J  | SBDRMO-9                                | 2 / 48                 | 0.0025 - 0.012                        | 3.3  |   | 400  | 5.5  | NO           | BSL  |
| SA0078        | Meta/Para Xylene           | 0.002                          | J       | 4.4                            | J  | SBDRMO-9                                | 3 / 40                 | 0.0025 - 0.0033                       | 4.4  | [ <u>-</u> .  | 27   |  | NO           | BSL  |
| 75-09-2       | Methylene chloride         | 0.0026                         | J       | 0.0026                         | J  | SSDRMO-21                               | 1 / 48                 | 0.00084 - 0.012                       | 0.0026                                     |   | 9.1  | 0.1  | NO           | BSL  |
| 95-47-6       | Ortho Xylene               | 0.016                          | 1       | 0.016                          |    | SBDRMO-9                                | 1 / 40                 | 0.0025 - 0.0033                       | 0.016                                      |   | 27   |  | NO           | BSL  |
| 108-88-3      | Toluene                    | 0.002                          | J       | 0.028                          | J  | SS121C-2                                | 9 / 48                 | 0.0025 - 0.0033                       | 0.028                                      |   | 520  | 1.5  | NO           | BSL  |
|               | e Organic Compounds        |                                | ₩       |                                | _  |   |                        |                                       |  |   |  |  |              |  |
| 121-14-2      | 2,4-Dinitrotoluene         | 0.045                          | J       |                                | J  | SB121C-2                                | 1 / 48                 | 0.069 - 1.8                           | 0.05                                       |   | 12   |  | NO           | BSL  |
| 91-57-6       | 2-Methylnaphthalene        | 0.0055                         | J       | 0.61                           |    | SSDRMO-12                               | 9 / 48                 | 0.069 - 1.8                           | 0.61                                       |   | 31   | 36.4   | NO           | BSL  |
| 83-32-9       | Acenaphthene               | 0.0065                         | J       | 2.6                            |    | SSDRMO-12                               | 11 / 48                | 0.0715 - 1.8                          | 2.6  |   | 370  | 50   | NO           | BSL  |
| 208-96-8      | Acenaphthylene             | 0.042                          | J       | 2.5                            |    | SBDRMO-24                               | 10 / 48                | 0.069 - 1.8                           | 2.5  |   |  | 41   | NO           | NSV  |
| 120-12-7_     | Anthracene                 | 0.0065                         | J       | 7.1                            |    | SSDRMO-12                               |                        | 0.0715 - 1.8                          | 7.1  |   | 2,200                                      | 50   | NO           | BSL  |
| 56-55-3       | Benzo(a)anthracene         | 0.00545                        | J       | 10                             | J  | SSDRMO-12                               |                        | 0.072 - 1.8                           | 10   | Whatte ex   | 0.62                                       | 0.224  | YES          | ASL  |
| 50-32-8       | Вепло(а)ругепе             | 0.0081                         | J.      | 8.7                            | J_ | SSDRMO-12                               |                        | 0.0715 - 0.43                         | 8.7  |   | 0.062                                      | 0.061  | YES          | ASL  |
| 205-99-2      | Benzo(b)fluoranthene       | 0.013                          | J       | 12                             | J  | SSDRMO-12:                              | 30 / 47                | 0.072 - 0.43                          | 12   | 14 J. A. R. M.  | 0.62                                       | 1.1  | YES          | ASL  |
|               |                            |                                |         |                                |    | SSDRMO-7                                |                        |                                       |  |   |  |  |              |  |
| 191-24-2      | Benzo(ghi)perylene         | 0.011                          | J       | 3.2                            | J  | (dup)                                   | 25 / 47                | 0.0715 - 0.43                         | 3.2  |   |  | 50   | NO           | NSV  |
| 207-08-9      | Benzo(k)fluoranthene       | 0.007                          | J       | 7.5                            | J  | SSDRMO-12                               | 22 / 47                | 0.0715 - 0.43                         | -7.5                                       |   | 6.2  | 1.1  | YES          | ASL  |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.0072                         | J       | 0.2                            | ļ  | SS121C-3                                | 27 / 48                | 0.073 - 1.8                           | 0.2  |   | 35   | 50   | NO           | BSL  |
| 85-68-7       | Butylbenzylphthalate       | 0.0078                         | J       | 0.12                           | J  | SSDRMO-14                               | 6 / 48                 | 0.0715 - 1.8                          | 0.12                                       |   | 1,200                                      | 50   | NO           | BSL  |
| 86-74-8       | Carbazole                  | 0.014                          | J       | 4.2                            | _  | SSDRMO-12                               |                        | 0.0715 - 1.8                          | 4.2  |   | 24   |  | NO           | BSL  |
| 218-01-9      | Chrysene                   | 0.0104                         | J       | 9.1                            | J  | SSDRMO-12                               | 25 / 47                | 0.072 - 1.8                           | 9.1  | 100 000 000   | 62   | 0.4  | YES          | CSG  |
|               |                            |                                | 1.      |                                |    | SSDRMO-7                                |                        |                                       |  |   | 0.00                                       | 0.014  | YES          | 1  |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.0076                         | J       | 0.47                           | J  | (dup)                                   | 12 / 47                | 0.0715 - 0.43                         | 0.47                                       |   | 0.062                                      | 0.014  | _            | ASL  |
| 132-64-9      | Dibenzofuran               | 0.019                          | J       | 1.7                            |    | SSDRMO-12                               | 10 / 48                | 0.069 - 1.8                           | 1.7  |   | 15   | 6.2  | NO<br>NO     | BSL  |
| 84-66-2       | Diethylphthalate           | 0.0085                         | ١,      | 0.021                          |    | SB121C-I                                |                        | 0.073 - 1.8                           | 0.021                                      |   | 4,900                                      | 7.1  | NO           | BSL  |
|               |                            |                                | J       |                                | ٦. | (dup)                                   | 6 / 48                 |                                       |  |   |  | ~~   |              |  |
|               |                            |                                | _       |                                |    | SSDRMO-7                                |                        | 224                                   | 0.125                                      |   | 610  |  | NO           | BSL  |
| 84-74-2       | Di-n-butylphthalate        | 0.0082                         | J       | 0.132                          | J  | (dup)                                   | 5 / 48                 | 0.069 - 1.8                           | 0.132                                      |   | 610  | 8.1  | NO           | BSL  |
|               |                            |                                | l.      |                                | ١. | SB121C-1                                |                        |                                       |  |   | 242  |  | 210          | BSL  |
| 117-84-0      | Di-n-octylphthalate        | 0.0038                         | 1       | 0.0232                         | 1  | (dup)                                   | 2 / 48                 | 0.0715 - 1.8                          | 0.0232                                     |   | 240  | 50   | NO           |  |
| 206-44-0      | Fluoranthene               | 0.0087                         | J       | 27                             | -  | SSDRMO-12                               | 35 / 48                | 0.072 - 1.8                           | 27   |   | 230  | 50   | NO           | BSL  |
| 86-73-7       | Fluorene                   | 0.005                          | J       | 3.5                            |    | SSDRMO-12                               | 13 / 48                | 0.0715 - 1.8                          | 3.5  |   | 270  | 50   | NO           | BSL  |
| 110.74        |                            | 0.0005                         |         | 0.0005                         |    | SB121C-1                                | 1 / 40                 | 0.060 1.0                             | 0.0095                                     |   | 0.2  | 0.41   | NO           | BSL  |
| 118-74-1      | Hexachlorobenzene          | 0.0085                         | J       | 0.0085                         | J  | (dup)                                   | 1 / 48                 | 0.069 - 1.8                           | 0.0085                                     |   | 0.3  | 0.41   | NO           | BSL  |
|               |                            |                                |         | 0.0=                           |    | SSDRMO-7                                |                        | 0.0015                                | 0.07                                       |   | 0.00                                       |  | TEEC         | ACT  |
| 193-39-5      | Indeno(1,2,3-cd)pyrene     | 0.0086                         | J       | 0.97                           | J. | (dup)                                   | 22 / 48                | 0.0715 - 1.8                          | 0.97                                       |   | 0.62                                       | 3.2  | YES          | ASL  |
| 91-20-3       | Naphthalene                | 0.004                          | J       | 0.4                            |    | SSDRMO-12                               | 9 / 48                 | 0.0715 - 1.8                          | 0.4  |   | 5.6  | 13   | NO           | BSL  |
| 86-30-6       | N-Nitrosodiphenylamine     | 0.0048                         | J       | 0.0048                         | J  | SB121C-2                                | 1 / 48                 | 0.069 - 1.8                           | 0.0048                                     |   | 99   | 13   | NO           | BSL  |

#### Attachment 2 Table 1B

# ${\bf OCCURRENCE, DISTRIBUTION\ AND\ SELECTION\ OF\ CHEMICALS\ OF\ POTENTIAL\ CONCERN\ IN\ SEAD-121C\ SURFACE\ SOIL}$

# SEAD-121C

Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future

Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical               | Minimum Detected Concentration | Q        | Maximum Detected Concentration | Q        | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup> | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------|--------------------------------|----------|--------------------------------|----------|---|------------------------|--|--|--|--|--|--------------|--|
|               |                        | (mg/kg)                        |          | (mg/kg)                        | <u> </u> |   |                        |  |  |  |  | (mg/kg)  |              |  |
| 85-01-8       | Phenanthrene           | 0.0082                         | J        | 29                             |          | SSDRMO-12                               |                        | 0.072 - 1.8  | 29   |  |  | 50   | NO           | NSV  |
| 129-00-0      | Pyrene                 | 0.01115                        | J        | 34                             | J        | SSDRMO-12                               | 32 / 48                | 0.072 - 1.8  | 34   |  | 230  | 50   | NO           | BSL  |
| PCBs          |                        |                                |          |                                | ļ        |   |                        |  |  |  |  |  |              |  |
|               | Aroclor-1242           | 0.058                          | J.       | 0.058                          | J        | SS121C-4                                | 1 / 48                 | 0.0024 - 0.038                                       | 0.058  | kt/0, % 1  | 0.22                                       | 1.597  | YES          | CSG  |
|               | Aroclor-1254           | 0.044                          | 1        | 0.93                           |          | SBDRMO-18                               | 9 / 48                 | 0.011 - 0.038  | 0.93   | Elitar Allegaria                                       | 0.22                                       | 10   | YES          | ASL  |
|               | Aroclor-1260           | 0.009                          | J        | 0.085                          | J        | SS121C-3                                | 5 / 48                 | 0.0021 - 0.037                                       | 0.085  |  | 0.22                                       | 10   | YES          | CSG  |
| Pesticides_   |                        |                                | -        | 0.044                          | ļ.       | 0000010                                 | 6 / 42                 | 0.00000 0.0000                                       | 0.044  |  | 24   | 2.9  | NO           | BSL  |
|               | 4,4'-DDD               | 0.0019                         | J        | 0.044                          | J        | SBDRMO-18                               | 5 / 43                 | 0.00022 - 0.0039<br>0.00022 - 0.0036                 | 0.044  |  | 1.7  | 2.9  | NO           | BSL  |
|               | 4,4'-DDE               | 0.00415                        | ī        | 0.069                          | J        | SS121C-3                                | 13 / 47                | 0.00022 - 0.0036                                     | 0.069  |  | 1.7  | 2.1  | NO           | BSL  |
| 50-29-3       | 4,4'-DDT               | 0.0021                         | l l      | 0.1                            | J        | S\$121C-3<br>SBDRMO-16                  | 13 / 4/                | 0.00022 - 0.0036                                     | 0.1  |  | 1.7  | 2.1  | NO           | BSL  |
| 309-00-2      | Aldrin                 | 0.0045                         |          | 0.014                          | ,        | (dup)                                   | 3 / 48                 | 0.00011 - 0.0022                                     | 0.014  |  | 0.029                                      | 0.041  | NO           | BSL  |
| 309-00-2      | Aldrin                 | 0.0043                         |          | 0.014                          | -        | SBDRMO-16                               | 3 / 40                 | 0.00011 - 0.0022                                     | 0.014  |  | 0.027                                      | 0.041  | 110          | DOL  |
| 5103-71-9     | Alpha-Chlordane        | 0.001                          | ,        | 0.063                          | Ι,       | (dup)                                   | 4 / 48                 | 0.00032 - 0.0022                                     | 0.063  |  | 1.6  |  | NO           | BSL  |
| 319-86-8      | Delta-BHC              | 0.000975                       | 1        | 0.002                          | ī        | SS121C-4                                | 3 / 48                 | 0.00022 - 0.0022                                     | 0.002  |  | 0.09                                       | 0.3  | NO           | BSL  |
| 317-00-0      | Delta-Bric             | 0.000373                       |          | 0.002                          | -        | SBDRMO-16                               | 57.10                  | 0.00022  | - 1 (A)  | 1 17 1 1 NO  | 7 - Jan                                    | F 707 10   | 10.7         | Description Const.                                       |
| 60-57-1       | Dieldrin               | 0.039                          | J        | 0.041                          | J        | (dup)                                   | 2 / 48                 | 0.00011 - 0.0038                                     | 0.041  | 14 74 4.5  | 0.030                                      | 0.044  | YES          | ASL  |
| 00,57,1       | Diciaria               | 0.033                          | -        | 0.071                          |          | SSDRMO-7                                |                        | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,              |  |  |  |  |              |  |
| 959-98-8      | Endosulfan I           | 0.0058                         |          | 0.19                           | J        | (dup)                                   | 18 / 48                | 0.00054 - 0.0022                                     | 0.19   |  | 37   | 0.9  | NO           | BSL  |
|               | Endosulfan II          | 0.009                          | Т        | 0.009                          |          | SBDRMO-24                               | 1 / 47                 | 0.00034 - 0.0038                                     | 0.009  |  | 37   | 0.9  | NO           | BSL  |
|               |                        |                                |          |                                |          | SBDRMO-16                               |                        |  |  |  |  |  |              |  |
| 72-20-8       | Endrin                 | 0.022                          | J        | 0.0215                         | J        | (dup)                                   | 1 / 47                 | 0.00086 - 0.0038                                     | 0.0215   |  | 1.8  | 0.1  | NO           | BSL  |
|               |                        |                                |          |                                | П        | SBDRMO-16                               |                        |  |  |  |  |  |              |  |
| 53494-70-5    | Endrin ketone          | 0.0034                         | NJ       | 0.0075                         | J        | (dup)                                   | 3 / 48                 | 0.00011 - 0.0038                                     | 0.0075   |  | 1.8  |  | NO           | BSL  |
| 5103-74-2     | Gamma-Chlordane        | 0.0012                         | J        | 0.0012                         | J        | SS121C-4                                | 1 / 48                 | 0.00032 - 0.0022                                     | 0.0012   |  | 1.6  | 0.54   | NO           | BSL  |
| 76-44-8       | Heptachlor             | 0.0021                         | J        | 0.014                          | J        | SBDRMO-18                               | 2 / 47                 | 0.0011 - 0.0022                                      | 0.014  |  | 0.11                                       | 0.1  | NO           | BSL  |
| 1024-57-3     | Heptachlor epoxide     | 0.0014                         | J        | 0.0028                         | J        | SS121C-3                                | 2 / 46                 | 0.00032 - 0.0022                                     | 0.0028   |  | 0.053                                      | 0.02   | NO           | BSL  |
| Inorganics    |                        |                                | L.       |                                | 1_       |   |                        |  |  |  |  | (1)  |              |  |
| 7429-90-5     |                        | 1,730                          | . "      | 17,000                         | <u> </u> | SBDRMO-13                               |                        |  | 17,000   | 20,500   | 7,600                                      | 19,300   | YES          | ASL  |
|               | Antimony               | 0.32                           | J        | 236                            | 1        | SSDRMO-24                               |                        | 1 - 1.2  | 236  | 6.55   | 3.1  | 5.9  | YES          | ASL  |
| 7440-38-2     | Arsenic                | 3.4                            |          | 11.6                           | _        | SSDRMO-24                               |                        | 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1             | 11.6   | 21.5   | 0.39                                       | 8.2  | YES          | ASL  |
|               | Barium                 | 18.1                           | <u> </u> | 2,030                          | J        | SSDRMO-24                               |                        | <u> </u>   | 2,030  | 159  | 540  | 300  | YES          | ASL  |
|               | Beryllium              | 0.21                           |          | 1.2                            | _        | SBDRMO-8                                | 48 / 48                |  | 1.2  | 1.4  | 15   | 1.1  | NO           | BSL  |
|               | Cadmium                | 0.13                           | J        | 29.1                           | ╄        | SSDRMO-14                               |                        | 0.06 - 0.16  | 29.1   | 2.9  | 3.7  | 2.3  | YES          | ASL  |
|               | Calcium                | 2,100                          | J        | 296,000                        | -        | SS121C-4                                | 48 / 48                |  | 296,000  | 293,000<br>32.7  | 2,500,000                                  | 121,000  | NO<br>NO     | NUT<br>BSL   |
|               | Chromium               | 3.8                            | _        | 74.8                           |          | SBDRMO-18                               |                        |  | 74.8   |  | 210  | 29.6<br>30                                       | NO           | BSL  |
|               | Cobalt                 | 3.5                            | 7        | 17                             |          | SBDRMO-8                                | 35 / 35                |  | 17<br>9,750  | 29.1<br>62.8   | 90<br>310                                  | 33   | YES          | ASL  |
|               | Copper                 | 8.8                            | l]       | 9,750                          | $\vdash$ | SB121C-2                                | 48 / 48                |  | 51,700   | 38,600   | 2,300                                      | 36,500   | YES          | ASL  |
|               | Iron                   | 4,230<br>7.3                   | H        | 51,700<br>18,900               | -        | SB121C-18                               | 48 / 48                |  | 18,900   | 266  | 400  | 24.8   | YES          | ASL  |
|               | Lead                   |                                | -        |                                |          | SSDRMO-24<br>SSDRMO-5                   | 48 / 48                |  | 20,700   | 29,100   | 400,000                                    | 21,500   | NO           | NUT  |
| 7439-95-4     | Magnesium<br>Manganese | 3,610                          | -        | 20,700<br>858                  | -        | SSDRMO-3                                | 48 / 48                |  | 858  | 2,380  | 180  | 1,060  | YES          | ASL  |
|               | 171migantooc           | 0.03                           | 1        | 0.47                           |          | SBDRMO-11                               | 44 / 48                | 0.04 - 0.055   | 0.47   | 0.13   | 2.3  | 0.1  | NO           | BSL  |
|               | Mercury                | 11.6                           | ٠.       | 224                            | $\vdash$ | SS121C-2                                | 48 / 48                | 0.04 - 0.033   | 224  | 62.3   | 160  | 49   | YES          | ASL  |
| 7440-02-0     | Nickel                 | 11.0                           | L        |                                | ٠.       | 331210-2                                | 10 / 40                | And the street of the street                         |  | 02.3   | 100  | - 32   | 110          | AGL  |

#### Table 1B

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL

#### SEAD-121C

#### Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future Medium: Soil Exposure Medium: Soil Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Maximum Detected Concentration 1 (mg/kg) | Q   | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration<br>Used for<br>Screening <sup>2</sup><br>(mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|--|-----|---|------------------------|--|--|--|--|---|-----|--|
| 7440-09-7     | Potassium                    | 787 J                                    | 1,990                                    |     | SB121C-2                                | 48 / 48                |  | 1,990  | 3,160  | 5,000,000                                  | 2,380   | NO  | NUT  |
| 7782-49-2     | Selenium                     | 0.49 J                                   | 1.3                                      |     | SSDRMO-14                               | 10 / 48                | 0.36 - 1.01  | 1.3  | 1.7  | 39   | 2   | NO  | BSL  |
| 7440-22-4     | Silver                       | 0.34                                     | 21.8                                     |     | SS121C-1                                | 18 / 48                | 0.28 - 0.46  | 21.8   | 0.87   | 39   | 0.75  | NO  | BSL  |
| 7440-23-5     | Sodium                       | 58.2                                     | 478                                      |     | SSDRMO-14                               | 42 / 48                | 106 - 132  | 478  | 269  | 1,125,000                                  | 172   | NO  | NUT  |
| 7440-28-0     | Thallium                     | 0.5 J                                    | 1.1                                      | J   | SBDRMO-24                               | 10./ 48                | 0.32 - 1.4   | 1.1  | 1.2  | 0.52                                       | 0.7   | YES | ASL  |
| 7440-62-2     | Vanadium                     | 5.1                                      | 25.4                                     | 4.7 | SBDRMO-8                                | 48 / 48                | mining Maling St. William                            | 25.4   | 32.7   | 7.8  | 150   | YES | ASL  |
| 7440-66-6     | Zinc                         | 29.8                                     | 3,610                                    |     | SBDRMO-15                               | 48 / 48                | January Part Market                                  | 3,610  | 126  | 2,300                                      | 110   | YES | ASL  |
| Other Anal    | ytes                         |  |  |     |   |                        |  |  |  |  |   |     |  |
| SA0019        | Total Organic Carbon         | 2,800                                    | 9,000                                    |     | SBDRMO-13                               | 40 / 40                |  |  |  |  |   | NO  | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 59                                       | 7,600                                    | J   | SBDRMO-17                               | 10 / 40                | 42.5 - 53  |  |  |  |   | NO  | ICE  |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

The PRGs or RBCs corresponding to a hazard quotient of 1 were adjusted by multiplying 0.1 before they were used as screening values.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for gamma-chlordane was used as screening value for alpha-chlordane.

PRG for alpha-BHC was used as screening value for delta-BHC.

PRG for endosulfan was used as screening value for endosulfan I, endosulfan II, and endosulfan sulfate.

PRG for endrin was used as screening value for endrin aldehyde and endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and

minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified.

(on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html) 6. Rationale codes

Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL) No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

**Definitions**: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

O = Qualifier J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

#### Table 1C

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

#### Seneca Army Depot Activity

Scenario Timeframe: Cuurent/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-121C

| CAS<br>Number | Chemical                               | Minimum Detected Concentration 1 (mg/kg) | Q   | Maximum Detected Concentration 1 (mg/kg) | Q   | Location of<br>Maximum<br>Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|--|--|-----|--|-----|---|---------|---|--|--|--|---|--------------|---|
| Volatile Or   | ganic Compounds                        |  |     | <u> </u>                                 |     |   |         | -::-                                    |  |  |  |   |              |   |
| 67-64-1       | Acetone                                | 0.012                                    | J   | 0.15                                     | J   | SDDRMO-3                                | 7 / 10  | 0.0029 - 0.01                           | 0.15                                       |  | 1,400                                      | 0.2   | NO           | BSL   |
| 75-15-0       | Carbon disulfide                       | 0.005                                    | J   | 0.012                                    | J   | SDDRMO-6                                | 2 / 10  | 0.0028 - 0.03                           | 0.012                                      |  | 36   | 2.7   | NO           | BSL   |
| 78-93-3       | Methyl ethyl ketone                    | 0.0036                                   | J   | 0.13                                     | J   | SDDRMO-4                                | 3 / 10  | 0.0029 - 0.03                           | 0.13                                       |  | 2,200                                      | 0.3   | NO           | BSL   |
| Semivolatil   | e Organic Compounds                    |  |     |  |     |   |         |   |  |  |  |   |              |   |
| 106-44-5      |  |  |     |  |     |   | }       |   |  |  |  |   |              |   |
| 108-39-4      | 3 or 4-Methylphenol                    | 0.79                                     | J   | 0.79                                     | J   | SDDRMO-3                                | 1 / 10  | 0.36 - 1.6                              | 0.79                                       |  | 31   |   | NO           | NSV   |
| 120-12-7      | Anthracene                             | 0.1                                      | J   | 0.25                                     | J   | SDDRMO-2                                | 2 / 10  | 0.36 1.7                                | 0.25                                       |  | 2,200                                      | 50  | NO           | BSL   |
| 56-55-3       | Benzo(a)anthracene                     | 0.23                                     | J   | 1.1                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1  | British Audin  | 0.62                                       | 0.224   | YES          | ASL   |
| 50-32-8       | Benzo(a)pyrene                         | 0.17                                     | J.  | 0.9                                      | J · | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 0.9  | 9 4  | 0.062                                      | 0.061   | YES          | ASL   |
| 205-99-2      | Benzo(b)fluoranthene                   | 0.18                                     | J   | 1.1                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1  | 65.76  | 0.62                                       | 1.1   | YES          | ASL   |
| 191-24-2      | Benzo(ghi)perylene                     | 0.29                                     | J   | 0.29                                     | J   | SDDRMO-2                                | I / 10  | 0.36 - 1.7                              | 0.29                                       |  |  | 50  | NO           | NSV   |
| 207-08-9      | Benzo(k)fluoranthene                   | 0.58                                     | J   | 0.58                                     | J   | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              | 0.58                                       | Serie intili il.                                       | 6.2  | 1.1   | YES          | CSG   |
| 218-01-9      | Chrysene                               | 0.24                                     | J   | 1.2                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.2  | 8.5 × 55 T   | 62   | 0.4   | YES          | CSG   |
| 206-44-0      | Fluoranthene                           | 0.52                                     | J   | 2.1                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 2.1  |  | 230  | 50  | NO           | BSL   |
| 193-39-5      | Indeno(1,2,3-cd)pyrene                 | 0.27                                     | J   | 0.27                                     | J.  | SDDRMO-2                                | 1 / 10  | 0.36 - 1.7                              | 0.27                                       | anjus din  | 0.62                                       | 3.2   | YES          | CSG   |
| 85-01-8       | Phenanthrene                           | 0.41                                     | J   | 1.1                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 1.1  |  |  | 50  | NO           | NSV   |
| 129-00-0      | Pyrene                                 | 0.44                                     | J   | 2.1                                      | J   | SDDRMO-2                                | 2 / 10  | 0.36 - 1.7                              | 2.1  |  | 230  | 50  | NO           | BSL   |
| Inorganics    |  |  |     |  |     |   |         |   |  |  |  |   |              |   |
| 7429-90-5     | Aluminum                               | 2,850                                    |     | 21,500                                   |     | SDDRMO-9                                | 10 / 10 |   | 21,500                                     | 20,500   | 7,600                                      | 19,300  | YES          | ASL   |
| 7440-36-0     | Antimony                               | 0.97                                     | J   | 4.9                                      | J   | SDDRMO-9                                | 5 / 10  | 1.2 - 4.3                               | 4.9  | 6.55   | 3.1  | 5.9   | YES          | ASL   |
| 7440-38-2     | Arsenic                                | 1.1                                      |     | 6.1                                      | J   | SDDRMO-2                                | 10 / 10 | 44,51                                   | 6.1  | 21.5   | 0.39                                       | 8.2   | YES          | ASL   |
|               | Barium                                 | 36.6                                     | J   | 291                                      |     | SDDRMO-9                                | 10 / 10 |   | 291  | 159  | 540  | 300   | NO           | BSL   |
|               |  |  |     |  |     | SDDRMO-8                                |         | ~                                       |  | -  |  |   |              |   |
| 7440-41-7     | Beryllium                              | 0.2                                      |     | 0.8                                      | J   | (dup)                                   | 8 / 10  | 0.64 - 0.68                             | 0.8  | 1.4  | 15   | 1.1   | NO           | BSL   |
| 7440-43-9     | Cadmium                                | 1.5                                      | J.  | 14.3                                     |     | SDDRMO-9                                | 5 / 10  | 0.13 - 0.33                             | 14.3                                       | 2.9  | 3.7  | 2.3   | YES          | ASL   |
| 7440-70-2     | Calcium                                | 13,200                                   |     | 161,000                                  |     | SDDRMO-9                                | 10 / 10 |   | 161,000                                    | 293,000  | 2,500,000                                  | 121,000   | NO           | NUT   |
|               | Chromium                               | 7.3                                      |     | 29.8                                     | J   | SDDRMO-2                                | 10 / 10 |   | 29.8                                       | 32.7   | 210  | 29.6  | NO           | BSL   |
|               |  | 1.5                                      |     |  | Ť   | SDDRMO-8                                |         |   |  |  |  | 27.12   |              |   |
| 7440-48-4     | Cobalt                                 | 3  |     | 15.8                                     | J   | (dup)                                   | 10 / 10 |   | 15.8                                       | 29.1   | 90   | 30  | NO           | BSL   |
|               | Copper                                 | 16.2                                     |     | 1,190                                    |     | SDDRMO-9                                | 10 / 10 | . T                                     | 1,190                                      | 62.8   | 310  | 33  | YES          | ASL   |
| PA0002        | Cyanide, Amenable                      | 2.36                                     | J   | 2.36                                     | J   | SDDRMO-4                                | 1 / 10  | 0.55 - 2.63                             | 2.36                                       |  | 120  |   | NO           | BSL   |
| SA0008        | Cyanide, Total                         | 2.36                                     | J   | 2.36                                     | J   | SDDRMO-4                                | 1 / 10  | 0.552 - 2.63                            | 2.36                                       |  | 120  |   | NO           | BSL   |
| ·             | The state of the state of the state of |  | 2.0 |  |     | SDDRMO-8                                |         |   |  | T. 1. 1. 1. 1. 1.                                      |  | ?   | 10,000       | TAKE  |
| 7439-89-6     | Iron                                   | 5,650                                    |     | 27,300                                   | J   | (dup)                                   | 10 / 10 |   | 27,300                                     | 38,600   | 2,300                                      | 36,500  | YES          | ASL   |
| 7439-92-I     | Lead                                   | 13.3                                     |     | 436                                      |     | SDDRMO-9                                | 10 / 10 |   | 436  | 266  | 400  | 24.8  | YES          | ASL   |
| 7439-95-4     | Magnesium                              | 3,340                                    |     | 17,600                                   | _   | SDDRMO-9                                | 10 / 10 |   | 17,600                                     | 29,100   | 400,000                                    | 21,500  | NO           | NUT   |
| 7439-96-5     | Manganese                              | 126                                      |     |  | J   | SDDRMO-5                                | 10 / 10 |   | 918  | 2,380  | 180  | 1,060   | YES          | ASL   |

#### Table 1C

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

#### Seneca Army Depot Activity

| Scenario Timeframe: | Cuurent/Future |  |
|---------------------|----------------|--|
| Medium:             | Ditch Soil     |  |
| Exposure Medium:    | Ditch Soil     |  |
| Exposure Point:     | SEAD-121C      |  |

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration  1 (mg/kg) | Q | Location of Maximum Concentration |         | Range of<br>Reporting Limits<br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|------------------------------|--|---|---|---|-----------------------------------|---------|---|--|--|--|---|--------------|---|
| 7439-97-6     | Mercury                      | 0.04                                     |   | 0.3                                       | J | SDDRMO-2                          | 10 / 10 |   | 0.3  | 0.13   | 2.3  | 0.1   | NO           | BSL   |
| 7440-02-0     | Nickel                       | 8.2                                      |   | 42.7                                      | J | SDDRMO-5                          | 10 / 10 |   | 42.7                                       | 62.3   | 160  | 49  | NO           | BSL   |
| 7440-09-7     | Potassium                    | 368                                      |   | 1,410                                     | J | SDDRMO-5                          | 10 / 10 |   | 1,410                                      | 3,160  | 5,000,000                                  | 2,380   | NO           | NUT   |
| 7782-49-2     | Selenium                     | 0.73                                     |   | 2.5                                       | J | SDDRMO-4                          | 4 / 10  | 0.55 - 2.1                              | 2.5  | 1.7  | 39   | 2   | NO           | BSL   |
| 7440-22-4     | Silver                       | 0.83                                     | J | 2.6                                       | J | SDDRMO-5                          | 5 / 10  | 0.35 - 1.4                              | 2.6  | 0.87   | 39   | 0.75  | NO_          | BSL   |
| 7440-23-5     | Sodium                       | 167                                      |   | 1,120                                     | J | SDDRMO-4                          | 10 / 10 |   | 1,120                                      | 269  | 1,125,000                                  | 172   | NO           | NUT   |
| 7440-62-2     | Vanadium                     | 8.6                                      |   | 29.1                                      | J | SDDRMO-2                          | 10 / 10 |   | 29.1                                       | 32.7   | 7.8  | 150   | YES          | ASL   |
| 7440-66-6     | Zinc                         | 51.4                                     | J | 566                                       |   | SDDRMO-5                          | 10 / 10 |   | 566  | 126  | 2,300                                      | 110   | NO           | BSL   |
| Other Anal    | ytes                         |  |   |   |   |                                   |         |   |  |  |  |   |              |   |
| SA0019        | Total Organic Carbon         | 4,200                                    |   | 9,100                                     | J | SDDRMO-10                         | 10 / 10 |   |  |  |  |   | NO           | NSV   |
| SA0020        | Total Petroleum Hydrocarbons | 1,000                                    |   | 2,600                                     | J | SDDRMO-2                          | 2 / 10  | 53 - 211                                |  |  |  |   | NO           | ICE   |

#### Notes:

- Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.
   (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated October 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient =1, Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,

was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

The PRGs or RBCs corresponding to a hazard quotient of 1 were adjusted by multiplying 0.1 before they were used as screening values.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and

minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for cyanide hydrogen was used as screening value for amenable cyanide and total cyanide.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes

Selection Reason:

Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Deletion Reason:

Essential Nutrient (NUT)
Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions:

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier

J = Estimated Value

#### Table 1D

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C GROUNDWATER SEAD-121C

#### SENECA ARMY DEPOT ACTIVITY

| Scenario Timeframe: | Current/Future    |
|---------------------|-------------------|
| Medium:             | Groundwater       |
| Exposure Medium:    | Groundwater       |
| Exposure Point:     | Aquifer Tap Water |

| CAS<br>Number | Chemical                   | Minimum Detected Concentration (ug/L) | Q | Maximum Detected Concentration (ug/L) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency 1 | Range of<br>Reporting<br>Limits <sup>1</sup><br>(ug/L) | Concentration Used for Screening 2 (ug/L) | Screening<br>Value <sup>3</sup><br>(ug/L) | Potential<br>ARAR /TBC<br>Value<br>(ug/L) | Potential<br>ARAR/TBC<br>Source 4 | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>5</sup> |
|---------------|----------------------------|---------------------------------------|---|---------------------------------------|---|---|--------------------------|--|---|---|---|-----------------------------------|--------------|---|
| Semivolati    | le Organic Compounds       |                                       | T |                                       |   |   |                          |  |   |   |   |                                   |              |   |
|               | Bis(2-Ethylhexyl)phthalate | 1.4                                   | J | 1.4                                   | J | MW121C-4                                | 1/6                      | 1 - 1.1  | 1.4                                       | 4.8                                       | . 5                                       | GA                                | NO           | BSL   |
| 84-74-2       | Di-n-butylphthalate        | 1.6                                   | J | 1.6                                   | J | MW121C-6                                | 1 / 6                    | 1.2 - 1.3  | 1.6                                       | 360                                       | 50  | GA                                | NO           | BSL   |
| Inorganics    |                            |                                       |   |                                       |   |   |                          |  |   |   |   |                                   |              |   |
|               | Aluminum                   | 19.9                                  | J | 588                                   | J | MW121C-4 (dup)                          | 6/6                      |  | 588                                       | 3,600                                     | 50  | SEC                               | NO           | BSL   |
| 7440-36-0     |                            | 7.3                                   | 1 | 8.4                                   | J | MW121C-6                                | 2 / 6                    | 3.8 - 7.5  | 8.4                                       | 1.5                                       | The 7.3                                   | GA                                | YES          | ASL   |
| 7440-39-3     |                            | 18.2                                  | J | 73.7                                  |   | MW121C-3                                | 6/6                      |  | 73.7                                      | 260                                       | 1,000                                     | GA                                | NO           | BSL   |
| 7440-41-7     |                            | 0.24                                  | J | 0.24                                  | J | MW121C-4                                | 1/6                      | 0.1 - 0.9  | 0.24                                      | 7.3                                       | 44  | MCL                               | NO           |   |
| 7440-43-9     |                            | 1.1                                   | J | 1.1                                   | J | MW121C-6                                | 1 / 6                    | 0.8 - 0.8  | 1.1                                       | 1.8                                       | 5   | GA                                | NO           | BSL   |
| 7440-70-2     |                            | 114,000                               |   | 558,000                               |   | MW121C-6                                | 6 / 6                    |  | 558,000                                   | 250,000                                   |   |                                   | NO           | NUT   |
| 7440-47-3     | Chromium                   | 1.5                                   | J | 21.4                                  |   | MW121C-6                                | 5 / 6                    | 1.4 - 1.4  | 21.4                                      | - 11                                      | 50  | GA                                | YES          | ASL   |
| 7440-48-4     | Cobalt                     | 1.5                                   | J | 3.0                                   | J | MW121C-4 (dup)                          | 3 / 6                    | 0.7 - 2.3  | 3.0                                       | 73  |   |                                   | NO           | BSL   |
| 7440-50-8     | Copper                     | 6.2                                   | J | 17.7                                  | J | MW121C-6                                | 3 / 6                    | 2 - 2  | 17.7                                      | 150                                       | 200                                       | GA                                | NO           | BSL   |
| 7439-89-6     | Iron                       | 516                                   |   | 869                                   | J | MW121C-4 (dup)                          | 3 / 6                    | 22.2 - 34.9  | 869                                       | 1,100                                     | 300                                       | GA                                | NO           | BSL   |
| 7439-92-1     | Lead                       | 3.8                                   |   | 10.5                                  |   | MW121C-6                                | 5 / 6                    | 3 - 3  | 10.5                                      | 15  | 15  | MCL                               | NO           | BSL   |
| 7439-95-4     | Magnesium                  | 27,700                                |   | 109,000                               |   | MW121C-6                                | 6/6                      |  | 109,000                                   | 40,000                                    |   |                                   | NO           | NUT   |
| 7439-96-5     | Manganese                  | 135                                   |   | 297                                   |   | MW121C-6                                | 6/6                      |  | 297                                       | 88  | 50  | SEC                               | YES          | ASL   |
| 7439-97-6     | Mercury                    | 0.2                                   |   | 0.2                                   |   | MW121C-3                                | 2/6                      | 0.2 - 0.2  | 0.2                                       | 1.1                                       | 0.7                                       | GA                                | NO           | BSL   |
| 7440-02-0     | Nickel                     | 2.1                                   | J | 2.1                                   | J | MW121C-4 (dup)                          | 1/6                      | 2 - 2  | 2.1                                       | 73  | 100                                       | GA                                | NO           | BSL   |
| 7440-09-7     | Potassium                  | 1,790                                 | J | 9,400                                 |   | MW121C-4                                | 6/6                      |  | 9,400                                     | 700,000                                   |   |                                   | NO           | BSL   |
| 7782-49-2     | Selenium                   | 1.9                                   | J | 6.8                                   |   | MW121C-6                                | 2 / 6                    | 1.3 - 4.2  | 6.8                                       | 18  | 10  | GA                                | NO           | BSL   |
| 7440-23-5     | Sodium                     | 17,600                                | T | 58,400                                |   | MW121C-4 (dup)                          | 6/6                      |  | 58,400                                    | 1,200,000                                 | 20,000                                    | GA                                | NO           | BSL   |
| 7440-66-6     | Zinc                       | 12.6                                  | J | 96.2                                  |   | MW121C-6                                | 6 / 6                    |  | 96.2                                      | 1,100                                     | 5,000                                     | SEC                               | NO           | BSL   |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only. To ensure a reliable dataset, only groundwater samples at the DRMO Yard collected from permanent wells using low flow sampling techniques were included in the screeing process.
- 2. The maximum detected concentration was used for screening.
- 3. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

  Target Cancer Risk = 1E-6: Target Hazard Quotient = 1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

The PRGs corresponding to a hazard quotient of I was adjusted by multiplying 0.1 before they were used as screening values.

MCL for lead was used as screening value for lead as no Region 9 PRG is available.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes. For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used.

PRG for chromium (VI) was used as screening value for chromium.

4. ARARs or TBCs identified are Maximum Contaminant Levels (MCLs), the GA standard, or the Secondary Drinking Water Regulations (SEC).

Rationale codes

Selection Reason: Deletion Reason: Above Screening Levels (ASL) Essential Nutrient (NUT) Below Screening Level (BSL)

Definitions:

Q = Qualifier J = Estimated Value COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

MCL = Federal Maximum Contaminant Level

GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)

SEC = USEPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)

#### Table 1E

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE WATER SEAD-121C

#### SENECA ARMY DEPOT ACTIVITY

| Scenario Timeframe:   | Current/Future |  |
|---|----------------|--|
| Medium:   | Surface Water  |  |
| Scenario Timeframe:<br>Medium:<br>Exposure Medium:<br>Exposure Point: | Surface Water  |  |
| Exposure Point:   | SEAD-121C      |  |

|            | Z. Godare I emi              |               | T - |               | 9  |               |           |             |                        | :          |           |              |                     |      |               |
|------------|------------------------------|---------------|-----|---------------|----|---------------|-----------|-------------|------------------------|------------|-----------|--------------|---------------------|------|---------------|
| CAS        | Chemical                     | Minimum       | Q   | Maximum       | Q  | Location of   | Detection | Range of    | Concentration          | Maximum    | Screening | Potential    | Potential           | COPC | Rationale for |
| Number     |                              | Detected      |     | Detected      |    | Maximum       | Frequency | Reporting   | Used for               | Background | Value 4   | ARAR         | ARAR/TBC            | Flag | Contaminant   |
|            |                              | Concentration |     | Concentration |    | Concentration | 1         | Limits 1    | Screening <sup>2</sup> | Value 3    | (ug/L)    | /TBC         | Source <sup>5</sup> |      | Deletion or   |
|            |                              | 1             |     | 1             |    |               |           | (ug/L)      | (ug/L)                 | (ug/L)     |           | Value        |                     |      | Selection 6   |
|            |                              | (ug/L)        |     | (ug/L)        |    |               |           |             |                        |            |           | (ug/L)       |                     |      |               |
| Semivolati | le Organic Compounds         |               |     |               | Ť  |               |           |             |                        |            | -         |              |                     |      |               |
|            | Bis(2-Ethylhexyl)phthalate   | 4.2           | Ĵ   | 4.2           | J  | SWDRMO-2      | 1 / 10    | 10 - 10     | 4.2                    |            | 4.8       | 0.6          | Class C             | NO   | BSL           |
| Inorganics |                              |               | П   |               |    |               |           |             |                        |            |           |              | T                   |      |               |
| 7429-90-5  | Aluminum                     | 14.4          |     | 8,760         | 1  | SWDRMO-2      | 10 / 10   | . ` ,       | 8,760                  | 1 j        | 3,600     | 100          | Class C             | YES  | ASL           |
| 7440-38-2  | Arsenic                      | 50.3          |     | 50.3          |    | SWDRMO-2      | 1 / 10    | 2.8 - 2.8   | 50.3                   |            | 0.045     | 150          | Class C             | YES  | ASL           |
| 7440-39-3  | Barium                       | 37.2          |     | 423           |    | SWDRMO-2      | 10 / 10   | 7           | 423                    | 1, 11      | 260       | <b>小型毛点で</b> | 1.0                 | YES  | ASL           |
| 7440-41-7  | Beryllium                    | 0.12          | J   | 0.86          | J  | SWDRMO-2      | 9 / 10    | 0.1 - 0.1   | 0.86                   |            | 7.3       | 1100         | Class C             | NO   | BSL           |
| 7440-43-9  | Cadmium                      | 0.46          |     | 19.5          |    | SWDRMO-2      | 4 / 10    | 0.4 - 0.4   | 19.5                   |            | 1.8       | 3.84         | Class C             | YES  | ASL           |
| 7440-70-2  | Calcium                      | 66,700        | П   | 166,000       | Γ  | SWDRMQ-3      | 10 / 10   |             | 166,000                |            | 250,000   |              |                     | NO   | NUT           |
| 7440-47-3  | Chromium                     | 0.69          |     | 129           |    | SWDRMO-2      | 8./. 10   | 0.6 - 0.6   | 129                    |            | 11        | 139.45       | Class C             | YES  | ASL           |
| 7440-48-4  | Cobalt                       | 0.6           |     | 47            |    | SWDRMO-2      | 7 / 10    | 0.6 - 0.6   | 47                     |            | 73        | 5            | Class C             | NO   | BSL           |
| 7440-50-8  | Copper                       | 1.7           | П   | 1,160         |    | SWDRMO-2      | 10 / 10   | +1          | 1,160                  | 4.1        | 150       | 17.32        | Class C             | YES  | ASL           |
| 7439-89-6  | Iron                         | 26.6          | J.  | 110,000       |    | SWDRMO-2      | 8 / 10    | 17.3 - 17.3 | 110,000                | 1 1        | 1,100     | 300          | Class C             | YES  | ASL           |
| 7439-92-1  | Lead                         | 4.4           | J   | 839           |    | SWDRMO-2      | 10 / 10   |             | 839                    |            | 15        | 1.46246      | Class C             | YES  | ASL           |
| 7439-95-4  | Magnesium                    | 11,100        | П   | 26,200        |    | SWDRMO-2      | 10 / 10   |             | 26,200                 |            | 40,000    |              |                     | NO   | NUT           |
| 7439-96-5  | Manganese                    | 3.2           |     | 2,380         |    | SWDRMO-2      | 10 / 10   |             | 2,380                  | 1          | 88        |              | , st. t.            | YES  | ASL           |
| 7439-97-6  | Mercury                      | 0.26          |     | 2.1           | Г  | SWDRMO-2      | 2 / 10    | 0.2 - 0.2   | 2.1                    | 4000       | 1.1       | 0.0007       | Class C             | YES  | ASL           |
| 7440-02-0  | Nickel                       | 10.6          |     | 154           | Ι. | SWDRMO-2      | 3 / 10    | 1.8 - 1.8   | 154                    | (A         | 73        | 99.92        | Class C             | YES  | ASL           |
| 7440-09-7  | Potassium                    | 2,070         | J   | 5,350         | J  | SWDRMO-3      | 10 / 10   |             | 5,350                  |            | 700,000   |              |                     | NO   | NUT           |
| 7782-49-2  | Selenium                     | 4.6           | J   | 4.6           | J  | SWDRMO-2      | 1 / 10    | 3 - 3       | 4.6                    |            | 18        | 4.6          | Class C             | NO   | BSL           |
| 7440-22-4  | Silver                       | 1.7           |     | 8             |    | SWDRMO-2      | 2 / 10    | 1 - 1       | 8                      | i          | 18        | 0.1          | Class C             | NO   | BSL           |
| 7440-23-5  | Sodium                       | 4,490         | П   | 123,000       | J  | SWDRMO-1      | 10 / 10   |             | 123,000                |            | 1,200,000 |              |                     | NO   | NUT           |
| 7440-28-0  | Thallium                     | 5.5           | J.  | 6.3           | П  | SWDRMO-4      | 2 / 10    | 5.4 - 5.4   | 6.3                    |            | 0.24      | 8            | Class C             | YES  | ASL           |
| 7440-62-2  | Vanadium                     | 0.89          |     | 233           |    | SWDRMO-2      | 5 / 10    | 0.7 - 0.7   | 233                    |            | 3.6       | 14           | Class C             | YES  | ASL           |
| 7440-66-6  | Zinc                         | 15.4          |     | 6,910         |    | SWDRMO-2      | 10 / 10   |             | 6,910                  |            | 1,100     | 159.25       | Class C             | YES  | ASL           |
| Other Ana  | lytes                        |               |     |               | Γ  |               |           |             |                        |            |           |              |                     |      |               |
| SA0020     | Total Petroleum Hydrocarbons | 8,080         |     | 8,080         | Г  | SWDRMO-2      | 1/9       | 1000 - 1000 | 8,080                  |            |           |              |                     | NO   | ICE           |

#### Motor

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. No background data are available.
- 3. IVO deckeround und aut are avaiable.
  4. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

The PRGs corresponding to a hazard quotient of 1 was adjusted by multiplying 0.1 before they were used as screening values.

Maximum Contaminant Level (MCL) for lead was used as screening value for lead as no Region 9 PRG is available.

PRG for endrin was used as screening value for endrin ketone.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used.

PRG for chromium (VI) was used as screening value for chromium.

5. Potential ARAR values are from the New York State Ambient Water Quality Standards, Class C for Surface Water.

6. Rationale codes Selection Reason:
Deletion Reason:

Above Screening Levels (ASL)
Essential Nutrient (NUT)
Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE)

Definitions:

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier

J = Estimated Value

#### Table 2A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL SEAD-121I

## Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121I

| CAS<br>Number | Chemical                   | Minimum Detected Concentration 1 (mg/kg) | Q              | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening 2 (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|----------------------------|--|----------------|--|---|---|------------------------|--|--|--|--|---|--------------|--|
| Volatile Or   | ganic Compounds            |  | 1              |  |   |   |                        |  |  |  |  |   |              |  |
| 67-64-1       | Acetone                    | 0.0022                                   | J              | 0.11                                     |   | SS121I-15                               | 26 / 35                | 0.003 - 0.0715                                       | 0.11                                       |  | 1,400                                      | 0.2   | NO           | BSL  |
| 71-43-2       | Benzene                    | 0.0046                                   | J              | 0.041                                    | J | SS121I-29 (dup)                         | 6 / 35                 | 0.0023 - 0.0034                                      | 0.041                                      |  | 0.64                                       | 0.06  | NO           | BSL  |
| 100-41-4      | Ethyl benzene              | 0.0021                                   | J              | 0.0078                                   |   | SS121I-15                               | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0078                                     |  | 400  | 5.5   | NO           | BSL  |
|               | Meta/Para Xylene           | 0.0021                                   | J              | 0.0063                                   | J | SS121I-29 (dup)                         | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0063                                     |  | 27   |   | NO           | BSL  |
| 78-93-3       | Methyl ethyl ketone        | 0.0036                                   |                | 0.07                                     |   | SS121I-15                               | 9 / 35                 | 0.0023 - 0.0034                                      | 0.07                                       |  | 2,200                                      | 0.3   | NO           | BSL  |
| 75-09-2       | Methylene chloride         | 0.0016                                   | J              | 0.0028                                   | J | SB121I-4                                | 9 / 35                 | 0.0023 - 0.0034                                      | 0.0028                                     |  | 9.1  | 0.1   | NO           | BSL  |
| 95-47-6       | Ortho Xylene               | 0.0013                                   | J              | 0.0036                                   | J | SS121I-29 (dup)                         | 5 / 35                 | 0.0023 - 0.0034                                      | 0.0036                                     |  | 27   |   | NO           | BSL  |
| 108-88-3      | Toluene                    | 0.0028                                   | J              | 0.031                                    | J | SS121I-29 (dup)                         | 6 / 35                 | 0.0023 - 0.0034                                      | 0.031                                      |  | 520  | 1.5   | NO           | BSL  |
| Semivolati    | le Organic Compounds       |  |                |  |   |   |                        |  |  |  |  |   |              |  |
| 91-57-6       | 2-Methylnaphthalene        | 0.054                                    | J              | 0.26                                     | J | SS121I-20                               | 3 / 39                 | 0.35 - 7.4   | 0.26                                       |  | 31   | 36.4  | NO           | BSL  |
| 83-32-9       | Acenaphthene               | 0.053                                    | J              | 6.1                                      |   | SS121I-20                               | 17 / 39                | 0.36 - 2.2   | 6.1  |  | 370  | 50  | NO           | BSL  |
| 208-96-8      | Acenaphthylene             | 0.064                                    | J              | 0.56                                     | J | SS121I-21                               | 2 / 39                 | 0.34 - 7.4   | 0.56                                       |  |  | 41  | NO           | NSV  |
| 120-12-7      | Anthracene                 | 0.069                                    | J              | 12                                       |   | SS121I-20                               | 20 / 38                | 0.36 - 1.8   | 12   |  | 2,200                                      | 50  | NO           | BSL  |
| 56-55-3       | Benzo(a)anthracene         | 0.043                                    | J              | 28                                       | J | SS121I-20                               | 36 / 39                | 0.37 - 0.38  | 28   | Part of the second                                     | 0.62                                       | 0.224   | YES          | ASL  |
| 50-32-8       | Benzo(a)pyrene             | 0.061                                    | J              | 23                                       |   | SS121I-20                               | 36 / 39                | 0.37 - 0.39  | 23   | 5000000  | 0.062                                      | 0.061   | YES          | ASL  |
| 205-99-2      | Benzo(b)fluoranthene       | 0.052                                    | • <b>J</b> 3-: | 29                                       |   | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 29   | 1 1 1 1 1 1  | 0.62                                       | 1.1   | YES          | ASL  |
| 191-24-2      | Benzo(ghi)perylene         | 0.05                                     | J              | 29                                       | J | SS121I-20                               | 33 / 39                | 0.36 - 0.39  | 29   |  |  | 50  | NO           | NSV  |
| 207-08-9      | Benzo(k)fluoranthene       | 0.095                                    | J              | 21                                       | J | SS121I-20                               | 28 / 38                | 0.36 - 0.4   | 21   | 1.5  | 6.2  | 1.1   | YES          | ASL  |
| 117-81-7      | Bis(2-Ethylhexyl)phthalate | 0.038                                    | J              | 1.6                                      |   | SS121I-31                               | 14 / 39                | 0.13 - 8.8   | 1.6  |  | 35   | 50  | NO           | BSL  |
| 85-68-7       | Butylbenzylphthalate       | 0.055                                    | J              | 0.13                                     | J | SB121I-1                                | 2 / 36                 | 0.35 - 8.8   | 0.13                                       |  | 1,200                                      | 50  | NO           | BSL  |
| 86-74-8       | Carbazole                  | 0.06                                     | J              | 6.8                                      |   | SS121I-20                               | 20 / 39                | 0.36 - 1.8   | 6.8  |  | 24   |   | NO           | BSL  |
| 218-01-9      | Chrysene                   | 0.063                                    | J              | 32                                       | J | SS121I-20                               | 35 / 39                | 0.37 - 0.39  | 32   | 电磁电流 医细胞   | 62   | 0.4   | YES          | CSG  |
| 53-70-3       | Dibenz(a,h)anthracene      | 0.072                                    | J              | 4.6                                      | J | SS121I-2                                | 10 / 32                | 0.36 - 2.1   | 4.6  | 11.  | 0.062                                      | 0.014   | YES          | ASL  |
| 132-64-9      | Dibenzofuran               | 0.029                                    | J              | 2  |   | SS121I-20                               | 9 / 39                 | 0.35 - 2.2   | 2  |  | 15   | 6.2   | NO           | BSL  |
| 84-66-2       | Diethylphthalate           | 0.64                                     | J              | 0.64                                     | J | SS121I-29 (dup)                         | 1 / 39                 | 0.34 - 7.4   | 0.64                                       |  | 4,900                                      | 7.1   | NO           | BSL  |
| 84-74-2       | Di-n-butylphthalate        | 0.045                                    | J              | 0.045                                    | J | SS121I-1                                | 1 / 38                 | 0.34 - 7.4   | 0.045                                      |  | 610  | 8.1   | NO           | BSL  |
| 206-44-0      | Fluoranthene               | 0.08                                     | J              | 62                                       |   | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 62   |  | 230  | 50  | NO           | BSL  |
| 86-73-7       | Fluorene                   | 0.043                                    | J              | 4.2                                      |   | SS121I-20                               | 13 / 39                | 0.35 - 2.2   | 4.2  |  | 270  | 50  | NO           | BSL  |
| 193-39-5      | Indeno(1,2,3-cd)pyrene     | 0.061                                    | J              | 8.1                                      | J | SS121I-20                               | 26 / 37                | 0.36 - 2.1   | 8.1  | 第1957年的职机  | 0.62                                       | 3.2   | YES          | ASL  |
| 91-20-3       | Naphthalene                | 0.051                                    | J              | 0.63                                     | J | SS121I-21                               | 5 / 39                 | 0.35 - 7.4   | 0.63                                       |  | 5.6  | 13  | NO           | BSL  |
| 85-01-8       | Phenanthrene               | 0.052                                    | J              | 52                                       |   | SS121I-20                               | 37 / 39                | 0.37 - 0.38  | 52   |  |  | 50  | NO           | NSV  |
| 129-00-0      | Pyrene                     | 0.072                                    | J              | 64                                       | J | SS121I-23                               | 37 / 39                | 0.37 - 0.38  | 64   |  | 230  | 50  | NO           | BSL  |

#### Table 2A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL SEAD-121I

#### Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil

Exposure Medium: Soil
Exposure Point: SEAD-121I

| CAS<br>Number | Chemical           | Minimum Detected Concentration | Q   | Maximum<br>Detected<br>Concentration | Q  | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening <sup>2</sup> | Maximum<br>Background<br>Value <sup>3</sup> | Screening<br>Value <sup>4</sup><br>(mg/kg) | ARAR /<br>TBC                 | l .   | Rationale for<br>Contaminant<br>Deletion or |
|---------------|--------------------|--------------------------------|-----|--------------------------------------|----|---|------------------------|--|---|---|--|-------------------------------|-------|---|
|               |                    | (mg/kg)                        |     | ı<br>(mg/kg)                         |    |   |                        |  | (mg/kg)                                       | (mg/kg)                                     |  | Value <sup>5</sup><br>(mg/kg) |       | Selection                                   |
| PCBs          |                    |                                | i   |                                      |    |   |                        |  |   |   |  |                               |       |   |
| 11097-69-1    | Aroclor-1254       | 0.03                           | J   | 0.03                                 | J  | SS121I-22                               | 1 / 35                 | 0.018 - 0.022  | 0.03  |   | 0.22                                       | 10                            | NO    | BSL   |
| 11096-82-5    | Aroclor-1260       | 0.0083                         | J   | 0.046                                | J  | SS121I-14                               | 2 / 35                 | 0.018 - 0.022  | 0.046   |   | 0.22                                       | 10                            | NO    | BSL   |
| Pesticides    |                    |                                |     |                                      |    |   |                        |  |   |   |  |                               |       |   |
| 72-55-9       | 4,4'-DDE           | 0.011                          | NJ  | 0.034                                | NJ | SS121I-23                               | 4 / 35                 | 0.0018 - 0.0023                                      | 0.034   |   | 1.7  | 2.1                           | NO    | BSL   |
| 50-29-3       | 4,4'-DDT           | 0.024                          | NJ  | 0.039                                | J  | SS121I-21                               | 2 / 34                 | 0.0018 - 0.0023                                      | 0.039   |   | 1.7  | 2.1                           | NO    | BSL   |
| 309-00-2      | Aldrin             | 0.0032                         | J   | 0.012                                |    | SS121I-20                               | 4 / 35                 | 0.0018 - 0.0045                                      | 0.012   |   | 0.029                                      | 0.041                         | NO    | BSL   |
| 60-57-1       | Dieldrin           | 0.016                          | J   | 0.034                                | J  | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      | 0.034   |   | 0.030                                      | 0.044                         | YES   | ASL   |
| 959-98-8      | Endosulfan I       | 0.0026                         |     | 0.095                                | J  | SS121I-20                               | 24 / 35                | 0.0018 - 0.002                                       | 0.095   |   | 37   | 0.9                           | NO    | BSL   |
| 72-20-8       | Endrin             | 0.0065                         | J   | 0.03                                 | J  | SS121I-21                               | 2 / 35                 | 0.0018 - 0.0023                                      | 0.03  |   | 1.8  | 0.1                           | NO    | BSL   |
| 1024-57-3     | Heptachlor epoxide | 0.0061                         |     | 0.055                                | J  | SS121I-21                               | 8 / 33                 | 0.0018 - 0.0023                                      | 0.055   | u proviju koji Mo <u>sti</u>                | 0.053                                      | 0.02                          | YES   | ASL   |
| Inorganics    |                    |                                |     |                                      |    |   |                        |  |   |   |  |                               |       |   |
| 7429-90-5     | Aluminum           | 1,510                          |     | 13,200                               |    | SBI2II-5                                | 35 / 35                |  | 13,200  | 20,500                                      | 7,600                                      | 19,300                        | YES   | ASL   |
| 7440-36-0     | Antimony           | 0.99                           |     | 7.5                                  |    | SS121I-28                               | 14 / 35                | 0.96 - 7.3   | 7.5   | 6.55  | 3.1  | 5.9                           | YES   | ASL   |
| 7440-38-2     | Arsenic            | 3.5                            |     | 32.1                                 | J  | SB121I-2 (dup)                          | 24 / 24                |  | 32.1  | 21.5  | 0.39                                       | 8.2                           | YES   | ASL   |
| 7440-39-3     | Barium             | 38.2                           |     | 207                                  |    | SS121I-26                               | 35 / 35                |  | 207   | 159   | 540  | 300                           | NO    | BSL   |
| 7440-41-7     | Beryllium          | 0.16                           |     | 0.68                                 |    | SB121I-5                                | 34 / 35                | 0.17 - 0.17  | 0.68  | 1.4   | 15   | 1.1                           | NO    | BSL   |
| 7440-43-9     | Cadmium            | 0.15                           |     | 6.6                                  | .  | SB121I-3                                | 13 / 35                | 0.13 - 0.61  | 6.6   | 2.9   | 3.7  | 2.3                           | YES   | ASL   |
| 7440-70-2     | Calcium            | 5,370                          | J   | 298,000                              | J  | SS121I-26                               | 35 / 35                |  | 298,000                                       | 293,000                                     | 2,500,000                                  | 121,000                       | NO    | NUT   |
| 7440-47-3     | Chromium           | 3.9                            | 17. | 439                                  |    | SS121I-29 (dup)                         | 35 / 35                |  | 439   | 32.7  | 210  | 29.6                          | YES   | ASL   |
| 7440-48-4     | Cobalt             | 4.6                            |     | 205.5                                | J  | SS121I-29 (dup)                         | 35 / 35                |  | 205.5   | 29.1  | 90   | 30                            | YES   | ASL   |
| 7440-50-8     | Copper             | 10.4                           | J   | 209                                  |    | SS121I-29 (dup)                         | 30 / 30                |  | 209   | 62.8  | 310  | 33                            | NO    | BSL   |
|               | Cyanide, Total     | 0.559                          | J   | 2.00                                 |    | SS121I-29 (dup)                         | 3 / 35                 | 0.526 - 0.61   | 2.00  |   | 120  |                               | NO    | BSL   |
| 7439-89-6     | Iron.              | 5,720                          |     | 58,400                               |    | SS121I-29 (dup)                         | 35 / 35                | er Brown in  | 58,400  | 38,600                                      | 2,300                                      | 36,500                        | YES   | ASL   |
| 7439-92-1     | Lead               | 8.6                            | J   | 122                                  |    | SS121I-25                               | 35 / 35                |  | 122   | 266   | 400  | 24.8                          | NO    | BSL   |
| 7439-95-4     | Magnesium          | 4,430                          | J   | 22,300                               | J  | SS121I-27                               | 35 / 35                |  | 22,300  | 29,100                                      | 400,000                                    | 21,500                        | NO    | NUT   |
| 7439-96-5     | Manganese          | 377                            | 100 | 310,500                              |    | SS121I-29 (dup)                         | 35 / 35                |  | 310,500                                       | 2,380                                       | 180  | 1,060                         | YES   | ASL   |
| 7439-97-6     | Mercury            | 0.01                           |     | 0.07                                 |    | SB121I-1                                | 35 / 35                |  | 0.07  | 0.13  | 2.3  | 0.1                           | NO    | BSL   |
|               |                    | 1 1 1 1 1 1 1 1 1 1            |     |                                      |    | SS121I-29 (dup),                        |                        | Julyana Harat Maja                                   |   | 발 설립 교육 19                                  | 4.4 (1977)                                 |                               | 1 444 |   |
| 7440-02-0     | Nickel             | 11.1                           |     | 342                                  | J  | SS121I-33                               | -35 / 35               |  | 342   | 62.3  | 160  | 49                            | YES   | ASL   |
| 7440-09-7     | Potassium          | 634                            |     | 1,300                                |    | SS121I-30                               | 35 / 35                |  | 1,300   | 3,160                                       | 5,000,000                                  | 2,380                         | NO    | NUT   |
| 7782-49-2     |                    | 0.48                           | J   | 146                                  | J  | SS121I-29 (dup)                         | 20 / 35                | 0.43 - 0.61  | 146   | 1.7   | 39   | 2                             | YES   | ASL   |
| 7440-22-4     | Silver             | 0.29                           |     | 3.1                                  | J  | SB121I-2 (dup)                          | 4 / 24                 | 0.3 - 1.2  | 3.1   | 0.87  | 39   | 0.75                          | NO    | BSL   |

#### Table 2A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I SURFACE SOIL SEAD-121I

#### Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SEAD-121I

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q | Maximum Detected Concentration 1 (mg/kg) | Q | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening <sup>2</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|---|--|---|---|------------------------|--|---|--|--|---|--------------|--|
| 7440-23-5     | Sodium                       | 117                                      |   | 372                                      |   | SB121I-1                                | 29 / 35                | 106 - 595  | 372   | 269  | 1,125,000                                  | 172   | NO           | NUT  |
| 7440-28-0     | Thallium                     | 0.38                                     |   | 163                                      | J | SS121I-29 (dup)                         | 7 / 35                 | 0.32 - 1.2   | 163   | 1.2  | 0.52                                       | 0.7   | YES          | ASL  |
| 7440-62-2     | Vanadium                     | 5.9                                      |   | 182                                      | J | SS1211-29 (dup)                         | 35 / 35                |  | 182   | 32.7   | 7.8  | 150   | YES          | ASL  |
| 7440-66-6     | Zinc                         | 42.75                                    | J | 329                                      |   | SS121I-33                               | 35 / 35                |  | 329   | 126  | 2,300                                      | 110   | NO           | BSL  |
| Other Anal    | ytes                         |  |   |  |   |   |                        |  |   |  |  |   |              |  |
|               | Total Organic Carbon         | 3,000                                    |   | 8,900                                    |   | SS121I-6                                | 35 / 35                |  |   |  |  |   | NO           | NSV  |
|               | Total Petroleum Hydrocarbons | 100                                      | Ĵ | 2,200                                    |   | SS121I-27                               | 10 / 35                | 43 - 48  |   | ,  |  |   | NO           | ICE  |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

  Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

The PRGs or RBCs corresponding to a hazard quotient of 1 were adjusted by multiplying 0.1 before they were used as screening values.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS, was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for Aroclor 1254 was used as screening value for Aroclor 1260.

PRG for endosulfan was used as screening value for endosulfan I.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

PRG for cyanide hydrogen was used for total cyanide.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

#### Table 2A

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL

## SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |  |
|---------------------|----------------|--|
| Medium:             | Soil           |  |
| Exposure Medium:    | Soil           |  |
| Exposure Point:     | SEAD-121I      |  |

| CAS    | Chemical | Minimum       | Q Maximum     | Q | Location of   | Detection | Range of Reporting | Concentration | Maximum    | Screening | Potential          | COPC | Rationale for |
|--------|----------|---------------|---------------|---|---------------|-----------|--------------------|---------------|------------|-----------|--------------------|------|---------------|
| Number |          | Detected      | Detected      |   | Maximum       | Frequency | Limits 1           | Used for      | Background | Value 4   | ARAR /             | Flag | Contaminant   |
|        |          | Concentration | Concentration |   | Concentration | 1         | (mg/kg)            | Screening 2   | Value 3    | (mg/kg)   | TBC                |      | Deletion or   |
|        |          | 1             | 1             |   |               |           |                    | (mg/kg)       | (mg/kg)    |           | Value <sup>5</sup> |      | Selection     |
|        |          | (mg/kg)       | (mg/kg)       |   |               |           |                    |               | , ,        |           | (mg/kg)            |      |               |

6. Rationale codes Selection Reason:

Above Screening Levels (ASL)
Chemicals in the Same Group were retained as COPC (CSG)

Chemicals in the Same Group were retained as

Deletion Reason:

Essential Nutrient (NUT)
Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier
J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

## Table 2B

## ${\bf OCCURRENCE, DISTRIBUTION \ AND \ SELECTION \ OF \ CHEMICALS \ OF \ POTENTIAL \ CONCERN \ IN \ SEAD-1211 \ DITCH \ SOIL}$

## SEAD-121I

## Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-121I

| CAS<br>Number    | Chemical                   | Minimum<br>Detected<br>Concentration | Q | Maximum Detected Concentration | Q   | Location of<br>Maximum<br>Concentration | Detection<br>Frequency |                 | Concentration Used for Screening <sup>2</sup> | Maximum<br>Background<br>Value <sup>3</sup> | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC    |     | Rationale for<br>Contaminant<br>Deletion or |
|------------------|----------------------------|--------------------------------------|---|--------------------------------|-----|---|------------------------|-----------------|---|---|--|-------------------------------|-----|---|
|                  |                            | ı<br>(mg/kg)                         |   | 1<br>(mg/kg)                   |     |   |                        | (               | (mg/kg)                                       | (mg/kg)                                     | ( 0 - 6)                                   | Value <sup>5</sup><br>(mg/kg) |     | Selection                                   |
|                  | ganic Compounds            |                                      |   |                                |     |   |                        |                 |   |   |  |                               |     |   |
| 67-64-1          | Acetone                    | 0.008                                |   | 0.15                           |     | SD121I-8                                | 10 / 10                |                 | 0.15  |   | 1,400                                      | 0.2                           | NO  | BSL   |
| 71-43-2          | Benzene                    | 0.0012                               | J | 0.039                          |     | SD121I-8                                | 3 / 10                 | 0.0032 - 0.0037 | 0.039   |   | 0.64                                       | 0.06                          | NO  | BSL   |
| 100-41-4         | Ethyl benzene              | 0.0052                               |   | 0.0052                         |     | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044 | 0.0052  |   | 400  | 5.5                           | NO  | BSL   |
| SA0078           | Meta/Para Xylene           | 0.0048                               |   | 0.0048                         |     | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044 | 0.0048  |   | 27   |                               | NO  | BSL   |
| 78-93 <b>-</b> 3 | Methyl ethyl ketone        | 0.0072                               |   | 0.078                          |     | SD121I-8                                | 2 / 10                 | 0.0031 - 0.0044 | 0.078   |   | 2,200                                      | 0.3                           | NO  | BSL   |
| 95-47-6          | Ortho Xylene               | 0.003                                |   | 0.003                          |     | SD121I-8                                | 1 / 10                 | 0.0027 - 0.0044 | 0.003   |   | 27   |                               | NO  | BSL   |
| 108-88-3         | Toluene                    | 0.0017                               | J | 0.026                          |     | SD121I-8                                | 2 / 10                 | 0.0031 - 0.0044 | 0.026   |   | 520  | 1.5                           | NO  | BSL   |
| Semivolatil      | e Organic Compounds        |                                      |   |                                |     |   |                        |                 |   |   |  |                               |     |   |
| 91-57-6          | 2-Methylnaphthalene        | 0.033                                | J | 0.17                           | J   | SD121I-7 (dup)                          | 2 / 12                 | 0.38 - 4.4      | 0.17  |   | 31   | 36.4                          | NO  | BSL   |
| 91-94-1          | 3,3'-Dichlorobenzidine     | 0.315                                | J | 0.315                          | J   | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4      | 0.315   |   | 1.1  |                               | NO  | BSL   |
| 83-32-9          | Acenaphthene               | 0.066                                | J | 0.74                           | J   | SD121I-7 (dup)                          | 9 / 12                 | 0.38 - 0.46     | 0.74  |   | 370  | 50                            | NO  | BSL   |
| 208-96-8         | Acenaphthylene             | 0.076                                | J | 0.42                           | J   | SD121I-2EBS                             | 4 / 12                 | 0.38 - 0.53     | 0.42  |   |  | 41                            | NO  | NSV   |
| 120-12-7         | Anthracene                 | 0.11                                 | J | 1.8                            | J   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 1.8   |   | 2,200                                      | 50                            | NO  | BSL   |
| 56-55-3          | Benzo(a)anthracene         | 0.049                                | J | 14                             |     | SD121I-2EBS                             | 10 / 12                | 0.38 - 0.46     | 14  |   | 0.62                                       | 0.224                         | YES | ASL   |
| 50-32-8          | Benzo(a)pyrene             | 0.29                                 | J | 16                             |     | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 16  |   | 0.062                                      | 0.061                         | YES | ASL   |
| 205-99-2         | Benzo(b)fluoranthene       | 0.044                                | J | 22                             |     | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46     | 22  | 역원 그리 그리                                    | 0.62                                       | 1.1                           | YES | ASL   |
| 191-24-2         | Benzo(ghi)perylene         | 0.11                                 | J | 12                             |     | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 12  |   |  | 50                            | NO  | NSV   |
| 207-08-9         | Benzo(k)fluoranthene       | 0.14                                 | J | 23                             | : * | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 23  | TO REPORT A                                 | 6.2  | 1.1                           | YES | ASL   |
| 117-81-7         | Bis(2-Ethylhexyl)phthalate | 0.025                                | J | 0.093                          | J   | SD121I-7 (dup)                          | 3 / 12                 | 0.38 - 4.4      | 0.093   |   | 35   | 50                            | NO  | BSL   |
| 85-68-7          | Butylbenzylphthalate       | 0.42                                 | J | 0.42                           | J   | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4      | 0.42  |   | 1,200                                      | 50                            | NO  | BSL   |
| 86-74-8          | Carbazole                  | 0.1                                  | J | 1.6                            | J   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 1.6   |   | 24   |                               | NO  | BSL   |
| 218-01-9         | Chrysene                   | 0.34                                 | J | 25                             | -   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 25  |   | 62   | 0.4                           | YES | CSG   |
| 53-70-3          | Dibenz(a,h)anthracene      | 0.086                                | J | 5                              | J.  | SD121I-2EBS                             | 5 / 12                 | 0.38 - 0.53     | 5   |   | 0.062                                      | 0.014                         | YES | ASL   |
| 132-64-9         | Dibenzofuran               | 0.058                                | J | 0.356                          | J   | SD121I-7 (dup)                          | 5 / 12                 | 0.38 - 4.4      | 0.356   |   | 15   | 6.2                           | NO  | BSL   |
| 117-84-0         | Di-n-octylphthalate        | 0.42                                 | J | 0.42                           | J   | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4      | 0.42  |   | 240  | 50                            | NO  | BSL   |
| 206-44-0         | Fluoranthene               | 0.099                                | J | 24                             |     | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46     | 24  |   | 230  | 50                            | NO  | BSL   |
| 86-73-7          | Fluorene                   | 0.053                                | J | 0.645                          | J   | SD121I-7 (dup)                          | 9 / 12                 | 0.38 - 0.46     | 0.645   |   | 270  | 50                            | NO  | BSL   |
| 193-39-5         | Indeno(1,2,3-cd)pyrene     | 0.098                                | J | 12                             | J   | SD121I-2EBS                             | 9 / 12                 | 0.38 - 0.46     | 12  |   | 0.62                                       | 3.2                           | YES | ASL   |
| 78-59-1          | Isophorone                 | 0.315                                | J | 0.315                          | J   | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4      | 0.315   |   | 510  | 4.4                           | NO  | BSL   |
| 91-20-3          | Naphthalene                | 0.065                                | J | 0.35                           | J   | SD121I-7 (dup)                          | 2 / 12                 | 0.38 - 4.4      | 0.35  |   | 5.6  | 13                            | NO  | BSL   |
| 98-95-3          | Nitrobenzene               | 0.315                                | J | 0.315                          | J   | SD121I-7 (dup)                          | 1 / 12                 | 0.38 - 4.4      | 0.315   |   | 2  | 0.2                           | NO  | BSL   |
| 85-01-8          | Phenanthrene               | 0.05                                 | J | 6.25                           |     | SD121I-7 (dup)                          | 11 / 12                | 0.46 - 0.46     | 6.25  |   |  | 50                            | NO  | NSV   |

## Table 2B

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I DITCH SOIL SEAD-121I

## Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Ditch Soil
Exposure Medium: Ditch Soil
Exposure Point: SEAD-1211

| CAS<br>Number | Chemical                     | Minimum Detected Concentration 1 (mg/kg) | Q   | Maximum Detected Concentration 1 (mg/kg) | Q           | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of Reporting<br>Limits <sup>1</sup><br>(mg/kg) | Concentration Used for Screening <sup>2</sup> (mg/kg) | Maximum<br>Background<br>Value <sup>3</sup><br>(mg/kg) | Screening<br>Value <sup>4</sup><br>(mg/kg) | Potential<br>ARAR /<br>TBC<br>Value <sup>5</sup><br>(mg/kg) |     | Rationale for<br>Contaminant<br>Deletion or<br>Selection |
|---------------|------------------------------|--|-----|--|-------------|---|------------------------|--|---|--|--|---|-----|--|
| 108-95-2      | Phenol                       | 0.315                                    | J   | 0.315                                    | J           | SD121I-7 (dup)                          | 1 / 12                 | 0.39 - 4.4   | 0.315   |  | 1,800                                      | 0.03  | NO  | BSL  |
| 129-00-0      | Pyrene                       | 0.078                                    | J   | 17                                       |             | SD121I-2EBS                             | 11 / 12                | 0.46 - 0.46  | 17  | -  | 230  | 50  | NO  | BSL  |
| PCBs          |                              |  |     |  |             |   |                        |  |   |  |  |   |     |  |
|               | Aroclor-1254                 | 0.067                                    |     | 0.067                                    |             | SD121I-5                                | 1 / 10                 | 0.012 - 0.022  | 0.067   |  | 0.22                                       | 10  | NO  | BSL  |
| 11096-82-5    | Aroclor-1260                 | 0.014                                    | J   | 0.014                                    | J           | SD121I-7 (dup)                          | 1 / 10                 | 0.0023 - 0.0033                                      | 0.014   |  | 0.22                                       | 10  | NO  | BSL  |
| Pesticides    |                              |  |     |  |             | ` ',                                    |                        |  |   |  |  |   |     |  |
| 72-55-9       | 4,4'-DDE                     | 0.0076                                   | J   | 0.0076                                   | J           | SD121I-7 (dup)                          | 1 / 10                 | 0.00024 - 0.00033                                    | 0.0076  |  | 1.7  | 2.1   | NO  | BSL  |
| Inorganics    |                              |  |     |  |             | , , ,                                   |                        |  |   |  |  |   |     |  |
| 7429-90-5     | Aluminum                     | 4,180                                    |     | 10,300                                   | .5.,        | SD121I-6                                | 10 / 10                |  | 10,300  | 20,500   | 7,600                                      | 19,300  | YES | ASL  |
| 7440-38-2     | Arsenic                      | 2.6                                      |     | 104                                      |             | SD121I-8                                | 10 / 10                |  | 104   | 21.5   | 0.39                                       | 8.2   | YES | ASL  |
| 7440-39-3     | Barium                       | 44.1                                     | J   | 91.1                                     | J           | SD121I-8                                | 10 / 10                |  | 91.1  | 159  | 540  | 300   | NO  | BSL  |
| 7440-41-7     | Beryllium                    | 0.3                                      | _   | 0.66                                     |             | SD121I-6                                | 10 / 10                |  | 0.66  | 1.4  | 150  | 1.1   | NO  | BSL  |
| 7440-43-9     | Cadmium                      | 0.8                                      |     | 0.8                                      |             | SD121I-7 (dup)                          | 1 / 10                 | 0.14 - 0.19  | 0.8   | 2.9  | 3.7  | 2.3   | NO  | BSL  |
| 7440-70-2     | Calcium                      | 8,990                                    |     | 127,500                                  |             | SD121I-7 (dup)                          | 10 / 10                |  | 127,500   | 293,000  | 2,500,000                                  | 121,000   | NO  | NUT  |
| 7440-47-3     | Chromium                     | 8.6                                      |     | 83.9                                     |             | SD121I-8                                | 10 / 10                |  | 83.9  | 32.7   | 210  | 29.6  | NO  | BSL  |
| 7440-48-4     | Cobalt                       | 5.9                                      | 3   | 91.9                                     | 1.          | SD121I-8                                | 10 / 10                |  | 91.9  | 29.1   | 90   | 30  | YES | ASL  |
| 7440-50-8     | Соррег                       | 17.1                                     | J   | 130                                      |             | SD121I-4                                | 10 / 10                |  | 130   | 62.8   | 310  | 33  | NO  | BSL  |
| 7439-89-6     | Iron                         | 10,100                                   | Ι,  | 30,400                                   |             | SD121I-8                                | 10 / 10                |  | 30,400  | 38,600   | 2,300                                      | 36,500  | YES | ASL  |
| 7439-92-1     | Lead                         | 11.2                                     | J   | 93.3                                     |             | SD121I-6                                | 10 / 10                |  | 93.3  | 266  | 400  | 24.8  | NO  | BSL  |
|               | Magnesium                    | 2,150                                    |     | 11,300                                   |             | SD121I-5                                | 10 / 10                |  | 11,300  | 29,100   | 400,000                                    | 21,500  | NO  | NUT  |
| 7439-96-5     | Manganese                    | 303                                      | 5.0 | 14,900                                   |             | SD121I-8                                | 10 / 10                | ango pankeb <u>ag</u> an                             | 14,900  | 2,380  | 180  | 1,060   | YES | ASL  |
| 7439-97-6     | Mercury                      | 0.02                                     |     | 0.18                                     |             | SD121I-3                                | 9 / 10                 | 0.12 - 0.12  | 0.18  | 0.13   | 2.3  | 0.1   | NO  | BSL  |
| 7440-02-0     | Nickel                       | 16.4                                     |     | 153                                      |             | SD121I-8                                | 10 / 10                |  | 153   | 62.3   | 160  | 49  | NO  | BSL  |
| 7440-09-7     | Potassium                    | 541                                      |     | 1,450                                    | <u> </u>    | SD121I-6                                | 10 / 10                |  | 1,450   | 3,160  | 5,000,000                                  | 2,380   | NO  | NUT  |
| 7782-49-2     | Selenium                     | 18                                       |     | 18                                       | Ĺ           | SD121I-8                                | 1 / 10                 | 0.48 - 0.68  | 18  | 1.7  | 39   | 2   | NO  | BSL  |
| 7440-22-4     | Silver                       | 2.5                                      |     | 10.5                                     | <u> </u>    | SD121I-8                                | 2 / 10                 | 0.31 - 0.44  | 10.5  | 0.87   | 39   | 0.75  | NO  | BSL  |
| 7440-23-5     | Sodium                       | 162                                      |     | 266                                      |             | SD121I-10                               | 8 / 10                 | 118 - 132  | 266   | 269  | 1,125,000                                  | 172   | NO  | NUT  |
| 7440-28-0     | Thallium                     | 0.44                                     | J . | 21.5                                     |             | SD121I-8                                | 2 / 10                 | 0.36 - 0.5   | 21.5  | 1.2  | 0.52                                       | 0.7   | YES | ASL  |
| 7440-62-2     | Vanadium                     | 8.1                                      | 1.  | 69.4                                     | 4           | SD121I-8                                | 10 / 10                |  | 69.4  | 32.7   | 7.8  | 150   | YES | ASL  |
| 7440-66-6     | Zinc                         | 57.3                                     | J   | 532                                      | <u>L.</u> . | SD121I-6                                | 10 / 10                |  | 532   | 126  | 2,300                                      | 110   | NO  | BSL  |
| Other Anal    |                              |  |     |  |             |   |                        |  |   |  |  |   |     |  |
| SA0019        | Total Organic Carbon         | 2,800                                    |     | 7,200                                    | J           | SD121I-1                                | 10 / 10                |  | 7,200   |  |  |   | NO  | NSV  |
| SA0020        | Total Petroleum Hydrocarbons | 150                                      |     | 910                                      |             | SD121I-9                                | 5 / 10                 | 52 - 66  |   |  |  |   | NO  | ICE  |

#### Table 2B

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121I DITCH SOIL

#### SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |  |
|---------------------|----------------|--|
| Medium:             | Ditch Soil     |  |
| Exposure Medium:    | Ditch Soil     |  |
| Exposure Point:     | SEAD-121I      |  |

| CAS    | Chemical | Minimum       | Q | Maximum       | Q | Location of   | Detection | Range of Reporting | Concentration | Maximum            | Screening | Potential | COPC | Rationale for |
|--------|----------|---------------|---|---------------|---|---------------|-----------|--------------------|---------------|--------------------|-----------|-----------|------|---------------|
| Number |          | Detected      |   | Detected      |   | Maximum       | Frequency | Limits 1           | Used for      | Background         | Value 4   | ARAR /    | Flag | Contaminant   |
|        |          | Concentration |   | Concentration |   | Concentration | 1         | (mg/kg)            | Screening 2   | Value <sup>3</sup> | (mg/kg)   | TBC       | 1    | Deletion or   |
|        |          | 1             |   | 1             |   |               |           |                    | (mg/kg)       | (mg/kg)            |           | Value 5   | ĺ    | Selection     |
|        |          | (mg/kg)       |   | (mg/kg)       |   |               |           |                    |               |                    |           | (mg/kg)   |      |               |

#### Notes:

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. Background value is the maximum detected concentration of the Seneca background dataset.
- 4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient = 1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs.

The PRGs or RBCs corresponding to a hazard quotient of 1 were adjusted by multiplying 0.1 before they were used as screening values.

PRG for xylenes was used as screening value for meta/para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene

as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS, was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

PRG for nickel (soluble salts) was used as screening value for nickel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes Selection Reason: Above Screening Levels (ASL)

Chemicals in the Same Group were retained as COPC (CSG)

Essential Nutrient (NUT) Deletion Reason:

Below Screening Level (BSL)

No Screening Value or Toxicity Value (NSV)

Individual Chemicals Evaluated (ICE)

Definitions: COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

O = Qualifier

#### Table 2C

## ${\tt OCCURRENCE, DISTRIBUTION \ AND \ SELECTION \ OF \ CHEMICALS \ OF \ POTENTIAL \ CONCERN \ IN \ SEAD-1211 \ SURFACE \ WATER}$

## SEAD-121I Seneca Army Depot Activity

Scenario Timeframe: Current/Future
Medium: Surface Water

Exposure Medium: Surface Water Exposure Point: SEAD-121I

| CAS<br>Number | Chemical             | Minimum Detected Concentration 1 (ug/L) | Q  | Maximum Detected Concentration <sup>1</sup> (ug/L) | Q  | Location of<br>Maximum<br>Concentration | Detection<br>Frequency | Range of<br>Reporting Limits <sup>1</sup><br>(ug/L) | Concentration Used for Screening 2 (ug/L) | Maximum<br>Background<br>Value <sup>3</sup><br>(ug/L) | Screening<br>Value <sup>4</sup><br>(ug/L) | Potential<br>ARAR<br>/TBC<br>Value <sup>5</sup><br>(ug/L) | COPC<br>Flag | Rationale for<br>Contaminant<br>Deletion or<br>Selection <sup>6</sup> |
|---------------|----------------------|---|----|--|----|---|------------------------|---|---|---|---|---|--------------|---|
| Semivolati    | le Organic Compounds |   |    |  |    |   | i                      |   | 1   |   |   |   |              |   |
|               | Butylbenzylphthalate | 1.1                                     | J  | 1.1  | J  | SW121I-10                               | 1 / 7                  | 10 - 10   | I.I                                       |   | 730                                       |   | NO           | BSL   |
| 206-44-0      | Fluoranthene         | 1.1                                     | J  | 1.1  | J  | SW121I-6                                | 1 / 7                  | 10 - 10   | 1.1                                       |   | 150                                       |   | NO           | BSL   |
| Inorganics    |                      |   |    |  | _  |   |                        |   |   |   |   |   |              |   |
| 7429-90-5     |                      | 23.9                                    |    | 2,050  |    | SW121I-6                                | 7/7                    |   | 2,050                                     |   | 3,600                                     | 100   | NO           | BSL   |
| 7440-39-3     |                      | 22.5                                    |    | 49.2   |    | SW121I-1                                | 6/7                    | 9.9 - 9.9   | 49.2                                      |   | 260                                       |   | NO           | BSL   |
| 7440-41-7     | Beryllium            | 0.14                                    |    | 0.28   |    | SW121I-6                                | 6/7                    | 0.1 - 0.1   | 0.28                                      |   | 7.3                                       | 1,100   | NO           | BSL   |
| 7440-43-9     |                      | 0.54                                    |    | 0.54   |    | SW121I-10                               | 1 / 7                  | 0.4 - 0.8   | 0.54                                      |   | 1.8                                       | 3.84  | NO           | BSL   |
| 7440-70-2     | Calcium              | 18,000                                  | Ξ. | 74,200   |    | SW121I-1                                | 7/7                    |   | 74,200                                    |   | 250,000                                   |   | NO           | NUT   |
| 7440-47-3     | Chromium             | 1.1                                     |    | 6  |    | SW121I-6                                | 5 / 7                  | 0.6 - 1.4   | 6   |   | 11  | 139.45  | NO           | BSL   |
| 7440-48-4     | Cobalt               | 2.8                                     |    | 3  |    | SW121I-6                                | 2/7                    | 0.6 - 0.7   | 3   |   | 73  | 5   | NO           | BSL   |
| 7440-50-8     | Copper               | 1.2                                     |    | 11.2   |    | SW121I-6                                | 6/7                    | 3.6 - 3.6   | 11.2                                      |   | 150                                       | 17.32   | NO           | BSL   |
| 7439-89-6     | Iron                 | 32.3                                    | J. | 3,410  | ٠. | SW121I-6                                | 5/7                    | 17.3 - 17.3   | 3,410                                     | 1,646,6,5,1   | 1,100                                     | 300   | YES          | ASL   |
| 7439-92-1     | Lead                 | 4.3                                     | J  | 26.3   |    | SW121I-6                                | 4/7                    | 2.1 - 3   | 26.3                                      |   | 15  | 1.46  | YES          | ASL   |
|               | Magnesium            | 3,635                                   |    | 11,100   |    | SW121I-1                                | 7/7                    |   | 11,100                                    |   | 40,000                                    |   | NO           | NUT   |
| 7439-96-5     | Manganese            | 0.8                                     |    | 206  |    | SW121I-6                                | 7/7                    | - E054 N. V. 17                                     | 206                                       | - 1 HONG  | - 88                                      |   | YES          | ASL   |
| 7440-02-0     | Nickel               | 3.5                                     |    | 3.6  |    | SW121I-6                                | 2 / 7                  | 1.8 - 2   | 3.6                                       |   | 73  | 99.92   | NO           | BSL   |
| 7440-09-7     | Potassium            | 645                                     |    | 4,640  | Ĵ  | SW121I-6                                | 7/7                    |   | 4,640                                     |   | 700,000                                   |   | NO           | NUT   |
|               |                      |   |    |  |    | SW121I-7                                |                        |   |   |   |   |   | (            |   |
| 7782-49-2     | Selenium             | 2.5                                     | J  | 2.5  | J  | (dup)                                   | 1/7                    | 3 - 3   | 2.5                                       |   | 18  | 4.6   | NO           | BSL   |
| 7440-23-5     | Sodium               | 2,240                                   | _  | 38,500   | J  | SW1211-10                               | 7/7                    |   | 38,500                                    |   | 1,200,000                                 |   | NO           | NUT   |
| 7440-62-2     | Vanadium             | 2.1                                     | П  | 3.9  |    | SW121I-6                                | 3 / 7                  | 0.7 - 1.4   | 3.9                                       | The Control   | 3.6                                       | 14  | YES          | ASL   |
| 7440-66-6     | Zinc                 | 12.5                                    |    | 190  |    | SW121I-6                                | 7/7                    |   | 190                                       |   | 1,100                                     | 159.25  | NO           | BSL   |

#### Notes

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- 2. The maximum detected concentration was used for screening.
- 3. No background values available for surface water.
- EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.

Target Cancer Risk = 1E-6; Target Hazard Quotient = 1, Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

The PRGs corresponding to a hazard quotient of 1 was adjusted by multiplying 0.1 before they were used as screening values.

Maximum Contaminant Level (MCL) for lead was used as screening value for lead as no Region 9 PRG is available.

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake

and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and

minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

For sodium, an upper limit intake of 2,400 mg/day (http://www.mealformation.com/dailyval.html) was used.

PRG for chromium (VI) was used as screening value for chromium.

5. Potential ARAR values are from the New York State Ambient Water Ouality Standards, Class C for Surface Water.

6. Rationale codes

Selection Reason: Above Deletion Reason: Essen

Above Screening Levels (ASL)
Essential Nutrient (NUT)

Below Screening Level (BSL)

Definitions:

COPC = Chemical of Potential Concern

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Qualifier

### Table 3A

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - TOTAL SOIL AT SEAD-121C SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Soil           |
| Exposure Point:     | SEAD-121C      |

|                         |         |            |            |               | _ |       |        | Total Soil           |                    |
|-------------------------|---------|------------|------------|---------------|---|-------|--------|----------------------|--------------------|
| Chemical                | Units   | Arithmetic | 95% UCL of | Maximum       | Q | EPC   |        | Reasonable Maximum 1 | Exposure (2)       |
| of                      |         | Mean       | Normal     | Detected      |   | Units |        |                      |                    |
| Potential               |         | (1)        | Data       | Concentration |   |       | Medium | Medium               | Medium             |
| Concern                 |         |            |            | (1)           |   |       | EPC    | EPC                  | EPC                |
|                         |         |            |            |               |   |       | Value  | Statistic            | Rationale          |
| Volatile Organic Compo  | unds    |            |            |               |   |       |        |                      |                    |
| Benzene                 | mg/kg   | 0.029      | 0.073      | 1.8           | J | mg/kg | 0.19   | 97.5% Chebyshev      | Non-parametric, MH |
| Semivolatile Organic Co | mpounds |            |            |               |   |       |        |                      |                    |
| Benzo(a)anthracene      | mg/kg   | 0.58       | 0.90       | 10            | J | mg/kg | 1.8    | 97.5% Chebyshev      | Non-parametric, MH |
| Benzo(a)pyrene          | mg/kg   | 0.61       | 0.93       | 8.7           | J | mg/kg | 1.8    | 97.5% Chebyshev      | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg   | 0.84       | 1.2        | 12            | J | mg/kg | 2.4    | 97.5% Chebyshev      | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg   | 0.46       | 0.68       | 7.5           | J | mg/kg | 1.3    | 97.5% Chebyshev      | Non-parametric, MH |
| Chrysene                | mg/kg   | 0.58       | 0.87       | 9.1           | J | mg/kg | 1.7    | 97.5% Chebyshev      | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg   | 0.17       | 0.18       | 0.47          | J | mg/kg | 0.21   | 95% Chebyshev        | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg   | 0.20       | 0.24       | 0.97          | J | mg/kg | 0.30   | 95% Chebyshev        | Non-parametric, MO |
| Pesticides/PCBs         |         |            |            |               |   |       |        |                      |                    |
| Dieldrin                | mg/kg   | 0.0021     | 0.0035     | 0.041         | J | mg/kg | 0.0073 | 97.5% Chebyshev      | Non-parametric, MH |
| Aroclor-1242            | mg/kg   | 0.010      | 0.012      | 0.058         | J | mg/kg | 0.014  | 95% Chebyshev        | Non-parametric, MO |
| Aroclor-1254            | mg/kg   | 0.042      | 0.069      | 0.93          |   | mg/kg | 0.14   | 97.5% Chebyshev      | Non-parametric, MH |
| Aroclor-1260            | mg/kg   | 0.014      | 0.019      | 0.20          |   | mg/kg | 0.033  | 97.5% Chebyshev      | Non-parametric, MH |
| Metals                  |         |            |            |               |   |       |        |                      |                    |
| Aluminum                | mg/kg   | 11,072     | 11,758     | 17,600        |   | mg/kg | 11,250 | 95% Student's-t      | Normal             |
| Antimony                | mg/kg   | 7.52       | 13.5       | 236           |   | mg/kg | 29.9   | 97.5% Chebyshev      | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | 95% Approximate      | Approximate Gamma, |
| Arsenic                 | mg/kg   | 5.45       | 5.73       | 11.6          | l | mg/kg | 5.73   | Gamma                | Lognormal          |
| Barium                  | mg/kg   | 199        | 397        | 2,030         | J | mg/kg | 82     | 95% Chebyshev        | Non-parametric, MO |
| Cadmium                 | mg/kg   | 3.02       | 10.50      | 29.1          |   | mg/kg | 0.08   | 99% Chebyshev        | Non-parametric, HE |
| Copper                  | mg/kg   | 408        | 694        | 9,750         |   | mg/kg | 1,477  | 97.5% Chebyshev      | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | Mod-t UCL (Adjusted  | tubul vii          |
| Iron                    | mg/kg   | 25,557     | 27,489     | 54,100        |   | mg/kg | 27,507 | for skewness)        | Non-parametric, M  |
| Lead                    | mg/kg   | 550        | 1,033      | 18,900        |   | mg/kg | 550    | Mean                 | See Note           |
| Manganese               | mg/kg   | 482        | 510        | 858           |   | mg/kg | 473.5  | 95% Student's-t      | Normal             |
| Nickel                  | mg/kg   | 40.00      | 43.28      | 224           |   | mg/kg | 35.95  | 95% H-UCL            | Lognormal, M       |
| Thallium                | mg/kg   | 0.39       | 0.55       | 1.8           | J | mg/kg | 0.20   | 95% Chebyshev        | Non-parametric, MO |
| Vanadium                | mg/kg   | 18.15      | 19.05      | 27            | J | mg/kg | 18.75  | 95% Student's-t      | Normal             |
| Zinc                    | mg/kg   | 355        | 831        | 3610          |   | mg/kg | 114    | 97.5% Chebyshev      | Non-parametric, MH |

## Notes:

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version 32 bit Version (USEPA, 2002).

HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.

MH - moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.

M - mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

## Attachemnt 2

## Table 3B

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-121C SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Soil           |
| Exposure Point:     | SEAD-121C      |

|                         | 1       |            |            |               |   |       |        | Surface Soil (0-2 ft  | hae)               |
|-------------------------|---------|------------|------------|---------------|---|-------|--------|-----------------------|--------------------|
| Chemical                | Units   | Arithmetic | 95% UCL of | Maximum       | Q | EPC   | 1      | Reasonable Maximum Ex | · /                |
| of                      | Units   | Mean       | Normal     | Detected      | Q | Units |        | Keasonable Maximum Lx | posure (2)         |
| Potential               |         | (1)        | Data       | Concentration |   | Units | Medium | Medium                | Medium             |
| Concern                 |         | (1)        | Data       | (1)           |   |       | EPC    | EPC                   | EPC                |
| Concern                 |         |            |            | (1)           |   |       | Value  | Statistic             | Rationale          |
|                         |         |            |            |               |   | -     | value  | Statistic             | Kationale          |
| Semivolatile Organic Co | mpounds |            |            |               |   |       |        |                       |                    |
| Benzo(a)anthracene      | mg/kg   | 0.64       | 1.1        | 10            | J | mg/kg | 3.1    | 99% Chebyshev         | Non-parametric, MH |
| Benzo(a)pyrene          | mg/kg   | 0.78       | 1.2        | 8.7           | J | mg/kg | 3.4    | 99% Chebyshev         | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg   | 1.0        | 1.6        | 12            | J | mg/kg | 4.5    | 99% Chebyshev         | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg   | 0.57       | 0.88       | 7.5           | J | mg/kg | 2.4    | 99% Chebyshev         | Non-parametric, MH |
| Chrysene                | mg/kg   | 0.64       | 1.0        | 9.1           | J | mg/kg | 2.9    | 99% Chebyshev         | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg   | 0.17       | 0.19       | 0.47          | J | mg/kg | 0.22   | 95% Chebyshev         | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg   | 0.22       | 0.28       | 0.97          | J | mg/kg | 0.36   | 95% Chebyshev         | Non-parametric, MO |
| Pesticides/PCBs         |         |            |            |               |   |       |        |                       |                    |
| Dieldrin                | mg/kg   | 0.0026     | 0.0045     | 0.041         | J | mg/kg | 0.014  | 99% Chebyshev         | Non-parametric, MH |
| Aroclor-1242            | mg/kg   | 0.010      | 0.012      | 0.058         | J | mg/kg | 0.016  | 95% Chebyshev         | Non-parametric, MO |
| Aroclor-1254            | mg/kg   | 0.055      | 0.093      | 0.93          |   | mg/kg | 0.28   | 99% Chebyshev         | Non-parametric, MH |
| Aroclor-1260            | mg/kg   | 0.012      | 0.015      | 0.085         | J | mg/kg | 0.030  | 99% Chebyshev         | Non-parametric, MH |
| Metals                  |         |            |            |               |   |       |        |                       |                    |
| Aluminum                | mg/kg   | 10,085     | 10,847     | 17,000        |   | mg/kg | 10,550 | 95% Student's-t       | Normal             |
| Antimony                | mg/kg   | 10.2       | 18.7       | 236           |   | mg/kg | 60.4   | 99% Chebyshev         | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | 95% Approximate       | Approximate Gamma, |
| Arsenic                 | mg/kg   | 5.46       | 5.81       | 11.6          |   | mg/kg | 5.79   | Gamma                 | Lognormal          |
| Barium                  | mg/kg   | 231        | 834        | 2,030         | J | mg/kg | 83.8   | 99% Chebyshev         | Non-parametric, HE |
| Cadmium                 | mg/kg   | 4.09       | 14.2       | 29.1          |   | mg/kg | 0.54   | 99% Chebyshev         | Non-parametric, MH |
| Copper                  | mg/kg   | 515        | 912        | 9,750         |   | mg/kg | 2,868  | 99% Chebyshev         | Non-parametric, MH |
|                         |         |            |            |               |   |       |        | Mod-t UCL (Adjusted   |                    |
| Iron                    | mg/kg   | 24,518     | 26,875     | 51,700        |   | mg/kg | 26,903 | for skewness)         | Non-parametric, M  |
| Lead                    | mg/kg   | 735        | 1,417      | 18,900        |   | mg/kg | 735    | Mean                  | See Note           |
| Manganese               | mg/kg   | 462        | 493        | 858           |   | mg/kg | 470    | 95% Student's-t       | Normal             |
|                         |         |            |            | ,             |   | 0.0   |        | 95% Approximate       |                    |
| Nickel                  | mg/kg   | 40.2       | 45.7       | 224           |   | mg/kg | 35     | Gamma                 | Approximate Gamma  |
| Thallium                | mg/kg   | 0.38       | 0.54       | 1.1           | J | mg/kg | 0.26   | 95% Chebyshev         | Non-parametric, MO |
| Vanadium                | mg/kg   | 17.0       | 18.0       | 25.4          |   | mg/kg | 17.5   | 95% Student's-t       | Normal             |
| Zinc                    | mg/kg   | 450        | 1,490      | 3,610         |   | mg/kg | 134    | 99% Chebyshev         | Non-parametric, MH |
|                         |         |            | -,         |               |   | 0     |        |                       |                    |

## Notes:

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version 32 bit Version (USEPA, 2002).
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.
  - MO moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

## Table 3C

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-121C SEAD-121C

## Seneca Army Depot Activity

Scenario Timeframe: Current/Future

Medium: Exposure Medium: Soil Soil

Exposure Point:

SEAD-121C

|                            |         |             |                                  |   | }     |               | Ditch Soil            | - , , , , , , , , , , , , , , , , , , , |
|----------------------------|---------|-------------|----------------------------------|---|-------|---------------|-----------------------|---|
| Chemical                   | Units   | Arithmetic  | Maximum                          | Q | EPC   | 1             | Reasonable Maximum Ex | posure (2)                              |
| of<br>Potential<br>Concern | 1       | Mean<br>(1) | Detected<br>Concentration<br>(1) |   | Units | Medium<br>EPC | Medium<br>EPC         | Medium<br>EPC                           |
|                            |         |             |                                  |   |       | Value         | Statistic             | Rationale                               |
| Semivolatile Organic Co    | mpounds |             |                                  |   |       |               |                       |   |
| Benzo(a)anthracene         | mg/kg   | 0.49        | 1.1                              | J | mg/kg | 1.1           | MDC                   | See Note                                |
| Benzo(a)pyrene             | mg/kg   | 0.47        | 0.90                             | J | mg/kg | 0.90          | MDC                   | See Note                                |
| Benzo(b)fluoranthene       | mg/kg   | 0.49        | 1.1                              | J | mg/kg | 1.1           | MDC                   | See Note                                |
| Benzo(k)fluoranthene       | mg/kg   | 0.44        | 0.58                             | J | mg/kg | 0.58          | MDC                   | See Note                                |
| Chrysene                   | mg/kg   | 0.50        | 1.2                              | J | mg/kg | 1.2           | MDC                   | See Note                                |
| Indeno(1,2,3-cd)pyrene     | mg/kg   | 0.41        | 0.27                             | J | mg/kg | 0.27          | MDC                   | See Note                                |
| Metals                     |         |             |                                  |   |       |               |                       |   |
| Aluminum                   | mg/kg   | 9,373       | 21,500                           |   | mg/kg | 21,500        | MDC                   | See Note                                |
| Antimony                   | mg/kg   | 2.34        | 4.9                              | J | mg/kg | 4.9           | MDC                   | See Note                                |
| Arsenic                    | mg/kg   | 3.3         | 6.1                              | J | mg/kg | 6.1           | MDC                   | See Note                                |
| Cadmium                    | mg/kg   | 2.77        | 14.3                             |   | mg/kg | 14.3          | MDC                   | See Note                                |
| Copper                     | mg/kg   | 177         | 1,190                            |   | mg/kg | 1,190         | MDC                   | See Note                                |
| Iron                       | mg/kg   | 18,305      | 27,300                           | j | mg/kg | 27,300        | MDC                   | See Note                                |
| Lead                       | mg/kg   | 144         | 436                              |   | mg/kg | 436           | MDC                   | See Note                                |
| Manganese                  | mg/kg   | 556         | 918                              | J | mg/kg | 918           | MDC                   | See Note                                |
| Vanadium                   | mg/kg   | 18.0        | 29.1                             | Ĵ | mg/kg | 29.1          | MDC                   | See Note                                |

## Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Non-detects were assumed to be half the reporting limit.
- 2. The maximum detected concentration was used as EPC for the RME scenario. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

Q - qualifier

## Table 3D

## EXPOSURE POINT CONCENTRATION SUMMARY - GROUNDWATER AT SEAD-121C SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Groundwater    |
| Exposure Medium:    | Groundwater    |
| Exposure Point:     | SEAD-121C      |

| Chemical of | Units | Arithmetic<br>Mean | Maximum<br>Detected | Maximum<br>Qualifier | EPC<br>Units | Reasonable | Maximum E | xposure (2) |
|-------------|-------|--------------------|---------------------|----------------------|--------------|------------|-----------|-------------|
| Potential   |       | (1)                | Concentration       |                      |              | Medium     | Medium    | Medium      |
| Concern     |       |                    |                     |                      |              | EPC        | EPC       | EPC         |
|             |       |                    |                     |                      |              | Value      | Statistic | Rationale   |
| Metals      |       |                    |                     |                      |              |            |           |             |
| Antimony    | ug/L  | 4.2                | 8.4                 | Ј                    | ug/L         | 8.4        | MDC       | See note    |
| Chromium    | ug/L  | 5.54               | 21.4                |                      | ug/L         | 21.4       | MDC       | See note    |
| Manganese   | ug/L  | 218                | 297                 |                      | ug/L         | 297        | MDC       | See note    |

## Notes:

- 1. Only SEAD-121C RI Groundwater data was used in the EPC calculations.
- 2. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Concentrations for non-detects were assumed to be half the detection limit.
- 3. The maximum detected concentration was used as EPC for the RME scenario. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

## RI = Remedial Investigation

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

## Table 3E

## EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-121C SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Surface water  |
| Exposure Medium:    | Surface water  |
| Exposure Point:     | SEAD-121C      |

| Chemical of | Units | Arithmetic<br>Mean | Maximum<br>Detected | Maximum<br>Qualifier | EPC<br>Units | Reasonable | Maximum E | xposure (2) |
|-------------|-------|--------------------|---------------------|----------------------|--------------|------------|-----------|-------------|
| Potential   |       | (1)                | Concentration       |                      |              | Medium     | Medium    | Medium      |
| Concern     |       |                    |                     |                      |              | EPC        | EPC       | EPC         |
|             |       |                    |                     |                      |              | Value      | Statistic | Rationale   |
| Metals      |       |                    |                     |                      |              |            |           |             |
| Aluminum    | ug/L  | 1,427              | 8,760               |                      | ug/L         | 8,760      | MDC       | See note    |
| Arsenic     | ug/L  | 6.3                | 50.3                |                      | ug/L         | 50         | MDC       | See note    |
| Barium      | ug/L  | 101                | 423                 |                      | ug/L         | 423        | MDC       | See note    |
| Cadmium     | ug/L  | 2.7                | 19.5                |                      | ug/L         | 20         | MDC       | See note    |
| Chromium    | ug/L  | 15.3               | 129                 |                      | ug/L         | 129        | MDC       | See note    |
| Copper      | ug/L  | 131.335            | 1,160               |                      | ug/L         | 1,160      | MDC       | See note    |
| Iron        | ug/L  | 13,136             | 110,000             |                      | ug/L         | 110,000    | MDC       | See note    |
| Lead        | ug/L  | 116                | 839                 |                      | ug/L         | 839        | MDC       | See note    |
| Manganese   | ug/L  | 394                | 2,380               |                      | ug/L         | 2,380      | MDC       | See note    |
| Mercury     | ug/L  | 0.32               | 2.1                 |                      | ug/L         | 2.1        | MDC       | See note    |
| Nickel      | ug/L  | 19.1               | 154                 |                      | ug/L         | 154        | MDC       | See note    |
| Thallium    | ug/L  | 3.34               | 6.3                 |                      | ug/L         | 6.3        | MDC       | See note    |
| Vanadium    | ug/L  | 25.4               | 233                 |                      | ug/L         | 233        | MDC       | See note    |
| Zinc        | ug/L  | 758                | 6,910               |                      | ug/L         | 6,910      | MDC       | See note    |

## Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Concentrations for non-detects were assumed to be half the detection limit.
- 2. The maximum detected concentration was used as EPC for the RME scenario. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

### Attachment 2 TABLE 4A

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-121I SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Soil           |
| Exposure Point:     | SEAD-121I      |

|                         |            |            |            |               |   |       |         | Surface Soil         |                    |
|-------------------------|------------|------------|------------|---------------|---|-------|---------|----------------------|--------------------|
| Chemical                | Arithmetic | Arithmetic | 95% UCL of | Maximum       | Q | EPC   | F       | Reasonable Maximum E | xposure (2)        |
| of                      | Mean       | Mean       | Normal     | Detected      |   | Units |         |                      |                    |
| Potential               | Units      | (1)        | Data       | Concentration |   |       | Medium  | Medium               | Medium             |
| Concern                 | l i        |            |            | (1)           |   |       | EPC     | EPC                  | EPC                |
|                         |            |            |            | . ,           |   |       | Value   | Statistic            | Rationale          |
| Semivolatile Organic Co | mpounds    |            |            |               |   |       |         |                      |                    |
| Benzo(a)anthracene      | mg/kg      | 1.9        | 3.3        | 28            | J | mg/kg | 10      | 99% Chebyshev        | Non-parametric, MH |
| Benzo(a)рутепе          | mg/kg      | 1.7        | 2.9        | 23            |   | mg/kg | 8.5     | 99% Chebyshev        | Non-parametric, MH |
| Benzo(b)fluoranthene    | mg/kg      | 1.9        | 3.3        | 29            |   | mg/kg | 10      | 99% Chebyshev        | Non-parametric, MH |
| Benzo(k)fluoranthene    | mg/kg      | 1.9        | 3.0        | 21            | J | mg/kg | 8.7     | 99% Chebyshev        | Non-parametric, MH |
| Chrysene                | mg/kg      | 2.4        | 4.0        | 32            | J | mg/kg | 12      | 99% Chebyshev        | Non-parametric, MH |
| Dibenz(a,h)anthracene   | mg/kg      | 0.50       | 0.75       | 4.6           | J | mg/kg | 1.2     | 95% Chebyshev        | Non-parametric, MO |
| Indeno(1,2,3-cd)pyrene  | mg/kg      | 0.88       | 1.4        | 8.1           | J | mg/kg | 3.9     | 99% Chebyshev        | Non-parametric, MH |
| Pesticides              |            |            |            |               |   |       |         |                      |                    |
| Dieldrin                | mg/kg      | 0.0023     | 0.0041     | 0.034         | J | mg/kg | 0.0068  | 95% Chebyshev        | Non-parametric, MO |
| Heptachlor epoxide      | mg/kg      | 0.0050     | 0.0081     | 0.055         | J | mg/kg | 0.023   | 99% Chebyshev        | Non-parametric, MH |
| Metals                  |            |            |            |               |   |       |         |                      |                    |
| Aluminum                | mg/kg      | 6,274      | 7,227      | 13,200        |   | mg/kg | 5,810   | 95% Student's-t      | Normal             |
| Antimony                | mg/kg      | 2.45       | 3.69       | 7.5           |   | mg/kg | 3.15    | 95% Chebyshev        | Non-parametric, MO |
| Arsenic                 | mg/kg      | 8.33       | 10.9       | 32.1          | J | mg/kg | 14.9    | 95% Chebyshev        | Non-parametric, MO |
| Cadmium                 | mg/kg      | 0.65       | 3.0        | 6.6           |   | mg/kg | 0.27    | 99% Chebyshev        | Non-parametric, MH |
| Chromium                | mg/kg      | 29.3       | 50.0       | 439           |   | mg/kg | 82.7    | 95% Chebyshev        | Non-parametric, MO |
| Cobalt                  | mg/kg      | 17.7       | 43.1       | 205.5         | J | mg/kg | 9.5     | 95% Chebyshev        | Non-parametric, MO |
|                         |            |            |            |               |   |       |         | 95% Approximate      | Approximate Gamma, |
| Iron                    | mg/kg      | 18,569     | 21,554     | 58,400        |   | mg/kg | 21,627  | Gamma                | Lognormal          |
| Manganese               | mg/kg      | 15,037     | 30,559     | 310,500       |   | mg/kg | 106,375 | 99% Chebyshev        | Non-parametric, MH |
| Nickel                  | mg/kg      | 49.1       | 105        | 342           | J | mg/kg | 26.8    | 95% Chebyshev        | Non-parametric, MO |
| Selenium                | mg/kg      | 6.30       | 48.5       | 146           | J | mg/kg | 0.65    | 99% Chebyshev        | Non-parametric, MH |
| Thallium                | mg/kg      | 6.51       | 14.5       | 163           | J | mg/kg | 53.4    | 99% Chebyshev        | Non-parametric, MH |
| Vanadium                | mg/kg      | 20.6       | 29.1       | 182           | J | mg/kg | 42.7    | 95% Chebyshev        | Non-parametric, MO |

#### Notes

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Non-detects were assumed to be half the reporting limit.
- 2.The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
  - HE highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.
  - MH moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.
  - MO moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.
  - M mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Q - qualifier

## **TABLE 4B**

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-121I SEAD-121I

## Seneca Army Depot Activity

Scenario Timeframe: Current/Future

Medium: Soil Exposure Medium: Soil

Exposure Point: SEAD-121I

| Chemical                   | Arithmetic    | Arithmetic  | Maximum                          | Q | EPC   | ]             | Ditch Soil<br>Reasonable Maximum Ex | posure (2)    |
|----------------------------|---------------|-------------|----------------------------------|---|-------|---------------|-------------------------------------|---------------|
| of<br>Potential<br>Concern | Mean<br>Units | Mean<br>(1) | Detected<br>Concentration<br>(1) |   | Units | Medium<br>EPC | Medium<br>EPC                       | Medium<br>EPC |
|                            |               |             |                                  |   |       | Value         | Statistic                           | Rationale     |
| Semivolatile Organic Co    | mpounds       |             |                                  |   |       |               |                                     |               |
| Benzo(a)anthracene         | mg/kg         | 2.5         | 14                               |   | mg/kg | 14            | MDC                                 | See Note      |
| Benzo(a)pyrene             | mg/kg         | 2.7         | 16                               |   | mg/kg | 16            | MDC                                 | See Note      |
| Benzo(b)fluoranthene       | mg/kg         | 3.8         | 22                               |   | mg/kg | 22            | MDC                                 | See Note      |
| Benzo(k)fluoranthene       | mg/kg         | 3.0         | 23                               |   | mg/kg | 23            | MDC                                 | See Note      |
| Chrysene                   | mg/kg         | 3.6         | 25                               |   | mg/kg | 25            | MDC                                 | See Note      |
| Dibenz(a,h)anthracene      | mg/kg         | 0.62        | 5.0                              | J | mg/kg | 5             | MDC                                 | See Note      |
| Indeno(1,2,3-cd)pyrene     | mg/kg         | 1.3         | 12                               | J | mg/kg | 12            | MDC                                 | See Note      |
| Metals                     |               |             |                                  |   |       |               |                                     |               |
| Aluminum                   | mg/kg         | 6,340       | 10,300                           |   | mg/kg | 10,300        | MDC                                 | See Note      |
| Arsenic                    | mg/kg         | 17.7        | 104                              |   | mg/kg | 104           | MDC                                 | See Note      |
| Cobalt                     | mg/kg         | 23.3        | 91.9                             |   | mg/kg | 91.9          | MDC                                 | See Note      |
| Iron                       | mg/kg         | 17,415      | 30,400                           |   | mg/kg | 30,400        | MDC                                 | See Note      |
| Manganese                  | mg/kg         | 3,195       | 14,900                           |   | mg/kg | 14,900        | MDC                                 | See Note      |
| Thallium                   | mg/kg         | 2.36        | 21.5                             |   | mg/kg | 21.5          | MDC                                 | See Note      |
| Vanadium                   | mg/kg         | 25.2        | 69.4                             |   | mg/kg | 69.4          | MDC                                 | See Note      |

## Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Non-detects were assumed to be half the reporting limit.
- 2. The maximum detected concentration was used as EPC for the RME scenario. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

Q - qualifier

## Table 4C

## EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-121I SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Surface water  |
| Exposure Medium:    | Surface water  |
| Exposure Point:     | SEAD-121I      |

| Chemical of | Units | Arithmetic<br>Mean | Maximum<br>Detected | Maximum<br>Qualifier | EPC<br>Units | Reasonal | ole Maximum | ı Exposure (2) |
|-------------|-------|--------------------|---------------------|----------------------|--------------|----------|-------------|----------------|
| Potential   |       | (1)                | Concentration       |                      |              | Medium   | Medium      | Medium         |
| Concern     |       |                    |                     |                      |              | EPC      | EPC         | EPC            |
|             |       |                    |                     |                      |              | Value    | Statistic   | Rationale      |
| Metals      |       |                    |                     |                      |              |          |             |                |
| Iron        | ug/L  | 953                | 3,410               |                      | ug/L         | 3,410    | MDC         | See note       |
| Lead        | ug/L  | 8.83               | 26.3                |                      | ug/L         | 26.3     | MDC         | See note       |
| Manganese   | ug/L  | 59.0               | 206                 |                      | ug/L         | 206      | MDC         | See note       |
| Vanadium    | ug/L  | 1.58               | 3.9                 |                      | ug/L         | 3.9      | MDC         | See note       |

## Notes:

- 1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. Concentrations for non-detects were assumed to be half the detection limit.
- 2. The maximum detected concentration was used as EPC for the RME scenario. Since the sample size was small (10 samples), the maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

#### Table 5A

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - SURFACE SOIL AT SEAD-121C

## SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121C      |

Equation for Air EPC from Surface Soil (mg/m³) = CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m³
CF = Conversion Factor = 1E-9 kg/ug

|                                | Reasonable Maximum Exposure |                    |  |  |  |
|--------------------------------|-----------------------------|--------------------|--|--|--|
| Chemical of                    | EPC Data for                | Calculated Air EPC |  |  |  |
| Potential Concern              | Surface Soil                | Surface Soil       |  |  |  |
| Potential Concern              |                             |                    |  |  |  |
|                                | (mg/kg)                     | (mg/m³)            |  |  |  |
| Semivolatile Organic Compounds |                             |                    |  |  |  |
| Benzo(a)anthracene             | 3.1                         | 5.2E-08            |  |  |  |
| Benzo(a)pyrene                 | 3.4                         | 5.8E-08            |  |  |  |
| Benzo(b)fluoranthene           | 4.5                         | 7.7E-08            |  |  |  |
| Benzo(k)fluoranthene           | 2.4                         | 4.1E-08            |  |  |  |
| Chrysene                       | 2.9                         | 5.0E-08            |  |  |  |
| Dibenz(a,h)anthracene          | 0.22                        | 3.8E-09            |  |  |  |
| Indeno(1,2,3-cd)pyrene         | 0.36                        | 6.1E-09            |  |  |  |
| Pesticides/PCBs                |                             |                    |  |  |  |
| Dieldrin                       | 0.014                       | 2.4E-10            |  |  |  |
| Aroclor-1242                   | 0.016                       | 2.7E-10            |  |  |  |
| Aroclor-1254                   | 0.28                        | 4.8E-09            |  |  |  |
| Aroclor-1260                   | 0.030                       | 5.1E-10            |  |  |  |
| Metals                         |                             |                    |  |  |  |
| Aluminum                       | 10,550                      | 1.8E-04            |  |  |  |
| Antimony                       | 60.4                        | 1.0E-06            |  |  |  |
| Arsenic                        | 5.79                        | 9.9E-08            |  |  |  |
| Barium                         | 83.75                       | 1.4E-06            |  |  |  |
| Cadmium                        | 0.54                        | 9.1E-09            |  |  |  |
| Соррег                         | 2,868                       | 4.9E-05            |  |  |  |
| Iron                           | 26,903                      | 4.6E-04            |  |  |  |
| Manganese                      | 470                         | 8.0E-06            |  |  |  |
| Nickel                         | 35                          | 6.0E-07            |  |  |  |
| Thallium                       | 0.3                         | 4.4E-09            |  |  |  |
| Vanadium                       | 17.5                        | 3.0E-07            |  |  |  |
| Zinc                           | 133.5                       | 2.3E-06            |  |  |  |

## Attachment 2 Table 5B

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - SURFACE SOIL AT SEAD-121I

## **SEAD-121I**

## **Seneca Army Depot Activity**

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121I      |

Equation for Air EPC from Surface Soil (mg/m³) =

CSsurf x PM10 x CF

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                  | Reasonable Maximum Exposure |                    |
|----------------------------------|-----------------------------|--------------------|
| Chemical of                      | EPC Data for                | Calculated Air EPC |
| Chemical of<br>Potential Concern | Surface Soil                | Surface Soil       |
| Potential Concern                |                             |                    |
|                                  | (mg/kg)                     | (mg/m³)            |
| Semivolatile Organic Compounds   |                             |                    |
| Benzo(a)anthracene               | 10                          | 1.7E-07            |
| Benzo(a)pyrene                   | 8.5                         | 1.4E-07            |
| Benzo(b)fluoranthene             | 10                          | 1.7E-07            |
| Benzo(k)fluoranthene             | 8.7                         | 1.5E-07            |
| Chrysene                         | 12                          | 2.0E-07            |
| Dibenz(a,h)anthracene            | 1.2                         | 2.0E-08            |
| Indeno(1,2,3-cd)pyrene           | 3.9                         | 6.6E-08            |
| Pesticides                       |                             |                    |
| Dieldrin                         | 0.0068                      | 1.2E-10            |
| Heptachlor epoxide               | 0.023                       | 4.0E-10            |
| Metals                           |                             |                    |
| Aluminum                         | 5,810                       | 9.9E-05            |
| Antimony                         | 3.2                         | 5.4E-08            |
| Arsenic                          | 14.9                        | 2.5E-07            |
| Cadmium                          | 0.3                         | 4.6E-09            |
| Chromium                         | 83                          | 1.4E-06            |
| Cobalt                           | 9.5                         | 1.6E-07            |
| Iron                             | 21,627.1                    | 3.7E-04            |
| Manganese                        | 106,375                     | 1.8E-03            |
| Nickel                           | 26.8                        | 4.6E-07            |
| Selenium                         | 0.7                         | 1.1E-08            |
| Thallium                         | 53.4                        | 9.1E-07            |
| Vanadium                         | 42.7                        | 7.3E-07            |

## Table 5C

# AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - SURFACE SOIL AT SEAD-121I SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121I      |

Equation for Air EPC from Surface Soil (mg/m³) =

CSsurf x PM10 x CF

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 110 ug/m<sup>3</sup>

|                                | Reasonable Maximum Exposure  |                                    |
|--------------------------------|------------------------------|------------------------------------|
| Chemical of Potential Concern  | EPC Data for<br>Surface Soil | Calculated Air EPC<br>Surface Soil |
|                                | (mg/kg)                      | (mg/m³)                            |
| Semivolatile Organic Compounds |                              |                                    |
| Benzo(a)anthracene             | 10                           | 1.1E-06                            |
| Benzo(a)pyrene                 | 8.5                          | 9.4E-07                            |
| Benzo(b)fluoranthene           | 10                           | 1.1E-06                            |
| Benzo(k)fluoranthene           | 8.7                          | 9.6E-07                            |
| Chrysene                       | 12                           | 1.3E-06                            |
| Dibenz(a,h)anthracene          | 1.2                          | 1.3E-07                            |
| Indeno(1,2,3-cd)pyrene         | 3.9                          | 4.3E-07                            |
| Pesticides                     |                              |                                    |
| Dieldrin                       | 0.0068                       | 7.5E-10                            |
| Heptachlor epoxide             | 0.023                        | 2.6E-09                            |
| Metals                         |                              |                                    |
| Aluminum                       | 5,810                        | 6.4E-04                            |
| Antimony                       | 3.2                          | 3.5E-07                            |
| Arsenic                        | 14.9                         | 1.6E-06                            |
| Cadmium                        | 0.3                          | 3.0E-08                            |
| Chromium                       | 83                           | 9.1E-06                            |
| Cobalt                         | 9.5                          | 1.0E-06                            |
| Iron                           | 21,627.1                     | 2.4E-03                            |
| Manganese                      | 106,375                      | 1.2E-02                            |
| Nickel                         | 26.8                         | 2.9E-06                            |
| Selenium                       | 0.7                          | 7.2E-08                            |
| Thallium                       | 53.4                         | 5.9E-06                            |
| Vanadium                       | 42.7                         | 4.7E-06                            |

## Table 6

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - TOTAL SOIL AT SEAD-121C

## SEAD-121C Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future                             |
|---------------------|--|
| Medium:             | Current/Future<br>Soil<br>Air<br>SEAD-121C |
| Exposure Medium:    | Air  |
| Exposure Point:     | SEAD-121C                                  |

Equation for Air EPC from Total Soil (mg/m³) =

CStotal x PM10 x CF

Variables

CStotal = Chemical Concentration in Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 954 ug/m<sup>3</sup>

| - 17 Mary                      | Reasonable Maximum Exposure |                    |
|--------------------------------|-----------------------------|--------------------|
| Chaminal of                    | EPC Data for                | Calculated Air EPC |
| Chemical of                    | Total Soil                  | Total Soil         |
| Potential Concern              |                             |                    |
| 100                            | (mg/kg)                     | (mg/m³)            |
| Volatile Organic Compounds     |                             |                    |
| Benzene                        | 0.19                        | 1.9E-07            |
| Semivolatile Organic Compounds |                             |                    |
| Benzo(a)anthracene             | 1.8                         | 1.7E-06            |
| Benzo(a)pyrene                 | 1.8                         | 1.7E-06            |
| Benzo(b)fluoranthene           | 2.4                         | 2.3E-06            |
| Benzo(k)fluoranthene           | 1.3                         | 1.2E-06            |
| Chrysene                       | 1.7                         | 1.6E-06            |
| Dibenz(a,h)anthracene          | 0.21                        | 2.0E-07            |
| Indeno(1,2,3-cd)pyrene         | 0.30                        | 2.9E-07            |
| Pesticides/PCBs                |                             |                    |
| Dieldrin                       | 0.0073                      | 6.9E-09            |
| Aroclor-1242                   | 0.014                       | 1.4E-08            |
| Aroclor-1254                   | 0.14                        | 1.4E-07            |
| Aroclor-1260                   | 0.033                       | 3.2E-08            |
| Metals                         |                             |                    |
| Aluminum                       | 11,250                      | 1.1E-02            |
| Antimony                       | 29.9                        | 2.9E-05            |
| Arsenic                        | 5.73                        | 5.5E-06            |
| Barium                         | 81.7                        | 7.8E-05            |
| Cadmium                        | 0.1                         | 7.2E-08            |
| Copper                         | 1,477                       | 1.4E-03            |
| Iron                           | 27,507                      | 2.6E-02            |
| Manganese                      | 473.5                       | 4.5E-04            |
| Nickel                         | 36.0                        | 3.4E-05            |
| Thallium                       | 0.2                         | 1.9E-07            |
| Vanadium                       | 18.8                        | 1.8E-05            |
| Zinc                           | 114                         | 1.1E-04            |

## Table 7A

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-121C

## SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121C      |

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m<sup>3</sup>

|                                | Reasonable Maximum Exposure |                    |
|--------------------------------|-----------------------------|--------------------|
| Chemicals of                   | EPC Data for                | Calculated Air EPC |
| Potential Concern              | Ditch Soil                  | Ditch Soil         |
| Potential Concern              |                             |                    |
|                                | (mg/kg)                     | (mg/m³)            |
| Semivolatile Organic Compounds |                             |                    |
| Benzo(a)anthracene             | 1.1                         | 1.9E-08            |
| Benzo(a)pyrene                 | 0.9                         | 1.5E-08            |
| Benzo(b)fluoranthene           | 1.1                         | 1.9E-08            |
| Benzo(k)fluoranthene           | 0.6                         | 9.9E-09            |
| Chrysene                       | 1.2                         | 2.0E-08            |
| Indeno(1,2,3-cd)pyrene         | 0.3                         | 4.6E-09            |
| Metals                         |                             | ****               |
| Aluminum                       | 21,500                      | 3.7E-04            |
| Antimony                       | 4.9                         | 8.3E-08            |
| Arsenic                        | 6.1                         | 1.0E-07            |
| Cadmium                        | 14.3                        | 2.4E-07            |
| Copper                         | 1,190                       | 2.0E-05            |
| Iron                           | 27,300                      | 4.6E-04            |
| Manganese                      | 918.0                       | 1.6E-05            |
| Vanadium                       | 29.1                        | 4.9E-07            |

## Attachment 2 Table 7B

# AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-121I SEAD-121I

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121I      |

Equation for Air EPC from Ditch Soil (mg/m³) = CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 17 ug/m³

|                                | Reasonable Maximum Exposure |                    |
|--------------------------------|-----------------------------|--------------------|
| Chemical of                    | EPC Data for                | Calculated Air EPC |
|                                | Ditch Soil                  | Ditch Soil         |
| Potential Concern              |                             |                    |
|                                | (mg/kg)                     | (mg/m³)            |
| Semivolatile Organic Compounds |                             |                    |
| Benzo(a)anthracene             | 14                          | 2.4E-07            |
| Benzo(a)pyrene                 | 16                          | 2.7E-07            |
| Benzo(b)fluoranthene           | 22                          | 3.7E-07            |
| Benzo(k)fluoranthene           | 23                          | 3.9E-07            |
| Chrysene                       | 25                          | 4.3E-07            |
| Dibenz(a,h)anthracene          | 5                           | 8.5E-08            |
| Indeno(1,2,3-cd)pyrene         | 12                          | 2.0E-07            |
| Metals                         |                             |                    |
| Aluminum                       | 10,300                      | 1.8E-04            |
| Arsenic                        | 104                         | 1.8E-06            |
| Cobalt                         | 91.9                        | 1.6E-06            |
| Iron                           | 30,400                      | 5.2E-04            |
| Manganese                      | 14,900                      | 2.5E-04            |
| Thallium                       | 21.5                        | 3.7E-07            |
| Vanadium                       | 69.4                        | 1.2E-06            |

## Table 7C

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOIL AT SEAD-

## 121C

## SEAD-121C

## Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121C      |

| Equation for Air EPC from Ditch Soil (mg/m³) =                        | CSditch x PM10 x CF |
|---|---------------------|
|   |                     |
| Variables:  |                     |
| Csditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg) |                     |
| PM10 = Average Measured PM10 Concentration = 110 ug/m <sup>3</sup>    |                     |
| CF = Conversion Factor = 1E-9 kg/ug                                   |                     |

|                                | Reasonable Maximum Exposure |                    |
|--------------------------------|-----------------------------|--------------------|
| Chemicals of                   | EPC Data for                | Calculated Air EPC |
| Potential Concern              | Ditch Soil                  | Ditch Soil         |
| Potential Concern              |                             |                    |
|                                | (mg/kg)                     | (mg/m³)            |
| Semivolatile Organic Compounds |                             |                    |
| Benzo(a)anthracene             | 1.1                         | 1.2E-07            |
| Benzo(a)pyrene                 | 0.9                         | 9.9E-08            |
| Benzo(b)fluoranthene           | 1.1                         | 1.2E-07            |
| Benzo(k)fluoranthene           | 0.6                         | 6.4E-08            |
| Chrysene                       | 1.2                         | 1.3E-07            |
| Indeno(1,2,3-cd)pyrene         | 0.3                         | 3.0E-08            |
| Metals                         |                             |                    |
| Aluminum                       | 21,500                      | 2.4E-03            |
| Antimony                       | 4.9                         | 5.4E-07            |
| Arsenic                        | 6.1                         | 6.7E-07            |
| Cadmium                        | 14.3                        | 1.6E-06            |
| Copper                         | 1,190                       | 1.3E-04            |
| Iron                           | 27,300                      | 3.0E-03            |
| Manganese                      | 918.0                       | 1.0E-04            |
| Vanadium                       | 29.1                        | 3.2E-06            |

## Table 7D

## AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOIL AT SEAD-121I

## SEAD-121I Seneca Army Depot Activity

| Scenario Timeframe: | Current/Future |
|---------------------|----------------|
| Medium:             | Soil           |
| Exposure Medium:    | Air            |
| Exposure Point:     | SEAD-121I      |

Equation for Air EPC from Ditch Soil (mg/m³) =

CSditch x PM10 x CF

Variables:

CSditch = Chemical Concentration in Ditch Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 110 ug/m<sup>3</sup>

|                                | Reasonable Maxi | imum Exposure      |
|--------------------------------|-----------------|--------------------|
| Chemical of                    | EPC Data for    | Calculated Air EPC |
| 1                              | Ditch Soil      | Ditch Soil         |
| Potential Concern              |                 |                    |
|                                | (mg/kg)         | (mg/m³)            |
| Semivolatile Organic Compounds |                 |                    |
| Benzo(a)anthracene             | 14              | 1.5E-06            |
| Benzo(a)pyrene                 | 16              | 1.8E-06            |
| Benzo(b)fluoranthene           | 22              | 2.4E-06            |
| Benzo(k)fluoranthene           | 23              | 2.5E-06            |
| Chrysene                       | 25              | 2.8E-06            |
| Dibenz(a,h)anthracene          | 5               | 5.5E-07            |
| Indeno(1,2,3-cd)pyrene         | 12              | 1.3E-06            |
| Metals                         |                 |                    |
| Aluminum                       | 10,300          | 1.1E-03            |
| Arsenic                        | 104             | 1.1E-05            |
| Cobalt                         | 91.9            | 1.0E-05            |
| Iron                           | 30,400          | 3.3E-03            |
| Manganese                      | 14,900          | 1.6E-03            |
| Thallium                       | 21.5            | 2.4E-06            |
| Vanadium                       | 69.4            | 7.6E-06            |

# Attachment 2 Table 8A NON-CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C and SEAD-121I Seneca Army Depot Activity

| · · · · · · · · · · · · · · · · · · · |                        | · · · · · · · · · · · · · · · · · · · |                   |  |                               |           |                            |  |                                 |   |
|---------------------------------------|------------------------|---------------------------------------|-------------------|--|-------------------------------|-----------|----------------------------|--|---------------------------------|---|
| Chemical<br>of Potential<br>Concern   | Chronic/<br>Subchronic | Oral RfD<br>Value                     | Oral RfD<br>Units | Oral to Dermal<br>Adjustment<br>Factor (1) | Adjusted<br>Dermal<br>RfD (2) | Units     | Primary<br>Target<br>Organ | Combined<br>Uncertainty/Modifying<br>Factors | Sources of RfD:<br>Target Organ | Dates of RfD:<br>Target Organ (3)<br>(MM/DD/YY) |
| 1,1,2,2-Tetrachloroethane             | Chronic                | 6.0E-02                               | mg/kg-day         | 1  | 6.0E-02                       | mg/kg-day | N/A                        | N/A  | PPRTV                           | 4/7/2005  |
| 1,2-Dichloropropane                   | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 1,4-Dichlorobenzene                   | Chronic                | 3.0E-02                               | N/A               | 1  | 3.0E-02                       | mg/kg-day | N/A                        | N/A  | NCEA                            | 4/7/2005  |
| Benzene                               | Chronic                | 4.0E-03                               | mg/kg-day         | 1  | 4.0E-03                       | mg/kg-day | Blood                      | 300  | IRIS                            | 3/24/2005                                       |
| Vinyl chloride                        | Chronic                | 3.0E-03                               | mg/kg-day         | 1  | 3.0E-03                       | mg/kg-day | Liver                      | 30   | IRIS                            | 3/10/2005                                       |
| 2-Methylnaphthalene                   | Chronic                | 4.0E-03                               | mg/kg-day         | 1  | 4.0E-03                       | mg/kg-day | Lungs                      | 1000   | IRIS                            | 3/10/2005                                       |
| Benzo(a)anthracene                    | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Вепло(а)рутепе                        | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Benzo(b)fluoranthene                  | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Benzo(k)fluoranthene                  | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Chrysene                              | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Dibenz(a,h)anthracene                 | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Indeno(1,2,3-cd)pyrene                | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Naphthalene                           | Chronic                | 2.0E-02                               | mg/kg-day         | 1  | 2.0E-02                       | mg/kg-day | Body Weight                | 3000   | IRIS                            | 3/15/2005                                       |
| Phenanthrene                          | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Aroclor-1242                          | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Aroclor-1254                          | Chronic                | 2.0E-05                               | mg/Kg-day         | 1  | 2.0E-05                       | mg/kg-day | Eye, Immune<br>System      | 300  | IRIS                            | 3/24/2005                                       |
| Aroclor-1260                          | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDD                              | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDE                              | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| 4,4'-DDT                              | Chronic                | 5.0E-04                               | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 100  | IRIS                            | 12/03/2004                                      |
| Alpha-BHC                             | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Beta-BHC                              | N/A                    | N/A                                   | N/A               | 1 .  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Delta-BHC                             | N/A                    | N/A                                   | N/A               | 1  | N/A                           | N/A       | N/A                        | N/A  | N/A                             | N/A   |
| Dieldrin                              | Chronic                | 5.0E-05                               | mg/kg-day         | I  | 5.0E-05                       | mg/kg-day | Liver                      | 100  | IRIS                            | 3/15/2005                                       |
| Gamma-Chlordane (4)                   | Chronic                | 5.0E-04                               | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 300  | IRIS                            | 3/15/2005                                       |
| Heptachlor                            | Chronic                | 1.3E-05                               | mg/kg-day         | 1  | 1.3E-05                       | mg/kg-day | Liver                      | 1000   | IRIS                            | 12/03/2004                                      |
| Heptachlor epoxide                    | Chronic                | 5.0E-04                               | mg/kg-day         | 1  | 5.0E-04                       | mg/kg-day | Liver                      | 300  | IRIS                            | 3/15/2005                                       |
| Aluminum                              | Chronic                | 1.0E+00                               | mg/kg-day         | 1  | 1.0E+00                       | mg/kg-day | N/A                        | N/A  | NCEA                            | 8/26/1996                                       |
| Antimony                              | Chronic                | 4.0E-04                               | mg/kg-day         | 0.15                                       | 6.0E-05                       | mg/kg-day | Whole Body<br>Blood        | 1000   | IRIS                            | 12/03/2004                                      |

#### Table 8A

## NON-CANCER TOXICITY DATA -- ORAL/DERMAL

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

|                |      |            |          |           |                |          | ·          |   |                       |                 |                  |
|----------------|------|------------|----------|-----------|----------------|----------|------------|---|-----------------------|-----------------|------------------|
| Chemica        | al   | Chronic/   | Oral RfD | Oral RfD  | Oral to Dermal | Adjusted | Units      | Primary   | Combined              | Sources of RfD: | Dates of RfD:    |
| of Potent      | tial | Subchronic | Value    | Units     | Adjustment     | Dermal   |            | Target  | Uncertainty/Modifying | Target Organ    | Target Organ (3) |
| Concern        | n    |            |          |           | Factor (1)     | RfD (2)  |            | Organ   | Factors               |                 | (MM/DD/YY)       |
|                |      |            |          |           |                |          |            |   |                       |                 |                  |
| Arsenic        |      | Chronic    | 3.0E-04  | mg/kg-day | 1              | 3.0E-04  | mg/kg-day  | Skin  | 3                     | IRIS            | 12/03/2004       |
| Barium         |      | Chronic    | 2E-01    | mg/kg-day | 0.07           | 1E-02    | mg/kg-day  | Kidney  | 300                   | IRIS            | 2/24/06          |
| Cadmium        | (5)  | Chronic    | 5.0E-04  | mg/kg-day | 0.05           | 2.5E-05  | mg/kg-day  | Kidney  | 10                    | IRIS            | 3/24/2005        |
| Chromium       | (6)  | Chronic    | 3.0E-03  | mg/kg-day | 0.025          | 7.5E-05  | mg/kg-day  | N/A   | 900                   | IRIS            | 3/24/2005        |
| Cobalt         |      | N/A        | 2E-02    | mg/kg-day | 1              | 2.0E-02  | mg/kg-day  | N/A   | N/A                   | Region 9        | 2/24/06          |
| Copper         |      | Chronic    | 4.0E-02  | mg/kg-day | 1              | 4.0E-02  | mg/kg-day  | Gastrointestinal  |                       | HEAST           | 3/24/2005        |
| Cyanide, Total | (7)  | Subchronic | 2.0E-02  | mg/kg-day | 1              | 2.0E-02  | mg/kg-day  | Whole Body,<br>Thyroid                                    | 500                   | IRIS            | 3/15/2005        |
| Iron           |      | Chronic    | 3.0E-01  | mg/kg-day | 1              | 3.0E-01  | mg/kg-day  | N/A   | 1                     | NCEA            | 4E+04            |
| Manganese      | (8)  | Chronic    | 2.3E-02  | mg/kg-day | 0.04           | 9.3E-04  | mg/kg-day  | Central Nervous<br>System                                 | 3                     | IRIS            | 12/23/2004       |
| Mercury        | (9)  | Chronic    | 3.0E-04  | mg/kg-day | 0.07           | 2.1E-05  | nıg/kg-day | Immune System   | 1000                  | IRIS            | 3/16/2005        |
| Nickel         |      | Chronic    | 2.0E-02  | mg/kg-day | 0.04           | 8.0E-04  | mg/kg-day  | Whole Body,<br>Organs                                     | 300                   | IRIS            | 3/15/2005        |
| Selenium       |      | Chronic    | 5E-03    | mg/kg-day | 1              | 5.0E-03  | mg/kg-day  | Cellular<br>Necrosis                                      | 3                     | IRIS            | 2/24/06          |
| Silver         |      | Chronic    | 5.0E-03  | mg/kg-day | 0.04           | 2.0E-04  | mg/kg-day  | Skin  | 3                     | IRIS            | 3/15/2005        |
| Thallium       | (10) | Chronic    | 6.5E-04  | mg/kg-day | 1              | 6.5E-04  | mg/kg-day  | Liver, Blood,<br>Hair                                     | 3000                  | IRIS            | 12/23/2004       |
| Vanadium       |      | Chronic    | 7.0E-03  | mg/kg-day | 0.026          | I.8E-04  | mg/kg-day  | N/A   | 100                   | HEAST           | 3/15/2005        |
| Zinc           |      | Chronic    | 3.E-01   | mg/kg-day | I              | 3E-01    | mg/kg-day  | erythrocyte Cu,<br>Zn-superoxide<br>dismutase<br>activity | 3                     | IRIS            | 2/13/2006        |

N/A = Not Applicable

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

- (1) Source: Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Final. USEPA. 2004. A default value of 1 was used if no value was available in the USEPA (2004) document.
- (2) Dermal RfD = Oral RfD x Adjustment Factor
- (3) For IRIS values, the date was the last time IRIS was checked.

For NCEA values, the date was the date of the article provided by NCEA.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

#### Table 8A

## NON-CANCER TOXICITY DATA -- ORAL/DERMAL

## SEAD-121C and SEAD-121I

Seneca Army Depot Activity

|   | Chemical of Potential | Chronic/<br>Subchronic | Oral RfD<br>Value | Oral RfD<br>Units | Oral to Dermal Adjustment | Adjusted Dermal | Units | Primary<br>Target | Combined Uncertainty/Modifying | Sources of RfD:<br>Target Organ | Dates of RfD:<br>Target Organ (3) |
|---|-----------------------|------------------------|-------------------|-------------------|---------------------------|-----------------|-------|-------------------|--------------------------------|---------------------------------|-----------------------------------|
| İ | Concern               |                        |                   |                   | Factor (1)                | RfD (2)         |       | Organ             | Factors                        |                                 | (MM/DD/YY)                        |
|   |                       |                        |                   |                   |                           |                 |       |                   |                                |                                 |                                   |

- (4) The chronic oral RfD for gamma-chlordane was based on the chronic RfD of chlordane.
- (5) The chronic oral RfD for cadmium was based on water, since cadmium is only a COC for surface water
- (6) The chronic oral RfD for chromium was based on the chronic RfD of chromium (VI).
- (7) The chronic oral RfD for cyanide was based on the chronic RfD of hydrogen cyanide.
- (8) The chronic oral RfD for manganese was adjusted by using a modifying factor of 3 in accordance with the IRIS recommendation.

  In addition, dietary exposure (assumed 5 mg/day) was subtracted. Thus, the RfD used in this risk assessment is 1/6 of the value listed in the IRIS.
- (9) The chronic oral RfD for mercury was based on the chronic RfD of mercuric chloride.
- (10) The chronic oral RfD for thallium was based on the chronic oral RfD of thallium sulfate adjusted for molecular weight differences.

## Attachment 2 Table 8B

## NON-CANCER TOXICITY DATA -- INHALATION

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

| Chemical                  | Chronic/   | Value      | Units             | Adjusted   | Units     | Primary            | Combined              | Sources of   | Dates (2)  | Notes |
|---------------------------|------------|------------|-------------------|------------|-----------|--------------------|-----------------------|--------------|------------|-------|
| of Potential              | Subchronic | Inhalation |                   | Inhalation |           | Target             | Uncertainty/Modifying | RfC:RfD:     | (MM/DD/YY) |       |
| Concern                   |            | RfC        |                   | RfD (1)    |           | Organ              | Factors               | Target Organ | , ,        |       |
| 1,1,2,2-Tetrachloroethane | Chronic    | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| 1,2-Dichloropropane       | Chronic    | 4.0E-03    | mg/m³             | 1.1E-03    | mg/kg-day | respiratory system | 300                   | IRIS         | 3/10/2005  |       |
| 1,4-Dichlorobenzene       | Chronic    | 8.0E-01    | mg/m <sup>3</sup> | 2.3E-01    | mg/kg-day | liver              | 100                   | IRIS         | 3/10/2005  |       |
| Benzene                   | Chronic    | 3.0E-02    | mg/m³             | 8.6E-03    | mg/kg-day | Blood              | 300                   | IRIS         | 3/24/2005  |       |
| Vinyl chloride            | Chronic    | 1.0E-01    | mg/m³             | 2.9E-02    | mg/kg-day | liver              | 30                    | IRIS         | 3/10/2005  |       |
| 2-Methylnaphthalene       | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Benzo(a)anthracene        | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Benzo(a)pyrene            | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Benzo(b)fluoranthene      | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Benzo(ghi)perylene        | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Benzo(k)fluoranthene      | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Chrysene                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Dibenz(a,h)anthracene     | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Indeno(1,2,3-cd)pyrene    | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Napthalene                | Chronic    | 3.0E-03    | mg/m³             | 8.6E-04    | mg/kg-day | respiratory system | 3000                  | IRIS         | 3/15/2005  |       |
| Phenanthrene              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Aroclor-1242              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Aroclor-1254              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Aroclor-1260              | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| 4,4'-DDD                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| 4,4'-DDE                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| 4,4'-DDT                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Alpha-BHC                 | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Beta-BHC                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Delta-BHC                 | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |
| Dieldrin                  | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                | N/A                   | N/A          | N/A        |       |

## Attachment 2 Table 8B

## NON-CANCER TOXICITY DATA -- INHALATION

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

|                    |            |            |                   |            |           |                           |                       |              | 1          |          |
|--------------------|------------|------------|-------------------|------------|-----------|---------------------------|-----------------------|--------------|------------|----------|
| Chemical           | Chronic/   | Value      | Units             | Adjusted   | Units     | Primary                   | Combined              | Sources of   | Dates (2)  | Notes    |
| of Potential       | Subchronic | Inhalation | 011110            | Inhalation |           | Target                    | Uncertainty/Modifying | RfC:RfD:     | (MM/DD/YY) |          |
| Concern            |            | RfC        |                   | RfD (1)    |           | Organ                     | Factors               | Target Organ | (          |          |
| Gamma-Chlordane    | Chronic    | 7.0E-04    | mg/m³             | 2.0E-04    | mg/kg-day | Liver                     | 1000                  | IRIS         | 3/14/2005  |          |
| Heptachlor         | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Heptachlor epoxide | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        | $\vdash$ |
| Aluminum           | Chronic    | 5E-03      | mg/m³             | 1.43E-03   | mg/kg-day | N/A                       | N/A                   | NCEA         | 6/20/1997  |          |
| Antimony           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        | <b></b>  |
| Arsenic            | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Barium             | Chronic    | 5.00E-04   | mg/m³             | 1.43E-04   | mg/kg-day | Fetus                     | 1000                  | HEAST        | 1997       |          |
| Cadmium            | Chronic    | 2.0E-04    | mg/m <sup>3</sup> | 5.7E-05    | mg/kg-day | N/A                       | N/A                   | NCEA         | 4/7/2005   |          |
| Chromium           | Chronic    | 1.0E-04    | mg/m³             | 2.9E-05    | mg/kg-day | respiratory system        | 300                   | IRIS         | 3/24/2005  | (3)      |
| Cobalt             | N/A        | 2E-05      | mg/m <sup>3</sup> | 5.7E-06    | mg/kg-day | N/A                       | N/A                   | Region 9     | 2/24/06    |          |
| Copper             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Cyanide, Total     | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Iron               | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Lead               | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Manganese          | Chronic    | 5.0E-05    | mg/m³             | 1.4E-05    | mg/kg-day | Central Nervous<br>System | 1000                  | IRIS         | 12/23/04   |          |
| Мегсигу            | Chronic    | 3.0E-04    | mg/m3             | 8.6E-05    | mg/kg-day | Body, Brain               | 30                    | IRIS         | 3/14/05    | (4)      |
| Nickel             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Selenium           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Silver             | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Thallium           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Vanadium           | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |
| Zinc               | N/A        | N/A        | N/A               | N/A        | N/A       | N/A                       | N/A                   | N/A          | N/A        |          |

Notes:

N/A = Not Applicable

IRIS = Integrated Risk Information System

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

(1) Inhalation RfD was adjusted based on the assumption of 70 kg body weight and 20 m³/day inhalation rate.

## Table 8B

## NON-CANCER TOXICITY DATA -- INHALATION

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

|              | 1          | 1          |       |            |       |         |                       | •            | T          |       |
|--------------|------------|------------|-------|------------|-------|---------|-----------------------|--------------|------------|-------|
|              |            |            |       |            |       |         | ]                     |              |            |       |
| Chemical     | Chronic/   | Value      | Units | Adjusted   | Units | Primary | Combined              | Sources of   | Dates (2)  | Notes |
| of Potential | Subchronic | Inhalation |       | Inhalation |       | Target  | Uncertainty/Modifying | RfC:RfD:     | (MM/DD/YY) |       |
| Concern      |            | RfC        |       | RfD (1)    |       | Organ   | Factors               | Target Organ |            |       |

<sup>(2)</sup> For IRIS values, the date was the last time IRIS was checked.

For PPRTV or NCEA values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

- (3) The chronic oral RfD for chromium was based on the chronic RfD of chromium (VI).
- (4) The chronic data for mercury was based on the chronic data of elemental mercury.

# Attachment 2 Table 8C CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C and SEAD-121I Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern     | Oral Cancer Slope Factor | Oral Cancer Slope Factor<br>Source | Oral to Dermal Adjustment Factor (1) | Adjusted Dermal<br>Cancer Slope Factor (2) | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (3)<br>(MM/DD/YY) |
|---|--------------------------|------------------------------------|--------------------------------------|--|---------------------------|--|---------------------------------|------------------------|
| 11227.4.11                              | 2.05.01                  | IRIS                               | 1                                    | 2.0E-01                                    | (mg/kg-day)-1             | С  | IRIS                            | 3/14/2005              |
| 1,1,2,2-Tetrachloroethane               | 2.0E-01<br>6.8E-02       |                                    | 1                                    | 6.8E-02                                    | (mg/kg-day)-1             | B2   | HEAST, 1997                     | 3/14/2005              |
| 1,2-Dichloropropane 1,4-Dichlorobenzene | 2.4E-02                  | HEAST, 1997<br>HEAST, 1997         | 1 .                                  | 2.4E-02                                    | (mg/kg-day)-1             | C  | HEAST, 1997                     | 3/14/2005              |
| <del></del>                             | 5.5E-02                  | IRIS                               | 1                                    | 5.5E-02                                    | (mg/kg-day)-1             | A  | IRIS                            | 3/24/2005              |
| Benzene                                 | 5.5E-02<br>1.4E+00       | IRIS                               | 1                                    | 1.4E+00                                    | (mg/kg-day)-1             | A  | IRIS                            | 3/14/2005              |
| Vinyl chloride                          | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | N/A  | N/A                             | N/A                    |
| 2-Methylnaphthalene                     | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 12/03/2004             |
| Acenaphthylene Benzo(a)anthracene       | 7.3E-01                  | NCEA                               | 1                                    | 7.3E-01                                    | (mg/kg-day)-1             | B2   | IRIS                            | 12/03/2004             |
| ``                                      |                          | IRIS                               | 1                                    | 7.3E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 12/03/2004             |
| Benzo(a)pyrene                          | 7.3E+00                  |                                    | 1                                    | 7.3E+00<br>7.3E-01                         | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(b)fluoranthene                    | 7.3E-01                  | NCEA<br>N/A                        |                                      | 7.3E-01<br>N/A                             | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(ghi)perylene                      | N/A                      | -                                  | 1                                    |  | (mg/kg-day)-1             | B2   | IRIS                            | 12/03/2004             |
| Benzo(k)fluoranthene<br>Carbazole       | 7.3E-02                  | NCEA                               | 1                                    | 7.3E-02                                    |                           |  |                                 |                        |
|   | 2.0E-02                  | HEAST, 1997                        | 1                                    | 2.0E-02                                    | (mg/kg-day)               | N/A  | N/A                             | N/A                    |
| Chrysene                                | 7.3E-03                  | NCEA                               | 1                                    | 7.3E-03                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Dibenz(a,h)anthracene                   | 7.3E+00                  | NCEA                               | 1                                    | 7.3E+00                                    | (mg/kg-day)               | B2   | IRIS                            | 12/03/2004             |
| Indeno(1,2,3-cd)pyrene                  | 7.3E-01                  | NCEA                               | 1                                    | 7.3E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Naphthalene                             | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | С  | IRIS                            | 3/15/2005              |
| Phenanthrene                            | N/A                      | N/A                                | 1                                    | N/A  | N/A                       | D  | IRIS                            | 12/03/2004             |
| Aroclor-1242                            | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1254                            | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1260                            | 2.0E+00                  | IRIS                               | 1                                    | 2.0E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/24/2005              |
| 4,4'-DDD                                | 2.4E-01                  | IRIS                               | 1                                    | 2.4E-01                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| 4,4'-DDE                                | 3.4E-01                  | IRIS                               | 1                                    | 3.4E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| 4,4'-DDT                                | 3.4E-01                  | IRIS                               | 1                                    | 3.4E-01                                    | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Alpha-BHC                               | 6.3E+00                  | IRIS                               | 1                                    | 6.3E+00                                    | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| Beta-BHC                                | 1.8E+00                  | IRIS                               | 1                                    | 1.8E+00                                    | (mg/kg-day) <sup>-1</sup> | С  | IRIS                            | 3/15/2005              |

## Table 8C

## CANCER TOXICITY DATA -- ORAL/DERMAL

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

| Chemical           | Oral Cancer Slope Factor | Oral Cancer Slope Factor | Oral to Dermal | Adjusted Dermal         | Units                     | Weight of Evidence/       | Weight of | Date (3)   |
|--------------------|--------------------------|--------------------------|----------------|-------------------------|---------------------------|---------------------------|-----------|------------|
| of Potential       |                          | Source                   | Adjustment     | Cancer Slope Factor (2) |                           | Cancer Guideline          | Evidence  | (MM/DD/YY) |
| Concern            |                          |                          | Factor (1)     |                         |                           | Description               | Source    |            |
| Delta-BHC          | N/A                      | N/A                      | 1              | N/A                     | N/A                       | D                         | IRIS      | 3/15/2005  |
| Dieldrin           | 1.6E+01                  | IRIS                     | 1              | 1.6E+01                 | (mg/kg-day)-1             | B2                        | IRIS      | 3/15/2005  |
| Gamma-Chlordane    | 3.5E-01                  | IRIS                     | 1              | 3.5E-01                 | (mg/kg-day)-1             | B2                        | IRIS      | 3/15/2005  |
| Heptachlor epoxide | 9.1E+00                  | IRIS                     | 1              | 9.1E+00                 | (mg/kg-day)-1             | B2                        | IRIS      | 12/03/2004 |
| Heptachlor         | 4.5E+00                  | IRIS                     | 1              | 4.5E+00                 | (mg/kg-day) <sup>-1</sup> | B2                        | IRIS      | 3/15/2005  |
| Aluminum           | N/A                      | N/A                      | N/A            | N/A                     | N/A                       | D                         | NCEA      | 6/20/1997  |
| Antimony           | N/A                      | N/A                      | 0.15           | N/A                     | N/A                       | N/A                       | N/A       | N/A        |
| Arsenic            | 1.5E+00                  | IRIS                     | 1              | 1.5E+00                 | (mg/kg-day)-1             | Α                         | IRIS      | 12/03/2004 |
| Barium             | N/A                      | N/A                      | N/A            | N/A                     | N/A                       | D                         | IRIS      | 2/24/06    |
| Cadmium            | N/A                      | N/A                      | 1              | N/A                     | N/A                       | B1                        | IRIS      | 3/24/2005  |
| Chromium           | N/A                      | N/A                      | 1              | N/A                     | N/A                       | D                         | IRIS      | 3/24/2005  |
| Cobalt             | N/A                      | N/A                      | N/A            | N/A                     | N/A                       | N/A                       | N/A       | N/A        |
| Соррег             | N/A                      | N/A                      | 1              | N/A                     | N/A                       | D                         | IRIS      | 3/24/2005  |
| Cyanide, Total     | N/A                      | N/A                      | 1              | N/A                     | N/A                       | D                         | IRIS      | 3/15/2005  |
| Iron               | N/A                      | N/A                      | 1              | N/A                     | N/A                       | N/A                       | N/A       | N/A        |
| Manganese          | N/A                      | N/A                      | 0.04           | N/A                     | N/A                       | D                         | N/A       | N/A        |
| Mercury            | N/A                      | N/A                      | 0.07           | N/A                     | N/A                       | D                         | IRIS      | 3/15/2005  |
| Nickel             | N/A                      | N/A                      | 0.04           | N/A                     | N/A                       | N/A                       | N/A       | N/A        |
| Selenium           | N/A                      | N/A                      | N/A            | N/A                     | N/A                       | D                         | IRIS      | 2/24/06    |
| Silver             | N/A                      | N/A                      | 0.04           | N/A                     | N/A                       | D                         | N/A       | N/A        |
| Thallium           | N/A                      | N/A                      | 1              | N/A                     | N/A                       | D                         | N/A       | N/A        |
| Vanadium           | N/A                      | N/A                      | 0.026          | N/A                     | N/A                       | N/A                       | N/A       | N/A        |
| Zinc               | N/A                      | N/A                      | N/A            | N/A                     | N/A                       | inadequate<br>information | IRIS      | 02/13/06   |

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

## EPA Group:

- A Human carcinogen
- B1 Probable human carcinogen indicates that limited human data are available
- B2 Probable human carcinogen indicates sufficient evidence in animals and inadequate or no evidence in humans
- C Possible human carcinogen
- D Not classifiable as a human carcinogen

## Table 8C

## **CANCER TOXICITY DATA -- ORAL/DERMAL**

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

|              | 1                        |                          |                | Ï                       |       |                     |           | I          |
|--------------|--------------------------|--------------------------|----------------|-------------------------|-------|---------------------|-----------|------------|
|              |                          |                          |                |                         |       |                     |           |            |
| Chemical     | Oral Cancer Slope Factor | Oral Cancer Slope Factor | Oral to Dermal | Adjusted Dermal         | Units | Weight of Evidence/ | Weight of | Date (3)   |
| of Potential |                          | Source                   | Adjustment     | Cancer Slope Factor (2) |       | Cancer Guideline    | Evidence  | (MM/DD/YY) |
| Concern      |                          |                          | Factor (1)     |                         |       | Description         | Source    |            |

### Notes:

- E Evidence of noncarcinogenicity
- (1) Source: USEPA (2004) Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Final. A default value of I was used if no value was available in the USEPA (2004) document.
- (2) Dermal Cancer Slope Factor = Oral Cancer Slope Factor/Adjustment Factor
- (3) For IRIS values, the date was the last time IRIS was checked.
  For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

## Attachment 2 Table 8D

## **CANCER TOXICITY DATA -- INHALATION**

## SEAD-121C and SEAD-121I

## Seneca Army Depot Activity

| Chemical<br>of Potential<br>Concern | Unit Risk | Units                              | Unit<br>Risk<br>Source | Adjustment (1) | Inhalation Cancer<br>Slope Factor | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (2)<br>(MM/DD/YY) |
|-------------------------------------|-----------|------------------------------------|------------------------|----------------|-----------------------------------|---------------------------|--|---------------------------------|------------------------|
| 1,1,2,2-Tetrachloroethane           | 5.8E-05   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 2.0E-01                           | (mg/kg-day)-1             | С  | IRIS                            | 3/14/2005              |
| 1,2-Dichloropropane                 | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| 1,4-Dichlorobenzene                 | N/A       | N/A                                | N/A                    | N/A            | 2.2E-02                           | (mg/kg-day) <sup>-1</sup> | С  | HEAST                           | 3/14/2005              |
| Benzene                             | 7.8E-06   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 2.7E-02                           | (mg/kg-day)-1             | Α  | IRIS                            | 3/24/2005              |
| Vinyl chloride                      | 8.8E-06   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 3.1E-02                           | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 3/14/2005              |
| 2-Methylnaphthalene                 | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Acenaphthylene                      | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(a)anthracene                  | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Benzo(a)pyrene                      | 8.9E-04   | (ug/m <sup>3</sup> )-1             | NCEA                   | 3500           | 3.1E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Benzo(b)fluoranthene                | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Benzo(ghi)perylene                  | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/03/2004             |
| Benzo(k)fluoranthene                | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Carbazole                           | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Chrysene                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Dibenz(a,h)anthracene               | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Indeno(1,2,3-cd)pyrene              | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| Napthalene                          | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | С  | IRIS                            | 3/15/2005              |
| Phenanthrene                        | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | ď  | IRIS                            | 12/03/2004             |
| Aroclor-1242                        | 5.7E-04   | N/A                                | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1254                        | 5.7E-04   | N/A                                | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| Aroclor-1260                        | 5.7E-04   | N/A                                | N/A                    | 3500           | 2.0E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/24/2005              |
| 4,4'-DDD                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 3/15/2005              |
| 4,4'-DDE                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | B2   | IRIS                            | 12/03/2004             |
| 4,4'-DDT                            | 9.7E-05   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 3.4E-01                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Alpha-BHC                           | 1.8E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 6.3E+00                           | (mg/kg-day)-1             | B2   | IRIS                            | 3/15/2005              |
| Beta-BHC                            | 5.3E-04   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 1.9E+00                           | (mg/kg-day)-1             | С  | IRIS                            | 3/15/2005              |
| Delta-BHC                           | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/15/2005              |

## Table 8D

## **CANCER TOXICITY DATA -- INHALATION**

## SEAD-121C and SEAD-121I

| Chemical<br>of Potential<br>Concern | Unit Risk | Units                              | Unit<br>Risk<br>Source | Adjustment (1) | Inhalation Cancer<br>Slope Factor | Units                     | Weight of Evidence/<br>Cancer Guideline<br>Description | Weight of<br>Evidence<br>Source | Date (2)<br>(MM/DD/YY) |
|-------------------------------------|-----------|------------------------------------|------------------------|----------------|-----------------------------------|---------------------------|--|---------------------------------|------------------------|
| Dieldrin                            | 4.6E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 1.6E+01                           | (mg/kg-day)-i             | B2   | IRIS                            | 3/15/2005              |
| Gamma-Chlordane                     | 1.00E-04  | $(ug/m^3)^{-1}$                    | IRIS                   | 3500           | 3.5E-01                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Heptachlor epoxide                  | 2.6E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 9.1E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 12/03/2004             |
| Heptachlor                          | 1.3E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 4.6E+00                           | (mg/kg-day) <sup>-1</sup> | B2   | IRIS                            | 3/15/2005              |
| Aluminum                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | NCEA                            | 6/20/1997              |
| Antimony                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Arsenic                             | 4.3E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 1.5E+01                           | (mg/kg-day) <sup>-1</sup> | A  | IRIS                            | 12/03/2004             |
| Barium                              | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 2/24/2006              |
| Cadmium                             | 1.8E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 6.3E+00                           | (mg/kg-day) <sup>-1</sup> | B1   | IRIS                            | 3/24/2005              |
| Chromium                            | 1.2E-02   | (ug/m <sup>3</sup> ) <sup>-1</sup> | IRIS                   | 3500           | 4.2E+01                           | (mg/kg-day) <sup>-1</sup> | Α  | IRIS                            | 3/24/2005              |
| Cobalt                              | 2.8E-03   | (ug/m <sup>3</sup> ) <sup>-1</sup> | Region 9               | 3500           | 9.8E+00                           | (mg/kg-day)-1             | N/A  | N/A                             | N/A                    |
| Соррег                              | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/24/2005              |
| Cyanide, Total                      | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 3/15/2005              |
| Iron                                | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Manganese                           | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/23/2004             |
| Mercury                             | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 03/15/05               |
| Nickel                              | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Selenium                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 2/24/06                |
| Silver                              | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 03/15/05               |
| Thallium                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | D  | IRIS                            | 12/23/2004             |
| Vanadium                            | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | N/A  | N/A                             | N/A                    |
| Zinc                                | N/A       | N/A                                | N/A                    | N/A            | N/A                               | N/A                       | inadequate<br>information                              | IRIS                            | 02/13/06               |

IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
NCEA = National Center for Environmental Assessment

EPA Group:

- A Human carcinogen
- B1 Probable human carcinogen indicates that limited human data are available
- B2 Probable human carcinogen indicates sufficient evidence in animals and inadequate or no evidence in humans
- C Possible human carcinogen
- D Not classifiable as a human carcinogen
- E Evidence of noncarcinogenicity

Notes:

- (1) The adjustment was based on an assumption of 70 kg body weight and 20 m<sup>3</sup>/day inhalation rate.
- (2) The date was the last time IRIS was checked.

## Table 9A

## CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor

FI = Fraction Ingested

EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                  | Oral        | Carc. Slope   | EPC          | EPC         | 8.7          |                 | l Worker           | and the section | 1 7 3 A 4 5 A | Constructi       |                     |        |              |                 | Trespasser      | Vivi Califor  |
|----------------------------------|-------------|---------------|--------------|-------------|--------------|-----------------|--------------------|-----------------|---------------|------------------|---------------------|--------|--------------|-----------------|-----------------|---------------|
| Analyte                          | RfD         | Oral          | Surface Soil | Total Soils |              | ake             | Hazard             | Cancer          |               | take             | Hazard              | Cancer |              | ake             | Hazard          | Cance<br>Risk |
|                                  | ( 4 4 5     | (             | (            | (           | (mg/l        | g-day)<br>(Car) | Quotient           | Risk            | (Nc)          | kg-day)<br>(Car) | Quotient            | Risk   | (Nc)         | g-day)<br>(Car) | Quotient        | Risk          |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)      | (mg/kg)     | (NC)         | (Car)           |                    |                 | (NC)          | (Car)            |                     |        | (140)        | (Car)           |                 |               |
| Volatile Organic Compounds       |             |               |              |             |              |                 |                    |                 |               |                  |                     |        |              |                 | l               |               |
| Benzene                          | 4E-03       | 5.5E-02       | N/A          | 1.9E-01     |              | 1               |                    |                 | 6.27E-07      | 8.96E-09         | 2E-04               | 5E-10  |              |                 | ŀ               |               |
| Semivolatile Organic Compounds   | i           |               |              |             |              | 1               |                    |                 |               |                  |                     | !      | Į.           |                 |                 |               |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 3.1E+00      | 1.8E+00     |              | 1.08E-06        |                    | 8E-07           | İ             | 8.09E-08         |                     | 6E-08  | İ            | 1.69E-08        | ŀ               | 1E-08         |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 3.4E+00      | 1.8E+00     |              | 1.20E-06        |                    | 9E-06           |               | 8.36E-08         |                     | 6E-07  |              | 1.88E-08        |                 | 1E-07         |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 4.5E+00      | 2.4E+00     |              | 1.58E-06        |                    | 1E-06           | 1             | 1.09E-07         |                     | 8E-08  |              | 2.48E-08        |                 | 2E-08         |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 2.4E+00      | 1.3E+00     |              | 8.41E-07        |                    | 6E-08           | 1             | 5.94E-08         |                     | 4E-09  |              | 1.32E-08        |                 | 1E-09         |
| Chrysene                         | N/A         | 7.3E-03       | 2.9E+00      | 1.7E+00     |              | 1.02E-06        |                    | 7E-09           | 1             | 7.72E-08         |                     | 6E-10  |              | 1.60E-08        |                 | 1E-10         |
| Dibenz(a,h)anthracene            | N/A         | 7.3E+00       | 2.2E-01      | 2.1E-01     |              | 7.74E-08        |                    | 6E-07           | 1             | 9.54E-09         |                     | 7E-08  |              | 1.21E-09        |                 | 9E-09         |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 3.6E-01      | 3.0E-01     |              | 1.25E-07        |                    | 9E-08           |               | 1.38E-08         |                     | 1E-08  |              | 1.96E-09        |                 | 1E-09         |
| Pesticides/PCBs                  |             |               |              |             |              | 1               |                    |                 |               |                  |                     |        |              |                 |                 |               |
| Dieldrin                         | 5E-05       | 1.6E+01       | 1.4E-02      | 7.3E-03     | 1.36E-08     | 4.86E-09        | 3E-04              | 8E-08           | 2.34E-08      | 3.34E-10         | 5E-04               | 5E-09  | 1.07E-09     | 7.63E-11        | 2E-05           | 1E-09         |
| Aroclor-1242                     | N/A         | 2.0E+00       | 1.6E-02      | 1.4E-02     |              | 5.49E-09        |                    | 1E-08           |               | 6.64E-10         |                     | 1E-09  |              | 8.60E-11        |                 | 2E-10         |
| Aroclor-1254                     | 2E-05       | 2.0E+00       | 2.8E-01      | 1.4E-01     | 2.74E-07     | 9.78E-08        | 1E-02              | 2E-07           | 4.61E-07      | 6.58E-09         | 2E-02               | 1E-08  | 2.15E-08     | 1.53E-09        | 1E-03           | 3E-09         |
| Aroclor-1260                     | N/A         | 2.0E+00       | 3.0E-02      | 3.3E-02     |              | 1.05E-08        |                    | 2E-08           | 1             | 1.54E-09         |                     | 3E-09  | j            | 1.65E-10        |                 | 3E-10         |
| Metals                           |             |               |              |             |              |                 |                    |                 |               |                  |                     |        | 1            |                 |                 |               |
| Aluminum                         | 1E+00       | N/A           | 1.1E+04      | 1.1E+04     | 1.03E-02     |                 | 1E-02              |                 | 3.63E-02      | 1                | 4E-02               | 1      | 8.09E-04     |                 | 8E-04           |               |
| Antimony                         | 4E-04       | N/A           | 6.0E+01      | 3.0E+01     | 5.91E-05     |                 | 1E-01              |                 | 9.67E-05      | 1                | 2E-01               | ł      | 4.63E-06     |                 | 1E-02           | ]             |
| Arsenic                          | 3E-04       | 1.5E+00       | 5.8E+00      | 5.7E+00     | 5.67E-06     | 2.02E-06        | 2E-02              | 3E-06           | 1.85E-05      | 2.64E-07         | 6E-02               | 4E-07  | 4.45E-07     | 3.18E-08        | 1E-03           | 5E-08         |
| Barium                           | 2E-01       | N/A           | 8.4E+01      | 8.2E+01     | 8.19E-05     | ł               | 4E-04              |                 | 2.64E-04      | 1                | 1E-03               | 1      | 6.42E-06     |                 | 3E-05           |               |
| Cadmium                          | 5E-04       | N/A           | 5.4E-01      | 7.5E-02     | 5.26E-07     |                 | 1E-03              |                 | 2.42E-07      | 1                | 5E-04               | i      | 4.12E-08     |                 | 8E-05           |               |
| Copper                           | 4E-02       | N/A           | 2.9E+03      | 1.5E+03     | 2.81E-03     |                 | 7E-02              |                 | 4.77E-03      | 1                | 1E-01               |        | 2.20E-04     |                 | 5E-03           |               |
| Iron                             | 3E-01       | N/A           | 2.7E+04      | 2.8E+04     | 2.63E-02     | i               | 9E-02              |                 | 8.88E-02      |                  | 3E-01               |        | 2.06E-03     | 1               | 7E-03           |               |
| Manganese                        | 2E-02       | N/A           | 4.7E+02      | 4.7E+02     | 4.60E-04     |                 | 2E-02              |                 | 1.53E-03      |                  | 7E-02               |        | 3.61E-05     |                 | 2E-03           | ł             |
| Nickel                           | 2E-02       | N/A           | 3.5E+01      | 3.6E+01     | 3.42E-05     |                 | 2E-03              |                 | 1.16E-04      | 1                | 6E-03               | l      | 2.68E-06     | Į.              | 1E-04           |               |
| Thallium                         | 6E-04       | N/A           | 2.6E-01      | 2.0E-01     | 2.54E-07     |                 | 4E-04              |                 | 6.38E-07      |                  | 1E-03               |        | 1.99E-08     | 1               | 3E-05           |               |
| Vanadium                         | 7E-03       | N/A           | 1.8E+01      | 1.9E+01     | 1.71E-05     |                 | 2E-03              | i               | 6.05E-05      |                  | 9E-03               |        | 1.34E-06     | 1               | 2E-04           | 1             |
| Zinc                             | 3E-01       | N/A           | 1.3E+02      | 1.1E+02     | 1.31E-04     | L               | 4E-04              |                 | 3.68E-04      |                  | 1E-03               |        | 1.02E-05     | L               | 3E-05           |               |
| Total Hazard Quotient and Cancer | Risk:       |               |              |             |              |                 | 4E-01              | 1E-05           |               |                  | 9E-01               | 1E-06  | ļ            |                 | 3E-02           | 2E-07         |
|                                  |             |               |              |             | A.           | ssumptions for  | Industrial Wor     | ker             | Ass           | sumptions for C  | onstruction Wo      | orker  | Ass          | umptions for A  | dolescent Tresp | asser         |
|                                  |             |               |              |             | CF =         |                 | kg/mg              |                 | CF =          |                  | kg/mg               |        | CF =         |                 | kg/mg           |               |
|                                  |             |               |              |             | EPC=         | EPC Surface O   |                    |                 | EPC=<br>BW =  | EPC Surface ar   | id Subsurface<br>kg |        | EPC=<br>BW = | EPC Surface O   | niy<br>kg       |               |
|                                  |             |               |              |             | BW =<br>IR = |                 | kg<br>mg/day       |                 | BW =<br>IR =  |                  | кg<br>mg/day        |        | IR =         |                 | mg/day          |               |
|                                  |             |               |              |             | IK =<br>FI = |                 | mg/day<br>unitless |                 | FI =          |                  | mg/day<br>unitless  |        | FI =         |                 | unitless        |               |
|                                  |             |               |              |             | EF =         |                 | days/year          |                 | EF =          |                  | days/year           |        | EF =         | -               | days/year       |               |
|                                  |             |               |              |             | ED =         |                 | years              |                 | ED =          |                  | years               |        | ED =         |                 | years           |               |
|                                  |             |               |              |             | AT (Nc) =    | 9,125           |                    |                 | AT (Nc) =     |                  | days                |        | AT (Nc) =    | 1,825           | days            |               |
|                                  |             |               |              |             | AT (Car) =   | 25,550          |                    |                 | AT (Car) =    | 25,550           | days                |        | AT (Car) =   | 25,550          | days            |               |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### Table 9B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg CF = Conversion Factor

EV = Event Frequency EF = Exposure Frequency ED = Exposure Duration

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

SA = Surface Area Contact AF = Adherence Factor

AT = Averaging Time

BW = Bodyweight ABS = Absorption Factor

|                                    | Dermal      | Carc. Slope        | Absorption | EPC          | EPC           |              |                | al Worker              | 8.83(1.6)      | talian katalan |                | ction Worker              | Entry of the  | Adolescent Trespasser                      |                |                 |        |
|------------------------------------|-------------|--------------------|------------|--------------|---------------|--------------|----------------|------------------------|----------------|----------------|----------------|---------------------------|---------------|--|----------------|-----------------|--------|
| Analyte                            | RíD         | Dermal             | Factor*    | Surface Soil | Total Soils   |              | bed Dose       | Hazard                 | Cancer         |                | ed Dose        | Hazard                    | Cancer        |  | ed Dose        | Hazard          | Caucer |
|                                    |             |                    |            |              | i '           |              | kg-day)        | Quotient               | Risk           | (mg/kg-day)    |                | Quotient                  | Risk          |  | g-day)         | Quotient        | Risk   |
|                                    | (mg/kg-day) | (mg/kg-day)-1      | (unitless) | (mg/kg)      | (mg/kg)       | (Ne)         | (Car)          |                        |                | (Nc)           | (Car)          |                           |               | (Ne)                                       | (Car)          |                 |        |
| Volatile Organic Compounds         |             |                    |            | ĺ            |               | i            |                |                        |                | 1              |                |                           |               | į  |                |                 |        |
| Benzene                            | 4E-03       | 5.5E-02            | 1.0E-02    | N/A          | 1.9E-01       |              |                |                        |                | 1.88E-08       | 2.69E-10       | 5E-06                     | 1E-11         | -  |                |                 |        |
| Semivolatile Organic Compounds     |             |                    |            |              |               |              |                | !                      |                |                |                |                           | ļ             | 1  |                |                 |        |
| Benzo(a)anthracene                 | N/A         | 7.3E-01            | 1.3E-01    | 3.1E+00      | 1.8E+00       |              | 9.25E-07       | 1                      | 7E-07          | 1              | 3.16E-08       |                           | 2E-08         |  | 9.03E-09       |                 | 7E-09  |
| Benzo(a)pyrene                     | N/A         | 7.3E+00            | 1.3E-01    | 3.4E+00      | 1.8E+00       |              | 1.03E-06       | !                      | 7E-06          | l .            | 3.26E-08       |                           | 2E-07         | 1  | 1.00E-08       |                 | 7E-08  |
| Benzo(b)fluoranthene               | N/A         | 7.3E-00<br>7.3E-01 | 1.3E-01    | 4.5E+00      | 2.4E+00       | ]            | 1.36E-06       |                        | 1E-06          | l .            | 4.27E-08       |                           | 3E-08         | 1  | 1.33E-08       | 1               | 1E-08  |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02            | 1.3E-01    | 2.4E+00      | 1.3E+00       | 1            | 7.22E-07       |                        | 5E-08          |                | 2.32E-08       |                           | 2E-09         | 1  | 7.04E-09       | 1               | 5E-10  |
| Chrysene                           | N/A         | 7.3E-03            | 1.3E-01    | 2.9E+00      | 1.7E+00       | i            | 8.77E-07       |                        | 6E-09          |                | 3.01E-08       |                           | 2E-10         |  | 8.55E-09       | 1               | 6E-11  |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00            | 1.3E-01    | 2.2E-01      | 2.1E-01       |              | 6.64E-08       | l i                    | 5E-07          |                | 3.72E-09       |                           | 3E-08         |  | 6.48E-10       |                 | 5E-09  |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01            | 1.3E-01    | 3.6E-01      | 3.0E-01       |              | 1.07E-07       |                        | 8E-08          |                | 5.39E-09       |                           | 4E-09         | l  | 1.04E-09       |                 | 8E-10  |
|                                    | 1011        | 7.52-01            | 1.52-01    | 5.02-01      | 3.02-01       |              | 1.072-07       |                        | 52-00          | 1              | 0.072 07       |                           |               |  |                |                 |        |
| Pesticides/PCBs                    |             |                    |            |              |               |              |                |                        |                | 1              |                |                           |               | 1  | <b>_</b>       |                 |        |
| Dieldrin                           | 5E-05       | 1.6E+01            | 1.0E-01    | 1.4E-02      | 7.3E-03       | 8.99E-09     | 3.21E-09       | 2E-04                  | 5E-08          | 7.02E-09       | 1.00E-10       | IE-04                     | 2E-09         | 4.39E-10                                   | 3.13E-11       | 9E-06           | 5E-10  |
| Aroclor-1242                       | N/A         | 2.0E+00            | 1.4E-01    | 1.6E-02      | 1.4E-02       | l            | 5.07E-09       |                        | 1E-08          |                | 2.79E-10       |                           | 6E-10         |  | 4.95E-11       |                 | 1E-10  |
| Aroclor-1254                       | 2E-05       | 2.0E+00            | 1.4E-01    | 2.8E-01      | 1.4E-01       | 2.53E-07     | 9.04E-08       | 1E-02                  | 2E-07          | 1.93E-07       | 2.76E-09       | 1E-02                     | 6E-09         | 1.23E-08                                   | 8.82E-10       | 6E-04           | 2E-09  |
| Aroclor-1260                       | N/A         | 2.0E+00            | 1.4E-01    | 3.0E-02      | 3.3E-02       | 1            | 9.74E-09       |                        | 2E-08          |                | 6.48E-10       |                           | 1E-09         |  | 9.51E-11       |                 | 2E-10  |
| Metals                             |             |                    |            |              |               |              |                |                        |                |                |                |                           |               |  |                |                 |        |
| Aluninum                           | 1E+00       | N/A                | 1.0E-03    | 1.1E+04      | 1.1E+04       | 6.81E-05     |                | 7E-05                  |                | 1.09E-04       | 1              | 1E-04                     |               | 3.32E-06                                   | f              | 3E-06           |        |
| Antimony                           | 6E-05       | N/A                | 1.0E-03    | 6.0E+01      | 3.0E+01       | 3.90E-07     |                | 7E-03                  |                | 2.90E-07       |                | 5E-03                     |               | 1.90E-08                                   |                | 3E-04           |        |
| Arsenic                            | 3E-04       | 1.5E+00            | 3.0E-02    | 5.8E+00      | 5.7E+00       | 1.12E-06     | 4.01E-07       | 4E-03                  | 6E-07          | 1.66E-06       | 2.38E-08       | 6E-03                     | 4E-08         | 5.48E-08                                   | 3.91E-09       | 2E-04           | 6E-09  |
| Barium                             | 1E-02       | N/A                | 1.0E-03    | 8.4E+01      | 8.2E+01       | 5.41E-07     |                | 4E-05                  |                | 7.91E-07       |                | 6E-05                     |               | 2.64E-08                                   |                | 2E-06           |        |
| Cadmium                            | 3E-05       | N/A                | 1.0E-03    | 5.4E-01      | 7.5E-02       | 3.47E-09     |                | 1E-04                  |                | 7.27E-10       |                | 3E-05                     | !             | 1.69E-10                                   |                | 7E-06           |        |
| Copper                             | 4E-02       | N/A                | 1.0E-03    | 2.9E+03      | 1.5E+03       | 1.85E-05     |                | 5E-04                  |                | 1.43E-05       |                | 4E-04                     | 1             | 9.03E-07                                   |                | 2E-05           |        |
| Iron                               | 3E-01       | N/A                | 1.0E-03    | 2.7E+04      | 2.8E+04       | 1.74E-04     |                | 6E-04                  |                | 2.66E-04       |                | 9E-04                     |               | 8.48E-06                                   |                | 3E-05           |        |
| Manganese                          | 9E-04       | N/A                | 1.0E-03    | 4.7E+02      | 4.7E+02       | 3.04E-06     |                | 3E-03                  |                | 4.59E-06       |                | 5E-03                     |               | 1.48E-07                                   |                | 2E-04           |        |
| Nickel                             | 8E-04       | N/A                | 1.0E-03    | 3.5E+01      | 3.6E+01       | 2.26E-07     |                | 3E-04                  |                | 3.48E-07       |                | 4E-04                     |               | 1.10E-08                                   | }              | 1E-05           |        |
| Thallium                           | 6E-04       | N/A                | 1.0E-03    | 2.6E-01      | 2.0E-01       | 1.68E-09     | 1              | 3E-06                  |                | 1.91E-09       | i l            | 3E-06                     |               | 8.19E-11                                   | 1              | 1E-07           |        |
| Vanadium                           | 2E-04       | N/A                | 1.0E-03    | 1.8E+01      | 1.9E+01       | 1.13E-07     | J              | 6E-04                  |                | 1.82E-07       |                | 1E-03                     |               | 5.51E-09                                   |                | 3E-05           |        |
| Zinc                               | 3E-01       | N/A                | 1.0E-03    | 1.3E+02      | 1.1E+02       | 8.62E-07     |                | 3E-06                  |                | 1.10E-06       |                | 4E-06                     |               | 4.21E-08                                   | <u> </u>       | 1E-07           |        |
| Total Hazard Quotient and Cancer F | tisk:       |                    |            |              |               |              |                | 3E-02                  | 1E-05          | 1              |                | 3E-02                     | 4E-07         | i  |                | 1E-03           | 1E-07  |
|                                    |             |                    |            |              |               | A            | ssumptions for | Industrial Worl        | ker            | A              | ssumptions for | Construction W            | orker         | Assı                                       | imptions for A | dolescent Tresp | asser  |
|                                    |             |                    |            |              | CF =          | 1E-06        | kg/mg          |                        | CF =           | 1E-06          |                |                           | CF =          |  | kg/mg          |                 |        |
|                                    |             |                    |            | EPC =        | EPC Surface O |              |                | EPC =                  | EPC Surface an |                |                | EPC =                     | EPC Surface O |  |                |                 |        |
|                                    |             |                    |            |              |               | BW =<br>SA = | 70<br>3,300    | kg                     |                | BW =<br>SA =   | 70<br>3,300    |                           |               | BW =<br>SA =                               | 5.867          | kg              |        |
|                                    |             |                    |            |              |               |              |                |                        |                |                |                |                           | 1             |  |                |                 |        |
|                                    |             |                    |            |              |               | AF =<br>EV = |                | mg/cm²-event           |                | AF =<br>EV =   |                | mg/cm²-event<br>event/day |               | AF = 0.07 mg/cm²-event<br>EV = 1 event/day |                |                 |        |
|                                    |             |                    |            |              |               | EV =<br>EF = |                | event/day<br>days/year |                | EV =           |                | days/year                 |               | EV = 1 event/day<br>EF = 14 days/year      |                |                 |        |
|                                    |             |                    |            |              |               | ED =         |                | vears                  |                | ED =           |                | years                     |               | ED=  |                | years           |        |
|                                    |             |                    |            |              |               | AT (Nc) =    | 9,125          |                        |                | AT (Nc) =      | 365            |                           |               | AT (Nc) =                                  | 1,825          |                 |        |
|                                    |             |                    |            |              |               | AT (Com)     | 25.550         |                        |                | AT (C) -       | 25 550         |                           |               | AT (Car)                                   | 25.550         |                 |        |

25,550 days

AT (Car) =

25,550 days

AT (Car) =

25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

AT (Car) =

Absorption factor for benzene was assumed to be 0.01 in accordance with the USEPA Region 4 (2000) guidance for VOCs.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Absorption factors for antimony, copper, and iron were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

#### Table 9C

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SOIL Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) =                          | EPC x IR x EF x ED     |   |
|--|------------------------|---|
|  | BW x AT                | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the | e Bottom):             |   |
| EPC = EPC in Air, mg/m <sup>3</sup>                        | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate                                       | BW = Bodyweight        |   |
| EF = Exposure Frequency                                    | AT = Averaging Time    |   |

|                                    | Inhalation  | Carc. Slope          | Air EPC from<br>Surface Soil<br>(1) | Air EPC from       | 100       | Industria       | ıl Worker           |                | Construction Worker Adolescent Trespasser |                 |                    |                |            |                      |                    |                |
|------------------------------------|-------------|----------------------|-------------------------------------|--------------------|-----------|-----------------|---------------------|----------------|---|-----------------|--------------------|----------------|------------|----------------------|--------------------|----------------|
| Analyte                            | RfD         | Inhalation           |                                     | Total Soils (2)    |           | take<br>(g-day) | Hazard<br>Quotient  | Cancer<br>Risk |   | take<br>(g-day) | Hazard<br>Quotient | Cancer<br>Risk |            | ake<br>g-day)        | Hazard<br>Quotient | Cancer<br>Risk |
|                                    | (mg/kg-day) | (mg/kg-day)-1        | (mg/m <sup>3</sup> )                | (mg/m³)            | (Nc)      | (Car)           | 1                   |                | (Nc)                                      | (Car)           | _                  |                | (Nc)       | (Car)                | -                  |                |
| Volatile Organic Compounds         | 1           | 1                    |                                     |                    | 1         | '               |                     |                | 1   |                 |                    |                |            |                      |                    |                |
| Benzene                            | 8.57E-03    | 2.73E-02             | N/A                                 | 1.9E-07            |           |                 |                     |                | 3.63E-08                                  | 5.18E-10        | 4E-06              | 1E-11          |            |                      |                    |                |
|                                    |             |                      |                                     |                    | 1         |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Semivolatile Organic Compounds     |             | i i                  |                                     |                    | 1         |                 |                     |                |   |                 |                    |                |            | 1                    |                    |                |
| Benzo(a)anthracene                 | N/A         | N/A                  | 5.2E-08                             | 1.7E-06            | i         |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Benzo(a)pyrene                     | N/A         | 3.10E+00             | 5.8E-08                             | 1.7E-06            |           | 4.07E-09        |                     | 1E-08          |   | 4.83E-09        |                    | 1E-08          |            | 5.10E-12             |                    | 2E-11          |
| Benzo(b)fluoranthene               | N/A         | N/A                  | 7.7E-08                             | 2.3E-06            | 1         |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Benzo(k)fluoranthene               | N/A         | N/A                  | 4.1E-08                             | 1.2E-06            | i         |                 |                     |                |   |                 |                    |                |            |                      | į                  |                |
| Chrysene                           | N/A         | N/A                  | 5.0E-08                             | 1.6E-06            |           |                 |                     |                |   |                 |                    |                |            |                      | ļ                  |                |
| Dibenz(a,h)anthracene              | N/A         | N/A                  | 3.8E-09                             | 2.0E-07            |           |                 |                     |                |   |                 |                    |                |            |                      | İ                  |                |
| Indeno(1,2,3-cd)pyrene             | N/A         | N/A                  | 6.1E-09                             | 2.9E-07            |           |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Pesticides/PCBs                    |             | 1                    |                                     |                    |           |                 |                     |                | 1   |                 |                    |                |            |                      |                    |                |
| Dieldrin                           | N/A         | 1.61E+01             | 2.4E-10                             | 6.9E-09            |           | 1.65E-11        |                     | 3E-10          |   | 1.93E-11        |                    | 3E-10          |            | 2.07E-14             | ľ                  | 3E-13          |
| Aroclor-1242                       | N/A         | 2.00E+00             | 2.7E-10                             | 1.4E-08            |           | 1.87E-11        | 1                   | 4E-11          |   | 3.84E-11        |                    | 8E-11          |            | 2.34E-14             | 1                  | 5E-14          |
| Aroclor-1254                       | N/A         | 2.00E+00             | 4.8E-09                             | 1.4E-07            |           | 3.33E-10        |                     | 7E-10          |   | 3.80E-10        |                    | 8E-10          |            | 4.17E-13             | 1                  | 8E-13          |
| Aroclor-1260                       | N/A         | 2.00E+00<br>2.00E+00 | 5.1E-10                             | 3.2E-08            |           | 3.58E-11        |                     | 7E-10<br>7E-11 |   | 8.93E-11        |                    | 2E-10          |            | 4.17E-13<br>4.50E-14 |                    | 9E-14          |
| Metals                             |             |                      |                                     |                    |           |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Aluminum                           | 1.43E-03    | N/A                  | 1.8E-04                             | 1.1E-02            | 3.51E-05  |                 | 2E-02               |                | 2.10E-03                                  | 1               | 1E+00              |                | 2.20E-07   |                      | 2E-04              |                |
| Antimony                           | N/A         | N/A                  | 1.0E-06                             | 2.9E-05            |           |                 |                     |                |   |                 |                    |                |            |                      |                    |                |
| Arsenic                            | N/A         | 1.51E+01             | 9.9E-08                             | 5.5E-06            |           | 6.88E-09        |                     | 1E-07          |   | 1.53E-08        |                    | 2E-07          |            | 8.64E-12             |                    | 1E-10          |
| Barium                             | 1.43E-04    | N/A                  | 1.4E-06                             | 7.8E-05            | 2.79E-07  |                 | 2E-03               |                | 1.52E-05                                  |                 | 1E-01              |                | 1.75E-09   |                      | 1E-05              |                |
| Cadmium                            | 5.70E-05    | 6.30E+00             | 9.1E-09                             | 7.2E-08            | 1.79E-09  | 6.39E-10        | 3E-05               | 4E-09          | 1.40E-08                                  | 2.00E-10        | 2E-04              | 1E-09          | 1.12E-11   | 8.01E-13             | 2E-07              | 5E-12          |
| Copper                             | N/A         | N/A                  | 4.9E-05                             | 1.4E-03            | 1,52-05   | 0.552-10        | JE-03               | 42-05          | 1.402-00                                  | 2.002-10        | 20-01              | 12-07          | 1.125-11   | 0.012-15             | 22-01              | 32-12          |
| Iron                               | N/A         | N/A                  | 4.6E-04                             | 2.6E-02            |           |                 |                     |                |   |                 |                    | 1              | Į.         |                      |                    |                |
| Manganese                          | 1.43E-05    | N/A                  | 8.0E-06                             | 4.5E-04            | 1.56E-06  |                 | 1E-01               |                | 8.84E-05                                  |                 | 6E+00              |                | 9.81E-09   |                      | 7E-04              |                |
| Nickel                             | N/A         | N/A                  | 6.0E-07                             | 3.4E-05            | 1.502-00  |                 | 115-01              |                | 0.042.00                                  |                 | 05.00              |                | 9.016-09   | 1                    | /15-04             | l              |
| Thallium                           | N/A         | N/A                  | 4.4E-09                             | 3.4E-03<br>1.9E-07 | 1         |                 |                     |                | 1   |                 |                    |                | 1          | 1                    |                    | l              |
| Vanadium                           | N/A         | N/A N/A              | 3.0E-07                             | 1.8E-05            | }         |                 |                     |                | 1   |                 |                    |                | ļ          |                      |                    | l              |
| Zinc                               | N/A         | N/A                  | 2.3E-06                             | 1.1E-04            |           |                 |                     |                |   | •               |                    |                |            |                      |                    |                |
| Total Hazard Quotient and Cancer F | tisk:       |                      |                                     |                    |           |                 | 1E-01               | 1E-07          |   |                 | 8E+00              | 2E-07          |            |                      | 9E-04              | 2E-10          |
|                                    |             |                      |                                     |                    | A         | ssumptions for  | industrial Worl     | er             | A   | Assumptions for | Construction Wor   | 'ker           | Ass        | umptions for Ac      | olescent Tresp     | asser          |
|                                    |             |                      |                                     |                    | EPC =     | EPC Surface O   | nlv                 |                | EPC =                                     | EPC Surface and | 1 Subsurface       |                | EPC =      | EPC Surface O        | nlv                |                |
|                                    |             |                      |                                     |                    | BW =      |                 | kg                  |                | BW =                                      | 70              |                    |                | BW =       |                      | kg                 |                |
|                                    |             |                      |                                     |                    | IR =      | 20              | m <sup>3</sup> /day |                | IR =                                      | 20              | m³/day             |                | IR =       | 16                   | m³/day             |                |
|                                    |             |                      |                                     |                    | EF =      |                 | days/year           |                | EF =                                      |                 | days/year          |                | EF =       |                      | days/year          |                |
|                                    |             |                      |                                     |                    | ED=       |                 | years               |                | ED=                                       |                 | year               |                | ED =       |                      | years              |                |
|                                    |             |                      |                                     |                    | AT (Nc) = | 9,125           |                     |                | AT (Nc) =                                 | 365             |                    |                | AT (Nc) =  | 1,825                |                    |                |
|                                    |             |                      |                                     |                    | AT (Nc) = | 25,550          |                     |                | AT (Car) =                                | 25,550          |                    |                | AT (Car) = | 25,550               |                    |                |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

## Attachment 2 Table 9D

## CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg

IR = Ingestion Rate

CF = Conversion Factor FI = Fraction Ingested

EF = Exposure Frequency ED = Exposure Duration

BW = Bodyweight
AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                 | Oral        | Carc. Slope   | EPC        | 17.0                    | Industri        | l Worker        | 10324  |                         | Construc       | tion Worker     |        | L                       | Adolescent      | Trespasser      |        |
|---------------------------------|-------------|---------------|------------|-------------------------|-----------------|-----------------|--------|-------------------------|----------------|-----------------|--------|-------------------------|-----------------|-----------------|--------|
| Analyte                         | RfD         | Oral          | Ditch Soil | Intake                  |                 | Hazard          | Cancer | 1                       | take           | Hazard          | Cancer |                         | take            | Hazard          | Cancer |
|                                 | l           |               |            |                         | g-day)          | Quotient        | Risk   |                         | (g-day)        | Quotient        | Risk   |                         | kg-day)         | Quotient        | Risk   |
|                                 | (mg/kg-day) | (mg/kg-day)-I | (mg/kg)    | (Nc)                    | (Car)           |                 |        | (Nc)                    | (Car)          |                 |        | (Ne)                    | (Car)           |                 |        |
| Semivolatile Organic Compounds  |             |               |            |                         |                 |                 |        |                         |                |                 |        |                         |                 |                 |        |
| Benzo(a)anthracene              | N/A         | 7.3E-01       | 1.1E+00    |                         | 7.69E-08        |                 | 6E-08  | 1                       | 5.07E-08       |                 | 4E-08  |                         | 6.03E-09        |                 | 4E-09  |
| Benzo(a)pyrene                  | N/A         | 7.3E+00       | 9.0E-01    |                         | 6.29E-08        |                 | 5E-07  | 1                       | 4.15E-08       |                 | 3E-07  | 1                       | 4.93E-09        |                 | 4E-08  |
| Benzo(b)fluoranthene            | N/A         | 7.3E-01       | 1.1E+00    |                         | 7.69E-08        |                 | 6E-08  | 1                       | 5.07E-08       |                 | 4E-08  | i                       | 6.03E-09        |                 | 4E-09  |
| Benzo(k)fluoranthene            | N/A         | 7.3E-02       | 5.8E-01    | 1                       | 4.05E-08        | 1               | 3E-09  |                         | 2.68E-08       |                 | 2E-09  |                         | 3.18E-09        | 1               | 2E-10  |
| Chrysene                        | N/A         | 7.3E-03       | 1.2E+00    | i                       | 8.39E-08        |                 | 6E-10  | i                       | 5.54E-08       |                 | 4E-10  |                         | 6.58E-09        | 1               | 5E-11  |
| Indeno(1,2,3-cd)pyrene          | N/A         | 7.3E-01       | 2.7E-01    |                         | 1.89E-08        |                 | 1E-08  |                         | 1.25E-08       |                 | 9E-09  | 1                       | 1.48E-09        |                 | 1E-09  |
| Metals                          |             |               |            |                         |                 |                 |        |                         |                |                 |        |                         |                 |                 |        |
| Aluminum                        | 1E+00       | N/A           | 2.2E+04    | 4.21E-03                |                 | 4E-03           |        | 6.94E-02                |                | 7E-02           |        | 1.65E-03                |                 | 2E-03           |        |
| Antimony                        | 4E-04       | N/A           | 4.9E+00    | 9.59E-07                |                 | 2E-03           |        | 1.58E-05                |                | 4E-02           |        | 3.76E-07                |                 | 9E-04           |        |
| Arsenic                         | 3E-04       | 1.5E+00       | 6.1E+00    | 1.19E-06                | 4.26E-07        | 4E-03           | 6E-07  | 1.97E-05                | 2.81E-07       | 7E-02           | 4E-07  | 4.68E-07                | 3.34E-08        | 2E-03           | 5E-08  |
| Cadmium                         | 5E-04       | N/A           | 1.4E+01    | 2.80E-06                |                 | 6E-03           |        | 4.62E-05                |                | 9E-02           |        | 1.10E-06                | ŀ               | 2E-03           |        |
| Copper                          | 4E-02       | N/A           | 1.2E+03    | 2.33E-04                | ]               | 6E-03           |        | 3.84E-03                | ]              | 1E-01           |        | 9.13E-05                |                 | 2E-03           |        |
| Iron                            | 3E-01       | N/A           | 2.7E+04    | 5.34E-03                |                 | 2E-02           |        | 8.82E-02                | ]              | 3E-01           |        | 2.09E-03                |                 | 7E-03           |        |
| Manganese                       | 2E-02       | N/A           | 9.2E+02    | 1.80E-04                | 1               | 8E-03           |        | 2.96E-03                | 1              | 1E-01           |        | 7.04E-05                |                 | 3E-03           |        |
| Vanadium                        | 7E-03       | N/A           | 2.9E+01    | 5.69E-06                |                 | 8E-04           |        | 9.40E-05                |                | 1E-02           |        | 2.23E-06                |                 | 3E-04           |        |
| Total Hazard Quotient and Cance | r Risk:     |               |            |                         |                 | 5E-02           | 1E-06  |                         |                | 8E-01           | 8E-07  |                         |                 | 2E-02           | 1E-07  |
|                                 |             |               |            | A                       | ssumptions for  | Industrial Work | er     | A                       | ssumptions for | Construction Wo | rker   | Ass                     | sumptions for A | dolescent Tresp | asser  |
|                                 |             |               |            | CF =                    | 1E-06           | kg/mg           |        | CF =                    | 1E-06          | kg/mg           |        | CF =                    |                 | kg/mg           |        |
|                                 |             |               |            | BW=                     |                 | kg              |        | BW=                     | 70             |                 |        | BW =                    |                 | kg              |        |
|                                 |             |               |            | IR =                    |                 |                 |        | IR =                    |                | mg/day          |        | IR =                    |                 | mg/day          |        |
|                                 |             |               |            | FI =                    |                 | unitless        |        | FI =                    | -              | unitless        |        | FI =                    |                 | unitless        |        |
|                                 |             |               |            | EF =                    |                 | days/year       |        | EF =                    |                |                 |        | EF =                    |                 | days/year       |        |
|                                 |             |               |            | ED =                    |                 | years           |        | ED =<br>AT (Nc) =       |                |                 |        |                         |                 | years<br>days   |        |
|                                 |             |               |            | AT (Nc) =<br>AT (Car) = | 9,125<br>25,550 |                 |        | AT (Nc) =<br>AT (Car) = | 25,550         | •               |        | AT (Nc) =<br>AT (Car) = | 25,550          |                 |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

And the second s

#### Table 9E

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

EV = Event Frequency

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg CF = Conversion Factor

EF = Exposure Frequency ED = Exposure Duration

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

SA = Surface Area Contact AF = Adherence Factor ABS = Absorption Factor

BW = Bodyweight AT = Averaging Time

|                                  | Dermal      | Carc. Slope   | Absorption | EPC        | 2 2 2 2                 | Industri       | al Worker                 |        | 150 TOTAL 15 |                 | ction Worker 🕒  | 6 CANTAR KITT | Martin Strategic (198 |                | Trespasser                 | 20.5   |
|----------------------------------|-------------|---------------|------------|------------|-------------------------|----------------|---------------------------|--------|--------------|-----------------|-----------------|---------------|-----------------------|----------------|----------------------------|--------|
| Analyte                          | RſD         | Dermal        | Factor*    | Ditch Soil |                         | ed Dose        | Hazard                    | Cancer |              | bed Dose        | Hazard          | Cancer        |                       | ed Dose        | Hazard                     | Cancer |
|                                  |             | Í             |            |            |                         | g-day)         | Quotient                  | Risk   |              | kg-day)         | Quotient        | Risk          |                       | g-day)         | Quotient                   | Risk   |
|                                  | (mg/kg-day) | (mg/kg-day)-1 | (unitless) | (mg/kg)    | (Nc)                    | (Car)          |                           |        | (Nc)         | (Car)           |                 |               | (Nc)                  | (Car)          |                            |        |
| Semivolatile Organic Compounds   | 1           |               |            |            |                         |                |                           |        |              |                 |                 |               |                       |                |                            |        |
| Benzo(a)anthracene               | N/A         | 7.3E-01       | 1.3E-01    | 1.1E+00    |                         | 6.60E-08       | l                         | 5E-08  |              | 1.98E-08        |                 | 1E-08         |                       | 3.22E-09       |                            | 2E-09  |
| Benzo(a)pyrene                   | N/A         | 7.3E+00       | 1.3E-01    | 9.0E-01    |                         | 5.40E-08       |                           | 4E-07  | 1            | 1.62E-08        |                 | 1E-07         |                       | 2.63E-09       |                            | 2E-08  |
| Benzo(b)fluoranthene             | N/A         | 7.3E-01       | 1.3E-01    | 1.1E+00    |                         | 6.60E-08       |                           | 5E-08  | 1            | 1.98E-08        |                 | 1E-08         |                       | 3.22E-09       |                            | 2E-09  |
| Benzo(k)fluoranthene             | N/A         | 7.3E-02       | 1.3E-01    | 5.8E-01    |                         | 3.48E-08       |                           | 3E-09  |              | 1.04E-08        |                 | 8E-10         | 1                     | 1.70E-09       |                            | 1E-10  |
| Chrysene                         | N/A         | 7.3E-03       | 1.3E-01    | 1.2E+00    |                         | 7.20E-08       |                           | 5E-10  | Į            | 2.16E-08        |                 | 2E-10         |                       | 3.51E-09       |                            | 3E-11  |
| Indeno(1,2,3-cd)pyrene           | N/A         | 7.3E-01       | 1.3E-01    | 2.7E-01    |                         | 1.62E-08       |                           | 1E-08  |              | 4.86E-09        |                 | 4E-09         | 1                     | 7.90E-10       |                            | 6E-10  |
| Metals                           |             |               |            |            |                         |                |                           |        |              |                 |                 |               |                       |                |                            |        |
| Aluminum                         | 1E+00       | N/A           | 1.0E-03    | 2.2E+04    | 2.78E-05                |                | 3E-05                     |        | 2.08E-04     |                 | 2E-04           |               | 6.77E-06              |                | 7E-06                      |        |
| Antimony                         | 6E-05       | N/A           | 1.0E-03    | 4.9E+00    | 6.33E-09                | ļ              | 1E-04                     |        | 4.75E-08     |                 | 8E-04           |               | 1.54E-09              |                | 3E-05                      |        |
| Arsenic                          | 3E-04       | 1.5E+00       | 3.0E-02    | 6.1E+00    | 2.36E-07                | 8.44E-08       | 8E-04                     | 1E-07  | 1.77E-06     | 2.53E-08        | 6E-03           | 4E-08         | 5.77E-08              | 4.12E-09       | 2E-04                      | 6E-09  |
| Cadmium                          | 3E-05       | N/A           | 1.0E-03    | 1.4E+01    | 1.85E-08                | !              | 7E-04                     |        | 1.39E-07     |                 | 6E-03           |               | 4.51E-09              |                | 2E-04                      |        |
| Copper                           | 4E-02       | N/A           | 1.0E-03    | 1.2E+03    | 1.54E-06                |                | 4E-05                     |        | 1.15E-05     |                 | 3E-04           |               | 3.75E-07              |                | 9E-06                      |        |
| Iron                             | 3E-01       | N/A           | 1.0E-03    | 2.7E+04    | 3.53E-05                |                | 1E-04                     |        | 2.64E-04     |                 | 9E-04           |               | 8.60E-06              |                | 3E-05                      |        |
| Manganese                        | 9E-04       | N/A           | 1.0E-03    | 9.2E+02    | 1.19E-06                |                | 1E-03                     | i      | 8.89E-06     |                 | 1E-02           |               | 2.89E-07              |                | 3E-04                      |        |
| Vanadium                         | 2E-04       | N/A           | 1.0E-03    | 2.9E+01    | 3.76E-08                |                | 2E-04                     |        | 2.82E-07     |                 | 2E-03           |               | 9.17E-09              |                | 5E-05                      |        |
| Total Hazard Quotient and Cancer | Risk:       |               |            |            |                         |                | 3E-03                     | 6E-07  |              |                 | 2E-02           | 2E-07         |                       |                | 8E-04                      | 3E-08  |
|                                  |             |               |            | -          | A                       | ssumptions for | Industrial Work           | cer .  | 1            | Assumptions for | Construction W  | orker         | Ass                   | umptions for A | dolescent Tresp            | asser  |
|                                  |             |               |            |            | CF =                    | 1E-06          | kg/mg                     |        | CF =         |                 | kg/mg           |               | CF =                  |                | kg/mg                      |        |
|                                  |             |               |            |            | BW =                    | 70             | kg (                      |        | BW =         | 70              | kg              |               | BW =                  |                | kg                         |        |
|                                  |             |               |            |            | SA =                    | 3,300          | cm <sup>2</sup>           |        | SA =         | 3,300           | cm <sup>2</sup> |               | SA=                   | 5,867          |                            |        |
|                                  |             |               |            |            | AF =                    | 0.2            | mg/cm <sup>2</sup> -event |        | AF =         | 0.3             | mg/cm²-event    |               | AF =                  | 0.07           | rng/cm <sup>2</sup> -event |        |
|                                  |             |               |            |            | EV=                     |                | event/day                 |        | EV =         |                 | event/day       |               | EV=                   |                | event/day                  |        |
|                                  |             |               |            |            | EF =                    |                | days/year                 |        | EF =         |                 | days/year       |               | EF =                  |                | days/ycar                  |        |
|                                  |             |               |            |            | ED = 25 years           |                |                           | ED =   |              | years           |                 | ED =          |                       | years          |                            |        |
|                                  |             |               |            |            | AT (Nc) =<br>AT (Car) = | 9,125          |                           |        | AT (Nc) =    |                 | days            |               | AT (Nc) =             | 1,825          |                            |        |
|                                  |             |               |            |            |                         | 25,550         | days                      |        | AT (Car) =   | 25,550          | days            |               | AT (Car) =            | 25,550         | days                       |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Absorption factor for iron was assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

#### Table 9F

## CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C DITCH SOIL

#### Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) =                                   | EPC x IR x EF x ED     |   |
|---|------------------------|---|
|   | BW x AT                | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                        |   |
| EPC = EPC in Air, mg/m <sup>3</sup>                                 | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate  | BW = Bodyweight        | <b>)</b>  |
| EF = Exposure Frequency   | AT = Averaging Time    |   |

| <del> </del>                          | Inhalation   | Carc. Slope    | Air EPC from         | Air EPC from      | Industrial Worker |               |                     |        | 100000                                       | Construction   | on Worker     | Andrew Sala Se | 2 4        | Adolescent   | Trespasser                                       | Bratheran |
|---------------------------------------|--------------|----------------|----------------------|-------------------|-------------------|---------------|---------------------|--------|--|----------------|---------------|----------------|------------|--------------|--|-----------|
| Analyte                               | RfD          | Inhalation     | Ditch Soil           | Ditch Soil        | Int               | ake           | Hazard              | Cancer | I.   | itake          | Hazard        | Cancer         | Int        | ake          | Hazard   | Cancer    |
| Anatyte                               | KID          | Illinalation   | (1)                  | Const. Worker (2) |                   | g-day)        | Quotient            | Risk   |  | kg-day)        | Quotient      | Risk           | 1          | g-day)       | Quotient   | Risk      |
|                                       | (matea day)  | (mg/kg-day)-1  | (mg/m <sup>3</sup> ) | (mg/m³)           | (Ne)              | (Car)         | Quonom              |        | (Nc)   | (Car)          |               |                | (Nc)       | (Car)        | `  |           |
|                                       | (Ing/kg-day) | (Ing/kg-uzy)-1 | (mg/m)               | (IIIg/III )       | (140)             | (Cai)         |                     |        | (110)  | (Car)          |               |                | (.,,,,     | (Car)        | <del>                                     </del> |           |
| Semivolatile Organic Compounds        |              |                |                      |                   |                   |               |                     |        |  |                | ŀ             | ŀ              |            |              |  |           |
| Benzo(a)anthracene                    | N/A          | N/A            | 1.9E-08              | 1.2E-07           | 1                 |               |                     |        |  |                | 1             |                |            |              | l i  |           |
| Benzo(a)pyrene                        | N/A          | 3.10E+00       | 1.5E-08              | 9.9E-08           |                   | 1.07E-09      |                     | 3E-09  |  | 2.77E-10       |               | 9E-10          | 1          | 1.34E-12     | 1  | 4E-12     |
| Benzo(b)fluoranthene                  | N/A          | N/A            | 1.9E-08              | 1.2E-07           |                   |               |                     |        |  |                |               |                |            |              | l I  |           |
| Benzo(k)fluoranthene                  | N/A          | N/A            | 9.9E-09              | 6.4E-08           |                   |               |                     |        |  |                |               | i              |            | l            | l I  |           |
| Chrysene                              | N/A          | N/A            | 2.0E-08              | 1.3E-07           |                   |               |                     |        |  |                |               |                |            |              |  |           |
| Indeno(1,2,3-cd)pyrene                | N/A          | N/A            | 4.6E-09              | 3.0E-08           |                   |               |                     | Ī      |  |                |               | 1              |            | •            | <u> </u>   |           |
| Metals                                |              |                |                      |                   |                   |               |                     | i      |  |                | ì             | 1              |            |              | l  |           |
| Aluminum                              | 1.43E-03     | N/A            | 3.7E-04              | 2.4E-03           | 7.15E-05          |               | 5E-02               |        | 4.63E-04                                     |                | 3E-01         | 1              | 4.49E-07   |              | 3E-04  |           |
| Antimony                              | N/A          | N/A            | 8.3E-08              | 5.4E-07           |                   |               |                     |        |  |                | <u> </u>      |                |            |              |  |           |
| Arsenic                               | N/A          | 1.51E+01       | 1.0E-07              | 6.7E-07           | i                 | 7.25E-09      |                     | 1E-07  | 1 1  | 1.88E-09       |               | 3E-08          | i          | 9.09E-12     | 1 1  | 1E-10     |
| Cadmium                               | 5.70E-05     | 6.30E+00       | 2.4E-07              | 1.6E-06           | 4.76E-08          | 1.70E-08      | 8E-04               | 1E-07  | 3.08E-07                                     | 4.40E-09       | 5E-03         | 3E-08          | 2.98E-10   | 2.13E-11     | 5E-06  | 1E-10     |
| Copper                                | N/A          | N/A            | 2.0E-05              | 1.3E-04           |                   |               |                     |        | 1 1  |                |               |                |            | 1            |  |           |
| Iron                                  | N/A          | N/A            | 4.6E-04              | 3.0E-03           |                   |               |                     |        | 1 1  |                |               |                |            |              | 1 1  |           |
| Manganese                             | 1.43E-05     | N/A            | 1.6E-05              | 1.0E-04           | 3.05E-06          |               | 2E-01               |        | 1.98E-05                                     |                | 1E+00         |                | 1.92E-08   |              | 1E-03  |           |
| Vanadium                              | N/A          | N/A            | 4.9E-07              | 3.2E-06           |                   |               |                     |        | <u>                                     </u> |                |               |                |            |              | ļ  |           |
| Total Hazard Quotient and Cancer Risl | c:           |                |                      |                   |                   |               | 3E-01               | 2E-07  |  |                | 2E+00         | 6E-08          |            |              | 2E-03  | 3E-10     |
|                                       |              |                |                      |                   | Assu              | mptions for I | ndustrial Wor       | rker   | Assu   | mptions for Co | onstruction W | orker          | Assun      | ptions for A | dolescent Tr                                     | espasser  |
|                                       |              |                |                      |                   |                   |               | kg                  |        | BW =   | 70             | kg            |                | BW =       | 50           | kg   |           |
|                                       |              |                |                      |                   |                   |               | m <sup>3</sup> /day |        | IR =   |                | m³/day        |                | IR =       |              | m <sup>3</sup> /day                              |           |
|                                       |              |                |                      |                   | IR =<br>EF =      |               | days/year           |        | EF =   |                | days/year     |                | EF =       |              | days/year  |           |
|                                       |              |                |                      |                   | ED =              |               | years               |        | ED =   |                | year          |                | ED =       |              | years  |           |
|                                       |              |                |                      |                   | AT (Nc) =         | 9,125         |                     |        | AT (Nc) =                                    |                | days          |                | AT (Nc) =  |              | days   |           |
|                                       |              |                |                      |                   | AT (Car) =        | 25,550        |                     |        | AT (Car) =                                   | 25,550         |               |                | AT (Car) = | 25,550       |  |           |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

(1) This EPC was used for the industrial worker and the adolescent trespasser.

(2) This EPC was used for the construction worker.

#### Table 9G

## CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

Seneca Army Depot Activity

| Equation for Dermal (mg/kg-day) =   | DA x SA x EF x ED x EV<br>BW x AT                                | Equation for Absorbed Dose per Event (DA):  For inorganics: DA = Kp x EPC x t <sub>event</sub> x C | K <sub>p</sub> = Permeability Coefficient, cm/hr<br>EPC = EPC in Groundwater, mg/L<br>C = Conversion Factor, 10 <sup>-3</sup> L/cm <sup>3</sup> |   |
|---|--|--|---|---|
| Variables (Assumptions for Each Receptor are Listed at t  | he Bottom):  |  |   | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RfD) |
| DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event<br>SA = Surface Area Contact<br>EF = Exposure Frequency<br>EV = Event Frequency | ED = Exposure Duration<br>BW = Bodyweight<br>AT = Averaging Time |  |   | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor          |

|                           | Dermal       | Carc. Slope   | Permeability | EPC       | Absorbed       | Industrial Worker |              |                     | 177    | Construction         | on Worker     | Tigal Resign | ART WANTER | Adolescent T         | respasser  | 1 1000 500 5 |        |
|---------------------------|--------------|---------------|--------------|-----------|----------------|-------------------|--------------|---------------------|--------|----------------------|---------------|--------------|------------|----------------------|--|--------------|--------|
| Analyte                   | RfD          | Dermal        | Coefficient  | Surface   | Dose/Event     | I                 | ntake        | Hazard              | Cancer |                      | ake           | Hazard       | Cancer     | Inta                 |  | Hazard       | Cancer |
|                           |              | İ             | Кр           | Water     |                |                   | /kg-day)     | Quotient            | Risk   | _ ` ''               | g-day)        | Quotient     | Risk       | (mg/kg               | <del>                                     </del> | Quotient     | Risk   |
|                           | (mg/kg-day)  | (mg/kg-day)-1 | (cm/hr)      | (mg/L)    | (mg/cm²-event) | (Nc)              | (Car)        |                     |        | (Nc)                 | (Car)         |              |            | (Nc)                 | (Car)  |              |        |
| Metals                    |              |               |              |           |                |                   |              |                     |        |                      |               |              |            |                      |  |              |        |
| Aluminum                  | 1.0.E+00     | N/A           | 1.0.E-03     | 8.76.E+00 | 4.38E-06       | ļ                 |              |                     |        | 4.27E-05             |               | 4E-05        |            | 1.97E-05             |  | 2E-05        |        |
| Arsenic                   | 3.0.E-04     | 1.5E+00       | 1.0.E-03     | 5.03.E-02 | 2.52E-08       |                   |              |                     |        | 2.45E-07             | 3.50E-09      | 8E-04        | 5E-09      | 1.13E-07             | 8.09E-09   | 4E-04        | 1E-08  |
| Barium                    | 1.4.E-02     | N/A           | 1.0.E-03     | 4.23.E-01 | 2.12E-07       |                   |              |                     |        | 2.06E-06             |               | 1E-04        |            | 9.52E-07             |  | 7E-05        |        |
| Cadmium                   | 2.5.E-05     | N/A           | 1.0.E-03     | 1.95.E-02 | 9.75E-09       |                   |              |                     |        | 9.50E-08             |               | 4E-03        |            | 4.39E-08             |  | 2E-03        |        |
| Chromium                  | 7.5.E-05     | N/A           | 2.0.E-03     | 1.29.E-01 | 1.29E-07       |                   | Dermal Conta | ct to Surface Water | г      | 1.26E-06             | l             | 2E-02        | 1          | 5.81E-07             |  | 8E-03        |        |
| Copper                    | 4.0.E-02     | N/A           | 1.0.E-03     | 1.16.E+00 | 5.80E-07       |                   |              |                     |        | 5.65E-06             |               | 1E-04        | i          | 2.61E-06             |  | 7E-05        |        |
| Iron                      | 3.0.E-01     | N/A           | 1.0.E-03     | 1.10.E+02 | 5.50E-05       | 1                 | for Indu     | strial Worker       |        | 5.36E-04             |               | 2E-03        |            | 2.48E-04             | •  | 8E-04        |        |
| Manganese                 | 9.3.E-04     | N/A           | 1.0.E-03     | 2.38.E+00 | 1.19E-06       |                   |              |                     |        | 1.16E-05             | ]             | 1E-02        |            | 5.36E-06             |  | 6E-03        |        |
| Mercury                   | 2.1.E-05     | N/A           | 1.0.E-03     | 2.10.E-03 | 1.05E-09       |                   |              |                     |        | 1.02E-08             |               | 5E-04        |            | 4.73E-09             |  | 2E-04        |        |
| Nickel                    | 8.0.E-04     | N/A           | 2.0.E-04     | 1.54.E-01 | 1.54E-08       |                   |              |                     |        | 1.50E-07             |               | 2E-04        |            | 6.93E-08             |  | 9E-05        |        |
| Thallium                  | 6.5.E-04     | N/A           | 1.0.E-03     | 6.30.E-03 | 3.15E-09       |                   |              |                     |        | 3.07E-08             | İ             | 5E-05        |            | 1.42E-08             |  | 2E-05        |        |
| Vanadium                  | 1.8.E-04     | N/A           | 1.0.E-03     | 2.33.E-01 | 1.17E-07       | ļ                 |              |                     |        | 1.14E-06             |               | 6E-03        |            | 5.24E-07             |  | 3E-03        |        |
| Zinc                      | 3.0.E-01     | N/A           | 6.00E-04     | 6.91.E+00 | 2.07E-06       |                   |              |                     |        | 2.02E-05             |               | 7E-05        |            | 9.33E-06             |  | 3E-05        |        |
| Total Hazard Quotient and | Cancer Risk: |               |              |           |                |                   |              |                     |        |                      |               | 4E-02        | 5E-09      |                      |  | 2E-02        | 1E-08  |
|                           |              |               |              |           |                |                   |              |                     |        |                      | ptions for Co |              |            |                      | ptions for Ado                                   |              | asser  |
|                           |              |               |              |           |                |                   |              |                     |        | BW=                  |               | kg           |            | BW=                  |  | kg           |        |
|                           |              |               |              |           |                |                   |              |                     |        | SA =                 | 2,490         |              |            | SA=                  | 5,867  |              |        |
|                           |              |               |              |           |                |                   |              |                     |        | EV=                  |               | event/day    |            | EV=                  |  | event/day    |        |
|                           |              |               |              |           |                |                   |              |                     |        | EF =                 |               | days/year    |            | EF =                 |  | days/year    |        |
|                           |              |               |              |           |                |                   |              |                     |        | ED =                 |               | year         |            | ED =                 |  | year         |        |
|                           |              |               |              |           |                |                   |              |                     |        | t <sub>event</sub> = |               | hr/event     |            | t <sub>event</sub> = |  | hr/event     |        |
|                           |              |               |              |           |                |                   |              |                     |        | AT (Nc) =            |               | days         |            | AT (Nc) =            | 1,825  |              |        |
|                           |              |               |              |           |                |                   |              |                     |        | AT (Car) =           | 25,550        | days         |            | AT (Car) =           | 25,550   | days         |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

Kp value from Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used. Kp for Cr(VI) was used for chromium.

#### Table 9H

# CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) = EPC x IR x EF x ED                |                      |   |
|---|----------------------|---|
| BW x AT   |                      | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                      |   |
| EPC = Exposure Point Concentration in Groundwater (mg/L)            | ED=Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Intake Rate  | BW=Bodyweight        |   |
| EF = Exposure Frequency   | AT=Averaging Time    |   |

|            | Oral                                  | Carc. Slope   | EPC         | 211        | Industria   | l Worker     | 10 Policies | \$300 Len  | Constructi   | on Worker     |        |            | Adolescent   | Trespasser   |        |
|------------|---------------------------------------|---------------|-------------|------------|-------------|--------------|-------------|------------|--------------|---------------|--------|------------|--------------|--------------|--------|
| Analyte    | RfD                                   | Oral          | Groundwater | Int        | ake         | Hazard       | Cancer      | Int        | ake          | Hazard        | Cancer | Int        | ake          | Hazard       | Cancer |
|            |                                       | -             |             | (mg/k      | g-day)      | Quotient     | Risk        | (mg/k      | g-day)       | Quotient      | Risk   | (mg/k      | g-day)       | Quotient     | Risk   |
|            | (mg/kg-day)                           | (mg/kg-day)-1 | (mg/liter)  | (Nc)       | (Car)       |              |             | (Nc)       | (Car)        |               |        | (Nc)       | (Car)        |              |        |
|            |                                       |               |             |            |             |              |             |            |              |               |        |            |              |              |        |
| Antimony   | 4.E-04                                | N/A           | 0.0084      | 8.2E-05    | 2.9E-05     | 2E-01        |             | 8.2E-05    | 1.2E-06      | 2E-01         |        | 1.3E-05    | 9.2E-07      | 3E-02        |        |
| Chromium   | 3.E-03                                | N/A           | 0.0214      | 2.1E-04    | 7.5E-05     | 7E-02        | İ           | 2.1E-04    | 3.0E-06      | 7E-02         |        | 3.3E-05    | 2.3E-06      | 1E-02        |        |
| Manganese  | 2.E-02                                | N/A           | 0.297       | 2.9E-03    | 1.0E-03     | 1E-01        |             | 2.9E-03    | 4.2E-05      | 1E-01         |        | 4.6E-04    | 3.3E-05      | 2E-02        |        |
|            |                                       |               |             |            |             |              |             |            |              |               |        |            |              |              |        |
| Total Haza | otal Hazard Quotient and Cancer Risk: |               |             |            |             | 4E-01        | 0E+00       |            |              | 4E-01         | 0E+00  |            |              | 6E-02        | 0E+00  |
|            |                                       |               |             | Assu       | mptions for | Industrial W | orker       | Assum      | ptions for C | onstruction \ | Worker | Assi       | umptions for | Child Trespa | isser  |
| Ì          |                                       |               |             |            |             |              |             |            |              |               |        |            |              |              |        |
|            |                                       |               |             | BW=        | 70          | kg           |             | BW =       | 70           | kg            |        | BW =       | 50           | kg           |        |
|            |                                       |               |             | IR =       | 1           | liters/day   |             | IR =       | 1            | liters/day    |        | IR =       | 2.0          | liters/day   |        |
|            |                                       |               |             | EF =       | 250         | days/year    |             | EF =       | 250          | days/year     |        | EF =       | 14           | days/year    |        |
|            |                                       |               |             | ED =       | 25          | years        |             | ED =       | 1            | years         |        | ED =       | 5            | years        |        |
|            |                                       |               |             | AT (Nc) =  | 9,125       | days         |             | AT (Nc) =  | 365          | days          |        | AT (Nc) =  | 1,825        | days         |        |
|            |                                       |               |             | AT (Car) = | 25,550      | days         |             | AT (Car) = | 25,550       | days          |        | AT (Car) = | 25,550       | days         |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

#### Table 9I

## CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C

#### Seneca Army Depot Activity

| 1  | A x EF x ED x EV<br>BW x AT                                | Equation for Absorbed Dose per Event (DA):   |   |
|--|--|--|---|
|  |  | For inorganics: $DA = K_p x EPC x t_{event} x$                                     | CF  |
| Variables (Assumptions for Each Receptor are Listed  | at the Bottom):  | K <sub>p</sub> = Permeability Coefficient, cm/hr<br>EPC = EPC in Groundwater, mg/L | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency | ED = Exposure Duration BW = Bodyweight AT = Averaging Time | CF = Conversion Factor, 10 <sup>-3</sup> L/cm <sup>3</sup>                         | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |

|           | Dermal       | Carc. Slope   | Permeability |                    | EPC    | Absorbed       | orbed Industrial |              |            | Marijana | 1.116.21             | Construct   | ion Worke   | r (1000) | Adolescen      | t Trespasse | r, is to differ |
|-----------|--------------|---------------|--------------|--------------------|--------|----------------|------------------|--------------|------------|----------|----------------------|-------------|-------------|----------|----------------|-------------|-----------------|
| Analyte   | RfD          | Dermal        | Coefficient  | t <sub>event</sub> | Ground | Dose/Event     | Int              | ake          | Hazard     | Cancer   | Inta                 | ke          | Hazard      | Cancer   | Intake         | Hazard      | Cancer          |
| -         |              |               | Кp           |                    | Water  |                | (mg/k            | g-day)       | Quotient   | Risk     | (mg/kg               | g-day)      | Quotient    | Risk     | (mg/kg-day)    | Quotient    | Risk            |
|           | (mg/kg-day)  | (mg/kg-day)-1 | (cm/hr)      | (hr/event)         | (mg/L) | (mg/cm²-event) | (Nc)             | (Car)        | l          |          | (Nc)                 | (Car)       |             |          | (Nc) (Car)     |             | İ               |
| Metals    |              | •             |              |                    |        |                | Dorm             | al Contact t | o Ground W | /oter    |                      |             |             |          | Dermal Contact | to Ground V | Vater           |
| Antimony  | 4.E-04       | N/A           | 1.E-03       | 5.E-01             | 8.E-03 | 4.20E-09       | Derin            | Not App      |            | atti     | 4.09E-08             |             | 1E-04       |          |                | pplicable   | . 4.01          |
| Chromium  | 3.E-03       | N/A           | 2.E-03       | 5.E-01             | 2.E-02 | 2.14E-08       |                  | Not ripp     | Membre     |          | 2.09E-07             |             | 7E-05       | i        | 1.00           | phienoie    |                 |
| Manganese | 2.E-02       | N/A           | 1.E-03       | 5.E-01             | 3.E-01 | 1.49E-07       |                  |              |            |          | 1.45E-06             |             | 6E-05       |          |                |             |                 |
| wanganese | 2.6-02       | N/A           | 1.103        | 3.5-01             | J.E-01 | 1.496-07       |                  |              |            |          | 1.45L-00             |             | 02-03       | 1        |                |             |                 |
|           |              | •             |              |                    |        |                |                  |              |            |          |                      |             |             |          |                |             |                 |
| Total Haz | zard Quotiei | t and Cancer  | Risk:        |                    |        |                |                  |              |            |          |                      |             | 2E-04       | 0E+00    |                |             |                 |
|           |              |               |              | _                  |        |                |                  |              |            |          | Assum                | tions for C | onstruction | Worker   |                | •           |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | BW =                 | . 70        | kg          |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | SA =                 | 2,490       | cm2         |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | EV=                  | 1           | event/day   |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | EF =                 | 100         | days/year   |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | ED =                 |             | years       |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | t <sub>event</sub> = | 0.5         | hr/event    |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | AT (Nc) =            | 365         | days        |          |                |             |                 |
|           |              |               |              |                    |        |                |                  |              |            |          | AT (Car) =           | 25,550      | days        |          |                |             |                 |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### Table 10A

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121I

Seneca Army Depot Activity

EPC x IR x CF x FI x EF x ED Equation for Intake (mg/kg-day) = BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg

FI = Fraction Ingested

IR = Ingestion Rate CF = Conversion Factor EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                   | Oral   | Carc. Slope   | EPC          | and the second          |                | al Worker       | 100000 |            |                 | ion Worker     | 3 × 5× 199 | range est s |                | Trespasser      | GOOD STANKE |
|-----------------------------------|--|---------------|--------------|-------------------------|----------------|-----------------|--------|------------|-----------------|----------------|------------|-------------|----------------|-----------------|-------------|
| Analyte                           | RfD  | Oral          | Surface Soil | In                      | take           | Hazard          | Cancer |            | itake           | Hazard         | Cancer     |             | take           | Hazard          | Cance       |
|                                   |  |               |              |                         | (g-day)        | Quotient        | Risk   |            | kg-day)         | Quotient       | Risk       |             | (g-day)        | Quotient        | Risk        |
|                                   | (mg/kg-day)  | (mg/kg-day)-1 | (mg/kg)      | (Ne)                    | (Car)          |                 |        | (Nc)       | (Car)           |                |            | (Ne)        | (Car)          | <b>1</b>        |             |
| emivolatile Organic Compounds     | 1  |               | 1            | 1                       |                |                 |        | 1          |                 |                |            |             |                | 1               |             |
| Benzo(a)anthracene                | N/A  | 7.3E-01       | 1.0E+01      |                         | 3.48E-06       |                 | 3E-06  |            | 4.60E-07        |                | 3E-07      | 1           | 5.46E-08       | 1               | 4E-0        |
| Benzo(a)pyrene                    | N/A  | 7.3E+00       | 8.5E+00      |                         | 2.98E-06       | i               | 2E-05  |            | 3.93E-07        |                | 3E-06      | i           | 4.67E-08       | 1               | 3E-07       |
| Benzo(b)fluoranthene              | N/A  | 7.3E-01       | 1.0E+01      |                         | 3.50E-06       |                 | 3E-06  |            | 4.62E-07        |                | 3E-07      | 1           | 5.49E-08       | ]               | 4E-0        |
| Benzo(k)fluoranthene              | N/A  | 7.3E-02       | 8.7E+00      |                         | 3.03E-06       |                 | 2E-07  |            | 4.01E-07        |                | 3E-08      | 1           | 4.76E-08       | 1               | 3E-0        |
| Chrysene                          | N/A  | 7.3E-03       | 1.2E+01      |                         | 4.20E-06       | l               | 3E-08  | ł          | 5.55E-07        |                | 4E-09      | 1           | 6.59E-08       |                 | 5E-10       |
| Dibenz(a,h)anthracene             | N/A  | 7.3E+00       | 1.2E+00      |                         | 4.04E-07       | [               | 3E-06  |            | 5.33E-08        |                | 4E-07      | 1           | 6.33E-09       |                 | 5E-0        |
| ndeno(1,2,3-cd)pyrene             | N/A  | 7.3E-01       | 3.9E+00      |                         | 1.35E-06       |                 | 1E-06  |            | 1.79E-07        |                | 1E-07      | 1           | 2.12E-08       |                 | 2E-0        |
| Pesticides                        |  |               |              |                         | 1              |                 |        |            |                 |                |            |             | i              | i               |             |
| Dieldrin                          | 5E-05  | 1.6E+01       | 6.8E-03      | 6.66E-09                | 2.38E-09       | 1E-04           | 4E-08  | 2.20E-08   | 3.14E-10        | 4E-04          | 5E-09      | 5.22E-10    | 3.73E-11       | 1E-05           | 6E-10       |
| Heptachlor epoxide                | 5E-04  | 9.1E+00       | 2.3E-02      | 2.30E-08                | 8.20E-09       | 5E-05           | 7E-08  | 7.58E-08   | 1.08E-09        | 2E-04          | 1E-08      | 1.80E-09    | 1.29E-10       | 4E-06           | 1E-09       |
| Metals                            | i  | l             |              |                         | l .            | 1               |        | 1          |                 |                |            | 1           |                |                 |             |
| Aluminum                          | 1E+00  | N/A           | 5.8E+03      | 5.68E-03                |                | 6E-03           |        | 1.88E-02   |                 | 2E-02          |            | 4.46E-04    |                | 4E-04           |             |
| Antimony                          | 4E-04  | N/A           | 3.2E+00      | 3.08E-06                |                | 8E-03           |        | 1.02E-05   |                 | 3E-02          |            | 2.42E-07    |                | 6E-04           |             |
| Arsenic                           | 3E-04  | 1.5E+00       | 1.5E+01      | 1.46E-05                | 5.21E-06       | 5E-02           | 8E-06  | 4.82E-05   | 6.88E-07        | 2E-01          | 1E-06      | 1.14E-06    | 8.17E-08       | 4E-03           | 1E-0        |
| Cadmium                           | 5E-04  | N/A           | 2.7E-01      | 2.64E-07                | 1              | 5E-04           |        | 8.72E-07   |                 | 2E-03          |            | 2.07E-08    | ]              | 4E-05           |             |
| Chromium                          | 3E-03  | N/A           | 8.3E+01      | 8.09E-05                | i              | 3E-02           |        | 2.67E-04   |                 | 9E-02          |            | 6.35E-06    | 1              | 2E-03           |             |
| Cobalt                            | 2E-02  | N/A           | 9.5E+00      | 9.30E-06                | Į.             | 5E-04           |        | 3.07E-05   |                 | 2E-03          |            | 7.29E-07    | 1              | 4E-05           |             |
| fron                              | 3E-01  | N/A           | 2.2E+04      | 2.12E-02                |                | 7E-02           |        | 6.98E-02   | 1               | 2E-01          |            | 1.66E-03    | l              | 6E-03           |             |
| Manganese                         | 2E-02  | N/A           | 1.1E+05      | 1.04E-01                |                | 4E+00           |        | 3.43E-01   | i               | 1E+01          |            | 8.16E-03    | 1              | 3E-01           |             |
| Nickel                            | 2E-02  | N/A           | 2.7E+01      | 2.62E-05                |                | 1E-03           |        | 8.65E-05   |                 | 4E-03          |            | 2.06E-06    | İ              | 1E-04           | İ           |
| Selenium                          | 5E-03  | N/A           | 6.5E-01      | 6.36E-07                |                | 1E-04           |        | 2.10E-06   |                 | 4E-04          |            | 4.99E-08    |                | 1E-05           | !           |
| Thallium                          | 6E-04  | N/A           | 5.3E+01      | 5.23E-05                | i              | 8E-02           |        | 1.73E-04   |                 | 3E-01          |            | 4.10E-06    |                | 6E-03           |             |
| Vanadium                          | 7E-03  | N/A           | 4.3E+01      | 4.17E-05                | ļ              | 6E-03           |        | 1.38E-04   |                 | 2E-02          |            | 3.27E-06    |                | 5E-04           |             |
| otal Hazard Quotient and Cancer R | isk:   |               |              |                         |                | 5E+00           | 4E-05  |            |                 | 2E+01          | 5E-06      |             | •              | 4E-01           | 6E-0        |
|                                   |  |               |              | A                       | ssumptions for | Industrial Worl | er     | Ass        | sumptions for C | onstruction Wo | rker       | Ass         | umptions for A | dolescent Tresp | asser       |
|                                   |  |               |              | CF =                    | 1E-06          | kg/mg           |        | CF =       | 1E-06           | kg/mg          |            | CF =        | 1E-06          | kg/mg           | -           |
|                                   |  |               |              | EPC=                    | EPC Surface Or |                 |        | EPC=       | EPC Surface an  | d Subsurface   |            | EPC=        | EPC Surface O  |                 |             |
|                                   |  |               |              |                         |                | kg              |        | BW=        |                 | kg             |            | BW=         |                | kg              |             |
|                                   |  |               |              | IR =                    |                | mg/day          |        | IR =       |                 | mg/day         |            | IR=         |                | mg/day          |             |
|                                   |  |               |              | FI =                    |                | unitless        |        | FI =       | -               | unitless       |            | FI =        |                | unitless        |             |
|                                   |  |               |              | EF =                    |                | days/year       |        | EF =       |                 | days/year      |            | EF =        |                | days/year       |             |
|                                   |  |               |              | ED =                    |                | years           |        | ED =       |                 | years          |            | ED =        |                | years           |             |
|                                   |  |               |              | AT (Nc) =<br>AT (Car) = | 9,125          |                 |        | AT (Nc) =  |                 | days           |            | AT (Nc) =   |                | days            |             |
|                                   | Calle in this table were intentionally left blank due to a leak of toxicity data |               |              |                         | 25,550         | days            |        | AT (Car) = | 25,550          | days           |            | AT (Car) =  | 25,550         | aays            |             |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### Table 10B

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211

#### Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Soil, mg/kg

EV = Event Frequency EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

CF = Conversion Factor
SA = Surface Area Contact
AF = Adherence Factor ABS = Absorption Factor

AT = Averaging Time

|                                     | Dermal                                 | Carc. Slope    |                 |              | 13,373 9.0 |                 | Construct      | ion Worker | and a planting to | St. 100         | Adolescent       | Trespasser | <u> </u> |          |          |        |
|-------------------------------------|--|----------------|-----------------|--------------|------------|-----------------|----------------|------------|-------------------|-----------------|------------------|------------|----------|----------|----------|--------|
| Analyte                             | RfD                                    | Dermal         | Factor*         | Surface Soil |            | ed Dose         | Hazard         | Cancer     |                   | ed Dose         | Hazard           | Cancer     |          | ed Dose  | Hazard   | Cancer |
|                                     | 1                                      |                |                 |              |            | g-day)          | Quotient       | Risk       |                   | g-day)          | Quotient         | Risk       |          | g-day)   | Quotient | Risk   |
|                                     | (mg/kg-day)                            | (mg/kg-day)-1  | (unitless)      | (mg/kg)      | (Nc)       | (Car)           |                |            | (Nc)              | (Car)           |                  |            | (Nc)     | (Car)_   |          |        |
| Semivolatile Organic Compounds      | 1                                      |                |                 |              |            |                 |                |            |                   | 1               |                  |            |          |          |          |        |
| Benzo(a)anthracene                  | N/A                                    | 7.3E-01        | 1.3E-01         | 1.0E+01      | }          | 2.99E-06        |                | 2E-06      |                   | 1.79E-07        |                  | 1E-07      |          | 2.92E-08 |          | 2E-08  |
| Benzo(a)pyrene                      | N/A                                    | 7.3E+00        | 1.3E-01         | 8.5E+00      |            | 2.56E-06        | !              | 2E-05      |                   | 1.53E-07        |                  | 1E-06      |          | 2.50E-08 |          | 2E-07  |
| Benzo(b)fluoranthene                | N/A                                    | 7.3E-01        | 1.3E-01         | 1.0E+01      |            | 3.00E-06        | l i            | 2E-06      |                   | 1.80E-07        |                  | 1E-07      |          | 2.93E-08 |          | 2E-08  |
| Benzo(k)fluoranthene                | N/A                                    | 7.3E-02        | 1.3E-01         | 8.7E+00      |            | 2.60E-06        |                | 2E-07      |                   | 1.56E-07        |                  | 1E-08      | i        | 2.54E-08 |          | 2E-09  |
| Chrysene                            | N/A                                    | 7.3E-03        | 1.3E-01         | 1.2E+01      |            | 3.60E-06        |                | 3E-08      |                   | 2.16E-07        |                  | 2E-09      |          | 3.52E-08 |          | 3E-10  |
| Dibenz(a,h)anthracene               | N/A                                    | 7.3E+00        | 1.3E-01         | 1.2E+00      | 1          | 3.46E-07        |                | 3E-06      |                   | 2.08E-08        |                  | 2E-07      |          | 3.38E-09 |          | 2E-08  |
| Indeno(1,2,3-cd)pyrene              | N/A                                    | 7.3E-01        | 1.3E-01         | 3.9E+00      |            | 1.16E-06        |                | 8E-07      |                   | 6.97E-08        |                  | 5E-08      |          | 1.13E-08 |          | 8E-09  |
| Pesticides                          | 1                                      |                |                 | 1            |            | ł               | 1              |            |                   | 1               |                  |            |          |          |          |        |
| Dieldrin                            | 5E-05                                  | 1.6E+01        | 1.0E-01         | 6.8E-03      | 4.39E-09   | 1.57E-09        | 9E-05          | 3E-08      | 6.59E-09          | 9.41E-11        | 1E-04            | 2E-09      | 2.14E-10 | 1.53E-11 | 4E-06    | 2E-10  |
| Heptachlor epoxide                  | 5E-04                                  | 9.1E+00        | 1.0E-01         | 2.3E-02      | 1.52E-08   | 5.42E-09        | 3E-05          | 5E-08      | 2.27E-08          | 3.25E-10        | 5E-05            | 3E-09      | 7.40E-10 | 5.28E-11 | 1E-06    | 5E-10  |
| Metals                              |  |                |                 |              |            |                 |                |            |                   |                 |                  | ļ          |          |          |          |        |
| Aluminum                            | 1E+00                                  | N/A            | 1.0E-03         | 5.8E+03      | 3.75E-05   |                 | 4E-05          |            | 5.63E-05          |                 | 6E-05            | ł          | 1.83E-06 |          | 2E-06    |        |
| Antimony                            | 6E-05                                  | N/A            | 1.0E-03         | 3.2E+00      | 2.03E-08   |                 | 3E-04          |            | 3.05E-08          |                 | 5E-04            |            | 9.92E-10 |          | 2E-05    |        |
| Arsenic                             | 3E-04                                  | 1.5E+00        | 3.0E-02         | 1.5E+01      | 2.89E-06   | 1.03E-06        | 1E-02          | 2E-06      | 4.34E-06          | 6.19E-08        | 1E-02            | 9E-08      | 1.41E-07 | 1.01E-08 | 5E-04    | 2E-08  |
| Cadmium                             | 3E-05                                  | N/A            | 1.0E-03         | 2.7E-01      | 1.74E-09   |                 | 7E-05          |            | 2.62E-09          |                 | 1E-04            |            | 8.51E-11 |          | 3E-06    |        |
| Chromium                            | 8E-05                                  | N/A            | 1.0E-03         | 8.3E+01      | 5.34E-07   |                 | 7E-03          |            | 8.01E-07          |                 | 1E-02            |            | 2.61E-08 |          | 3E-04    |        |
| Cobalt                              | 2E-02                                  | N/A            | 1.0E-03         | 9.5E+00      | 6.14E-08   |                 | 3E-06          |            | 9.20E-08          |                 | 5E-06            |            | 2.99E-09 |          | 1E-07    |        |
| Iron                                | 3E-01                                  | N/A            | 1.0E-03         | 2.2E+04      | 1.40E-04   |                 | 5E-04          |            | 2.09E-04          |                 | 7E-04            |            | 6.81E-06 |          | 2E-05    |        |
| Manganese                           | 9E-04                                  | N/A            | 1.0E-03         | 1.1E+05      | 6.87E-04   |                 | 7E-01          |            | 1.03E-03          |                 | 1E+00            | 1          | 3.35E-05 | İ        | 4E-02    |        |
| Nickel                              | 8E-04                                  | N/A            | 1.0E-03         | 2.7E+01      | 1.73E-07   | İ               | 2E-04          |            | 2.60E-07          |                 | 3E-04            | i          | 8.44E-09 |          | 1E-05    |        |
| Selenium                            | 5E-03                                  | N/A            | 1.0E-03         | 6.5E-01      | 4.20E-09   | i               | 8E-07          |            | 6.30E-09          |                 | 1E-06            |            | 2.05E-10 |          | 4E-08    |        |
| Thallium                            | 6E-04                                  | N/A            | 1.0E-03         | 5.3E+01      | 3.45E-07   |                 | 5E-04          |            | 5.18E-07          |                 | 8E-04            |            | 1.68E-08 |          | 3E-05    |        |
| Vanadium                            | 2E-04                                  | N/A            | 1.0E-03         | 4.3E+01      | 2.76E-07   |                 | 2E-03          |            | 4.13E-07          |                 | 2E-03            |            | 1.34E-08 |          | 7E-05    |        |
| Total Hazard Quotient and Cancer Ri | Total Hazard Quotient and Cancer Risk: |                |                 |              |            |                 | 8E-01          | 3E-05      |                   |                 | 1E+00            | 2E-06      |          |          | 4E-02    | 3E-07  |
|                                     | A                                      | ssumptions for | Industrial Work | er           | Ass        | sumptions for C | onstruction Wo | rker       | Ass               | umptions for Ad | lolescent Trespa | isser      |          |          |          |        |

| Total Hazard Quotient and Cancer Risk: | ł                 |                   | 8E-01           | 3E-05 |           |                   | 1E+00                     | 2E-06 |           |                     | 4E-02          | 3E-07 |
|--|-------------------|-------------------|-----------------|-------|-----------|-------------------|---------------------------|-------|-----------|---------------------|----------------|-------|
|  | I                 | Assumptions for I | ndustrial Worl  | ær    |           | Assumptions for C | onstruction Wor           | ker   |           | Assumptions for Ado | lescent Trespa | ser   |
|  |                   |                   |                 |       |           |                   |                           |       |           |                     |                |       |
|  | CF =              | 1E-06             | kg/mg           |       | CF =      | 1E-06             | kg/mg                     |       | CF =      | 1E-06 k             |                |       |
|  | EPC =             | EPC Surface On    | lly             |       | EPC =     | EPC Surface O     | mly                       |       | EPC =     | EPC Surface Only    | y              |       |
|  | BW =              | 70 1              | kg              |       | BW =      | 70                | kg                        |       | BW =      | 50 k                | g              |       |
|  | SA =              | 3,300             | cm <sup>2</sup> |       | SA =      | 3,300             | cm <sup>2</sup>           |       | SA =      | 5,867 c             | m²             |       |
|  | AF =              | 0.2               | mg/cm²-event    |       | AF =      | 0.3               | mg/cm <sup>2</sup> -event |       | AF =      | 0.07 n              | ng/cm²-event   |       |
|  | EV =              | 1 (               | event/day       |       | EV =      | 1                 | event/day                 |       | EV =      | 1 e                 | vent/day       |       |
|  | EF =              | 250               | days/year       |       | EF =      | 250               | days/year                 |       | EF =      | 14 d                | ays/ycar       |       |
|  | ED =              | 25                | years           |       | ED =      | 1                 | years                     |       | ED =      | 5 y                 | ears           |       |
|  | AT (Nc) =         | 9,125             | days            |       | AT (Nc) = | 365               | days                      |       | AT (Nc) = | = 1,825 d           | ays            |       |
|  | AT (Car) = 25,550 |                   | days            |       | AT (Car)  | = 25,550          | days                      |       | AT (Car)  | = 25,550 d          | ays            |       |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Absorption factors for chromium, iron, manganese, thallium, and vanadium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000) Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

#### Table 10C

### CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR

### REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SOIL

Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) = EPC x IR x E                      | FxED                   |   |
|---|------------------------|---|
| BW x AT   |                        | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                        |   |
| EPC = EPC in Air, mg/m <sup>3</sup>                                 | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate  | BW = Bodyweight        | ·   |
| EF = Exposure Frequency   | AT = Averaging Time    |   |

|                                     | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from         |                      | Industria        | Worker    |        | 4 250     | Construction    |                  | heye,       | History was a | Adolescent 7    |               | 715 00 A |
|-------------------------------------|-------------|---------------|----------------------|----------------------|----------------------|------------------|-----------|--------|-----------|-----------------|------------------|-------------|---------------|-----------------|---------------|----------|
| Analyte                             | RID         | Inhalation    | Surface Soil         | Surface Soil         |                      | take             | Hazard    | Cancer |           | ake             | Hazard           | Cancer      |               | ake             | Hazard        | Cancer   |
|                                     |             | ļ             | (1)                  | Const. Worker (2)    | (mg/                 | kg-day)          | Quotient  | Risk   | (mg/k     | g-day)          | Quotient         | Risk        |               | g-day)          | Quotient      | Risk     |
|                                     | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m <sup>3</sup> ) | (Nc)                 | (Car)            |           |        | (Nc)      | (Car)           |                  |             | (Nc)          | (Car)           |               |          |
| Semivolatile Organic Compounds      |             |               |                      |                      |                      |                  |           |        |           |                 |                  |             | i             |                 |               |          |
| Benzo(a)anthracene                  | N/A         | N/A           | 1.7E-07              | 1.1E-06              |                      | !                |           |        |           |                 |                  | l           |               |                 |               |          |
| Benzo(a)pyrene                      | N/A         | 3.10E+00      | 1.4E-07              | 9.4E-07              |                      | 1.01E-08         |           | 3E-08  |           | 2.62E-09        |                  | 8E-09       |               | 1.27E-11        | 1             | 4E-11    |
| Benzo(b)fluoranthene                | N/A         | N/A           | 1.7E-07              | 1.1E-06              |                      |                  |           |        |           | i i             |                  | 1           | l             |                 |               |          |
| Benzo(k)fluoranthene                | N/A         | N/A           | 1.5E-07              | 9.6E-07              | ł                    |                  |           |        |           |                 |                  | 1           | 1             | ļ               |               |          |
| Chrysene                            | N/A         | N/A           | 2.0E-07              | 1.3E-06              | i                    |                  |           |        | !         |                 |                  |             |               |                 |               |          |
| Dibenz(a,h)anthracene               | N/A         | N/A           | 2.0E-08              | 1.3E-07              |                      |                  |           |        |           |                 |                  |             | 1             | 1               |               | [        |
| ndeno(1,2,3-cd)pyrene               | N/A         | N/A           | 6.6E-08              | 4.3E-07              |                      | l .              |           |        |           |                 |                  |             | 1             |                 | 1             |          |
| Pesticides                          |             | 1             |                      |                      | ]                    |                  |           |        |           |                 |                  |             | 1             |                 |               | 1        |
| Dieldrin                            | N/A         | 1.61E+01      | 1.2E-10              | 7.5E-10              | 1                    | 8.08E-12         |           | 1E-10  |           | 2.09E-12        |                  | 3E-11       |               | 1.01E-14        | i             | 2E-13    |
| Heptachlor epoxide                  | N/A         | 9.10E+00      | 4.0E-10              | 2.6E-09              |                      | 2.79E-11         |           | 3E-10  |           | 7.22E-12        |                  | 7E-11       |               | 3.50E-14        |               | 3E-13    |
| Metals                              | i           |               |                      |                      |                      | 1                |           |        | 1         |                 |                  |             | i             | ł               |               |          |
| Aluminum                            | 1.43E-03    | N/A           | 9.9E-05              | 6.4E-04              | 1.93E-05             | 1                | 1E-02     |        | 1.25E-04  |                 | 9E-02            |             | 1.21E-07      |                 | 8E-05         |          |
| Antimony                            | N/A         | N/A           | 5.4E-08              | 3.5E-07              | ]                    |                  |           |        |           |                 |                  | 1           |               |                 |               |          |
| Arsenic                             | N/A         | 1.51E+01      | 2.5E-07              | 1.6E-06              | İ                    | 1.77E-08         |           | 3E-07  |           | 4.59E-09        |                  | 7E-08       |               | 2.22E-11        | ·             | 3E-10    |
| Cadmium                             | 5.70E-05    | 6.30E+00      | 4.6E-09              | 3.0E-08              | 8.98E-10             | 3.21E-10         | 2E-05     | 2E-09  | 5.81E-09  | 8.30E-11        | 1E-04            | 5E-10       | 5.63E-12      | 4.02E-13        | 1E-07         | 3E-12    |
| Chromium                            | 2.86E-05    | 4.20E+01      | 1.4E-06              | 9.1E-06              | 2.75E-07             | 9.83E-08         | 1E-02     | 4E-06  | 1.78E-06  | 2.54E-08        | 6E-02            | 1E-06       | 1.73E-09      | 1.23E-10        | 6E-05         | 5E-09    |
| Cobalt                              | 5.71E-06    | 9.80E+00      | 1.6E-07              | 1.0E-06              | 3.16E-08             | 1.13E-08         | 6E-03     | 1E-07  | 2.05E-07  | 2.92E-09        | 4E-02            | 3E-08       | 1.98E-10      | 1.42E-11        | 3E-05         | 1E-10    |
| ron                                 | N/A         | N/A           | 3.7E-04              | 2.4E-03              | ]                    |                  |           |        |           |                 |                  |             |               | ŀ               |               |          |
| Manganese                           | 1.43E-05    | N/A           | 1.8E-03              | 1.2E-02              | 3.54E-04             | 1                | 2E+01     | 1      | 2.29E-03  | 1               | 2E+02            |             | 2.22E-06      | i               | 2E-01         |          |
| Nickel                              | N/A         | N/A           | 4.6E-07              | 2.9E-06              |                      | !                |           |        |           | <b>l</b> i      | l                |             |               |                 |               |          |
| Selenium                            | N/A         | N/A           | 1.1E-08              | 7.2E-08              |                      | 1                |           |        | 1         |                 |                  |             |               |                 |               |          |
| Challium Challium                   | N/A         | N/A           | 9.1E-07              | 5.9E-06              |                      |                  |           |        |           |                 |                  | i           |               |                 |               |          |
| Vanadium                            | N/A         | N/A           | 7.3E-07              | 4.7E-06              | 1                    |                  |           |        |           |                 |                  |             |               |                 | -             |          |
| Fotal Hazard Quotient and Cance     | r Rick      |               |                      |                      |                      |                  | 2E+01     | 5E-06  |           |                 | 2E+02            | 1E-06       |               |                 | 2E-01         | 6E-09    |
| Total Triming & South In Burn Owner |             |               |                      | -                    | A                    | ssumptions for I |           | er     | Assu      | imptions for Co | nstruction Wo    | rker        | Assur         | nptions for Add | lescent Tresp | asser    |
|                                     |             |               |                      |                      | EPC =                | EPC Surface O    | nlv       |        | EPC =     | EPC Surface O   | nly for Construc | tion Worker | EPC =         | EPC Surface O   | nly           |          |
|                                     |             |               |                      |                      | BW=                  | 70               |           |        | BW =      | 70              |                  |             | BW=           |                 | kg            |          |
|                                     |             |               |                      |                      | IR =                 |                  | m³/dav    |        | IR =      |                 | m³/day           |             | IR=           | 1.6             | m³/day        |          |
|                                     |             |               |                      |                      | EF =                 |                  | days/year |        | EF =      |                 | days/year        |             | EF =          |                 | days/year     |          |
|                                     |             |               |                      |                      | ED =                 |                  | vears     |        | ED =      |                 | year             |             | ED =          |                 | years         |          |
|                                     |             |               |                      |                      | AT (Nc) =            | 9,125            |           |        | AT (Nc) = |                 | davs             |             | AT (Nc) =     | 1,825           |               |          |
|                                     |             |               |                      |                      | AT(NC) = $AT(Car) =$ | 25,550           |           |        | AT (Nc) = | 25,550          |                  |             | AT (Car) =    | 25,550          |               |          |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

4/6/2006

This EPC was used for the industrial worker and the adolescent trespasser.
 This EPC was used for the construction worker.

#### Table 10D

#### CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) =

EPC x IR x CF x FI x EF x ED

BW x AT

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg

IR = Ingestion Rate
CF = Conversion Factor FI = Fraction Ingested

EF = Exposure Frequency ED = Exposure Duration

BW = Bodyweight AT = Averaging Time Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

|                                    | Oral        | Carc. Slope   | EPC        | , .        | Industria      | ıl Worker      | _ + + 2 - 4.5 | 12 × 17    | Constru         | tion Worker      | en i Postalini. | 不是数 打开     | Adolescent      | Trespasser      | . Tabbidi |
|------------------------------------|-------------|---------------|------------|------------|----------------|----------------|---------------|------------|-----------------|------------------|-----------------|------------|-----------------|-----------------|-----------|
| Analyte                            | RfD         | Oral          | Ditch Soil | In         | take           | Hazard         | Cancer        | Inc        | take            | Hazard           | Cancer          |            | take            | Hazard          | Cancer    |
|                                    |             |               |            | (mg/k      | (g-day)        | Quotient       | Risk          |            | (g-day)         | Quotient         | Risk            |            | (g-day)         | Quotient        | Risk      |
|                                    | (mg/kg-day) | (mg/kg-day)-1 | (mg/kg)    | (Nc)       | (Car)          |                |               | (Nc)       | (Car)           |                  |                 | (Ne)       | (Car)           |                 |           |
| Semivolatile Organic Compounds     |             |               |            |            |                |                |               | 1          |                 |                  | 1               |            | !               | 1               |           |
| Benzo(a)anthracene                 | N/A         | 7.3E-01       | 1.4E+01    |            | 9.78E-07       | 1              | 7E-07         | 1          | 6.46E-07        |                  | 5E-07           |            | 7.67E-08        | {               | 6E-08     |
| Вепго(а)ругепе                     | N/A         | 7.3E+00       | 1.6E+01    |            | 1.12E-06       |                | 8E-06         | 1          | 7.38E-07        |                  | 5E-06           |            | 8.77E-08        |                 | 6E-07     |
| Benzo(b)fluoranthene               | N/A         | 7.3E-01       | 2.2E+01    |            | 1.54E-06       | <u> </u>       | 1E-06         | 1          | 1.01E-06        |                  | 7E-07           |            | 1.21E-07        |                 | 9E-08     |
| Benzo(k)fluoranthene               | N/A         | 7.3E-02       | 2.3E+01    |            | 1.61E-06       | !              | 1E-07         | 1          | 1.06E-06        |                  | 8E-08           |            | 1.26E-07        |                 | 9E-09     |
| Chrysene                           | N/A         | 7.3E-03       | 2.5E+01    |            | 1.75E-06       | 1              | 1E-08         | Į.         | 1.15E-06        |                  | 8E-09           |            | 1.37E-07        | ŀ               | 1E-09     |
| Dibenz(a,h)anthracene              | N/A         | 7.3E+00       | 5.0E+00    |            | 3.49E-07       |                | 3E-06         | 1          | 2.31E-07        |                  | 2E-06           |            | 2.74E-08        |                 | 2E-07     |
| Indeno(1,2,3-cd)pyrene             | N/A         | 7.3E-01       | 1.2E+01    | ľ          | 8.39E-07       |                | 6E-07         |            | 5.54E-07        |                  | 4E-07           | 1          | 6.58E-08        |                 | 5E-08     |
| Metals                             |             |               |            |            |                |                | 1             | 1          |                 |                  |                 | 1          | 1               | l               | İ         |
| Aluminum                           | 1E+00       | N/A           | 1.0E+04    | 2.02E-03   |                | 2E-03          |               | 3.33E-02   |                 | 3E-02            | ļ               | 7.90E-04   |                 | 8E-04           |           |
| Arsenic                            | 3E-04       | 1.5E+00       | 1.0E+02    | 2.04E-05   | 7.27E-06       | 7E-02          | 1E-05         | 3.36E-04   | 4.80E-06        | 1E+00            | 7E-06           | 7.98E-06   | 5.70E-07        | 3E-02           | 9E-07     |
| Cobalt                             | 2E-02       | N/A           | 9.2E+01    | 1.80E-05   |                | 9E-04          |               | 2.97E-04   |                 | 1E-02            |                 | 7.05E-06   |                 | 4E-04           |           |
| Iron                               | 3E-01       | N/A           | 3.0E+04    | 5.95E-03   |                | 2E-02          |               | 9.82E-02   |                 | 3E-01            |                 | 2.33E-03   |                 | 8E-03           | 1         |
| Manganese                          | 2E-02       | N/A           | 1.5E+04    | 2.92E-03   |                | 1E-01          |               | 4.81E-02   |                 | 2E+00            |                 | 1.14E-03   |                 | 5E-02           | 1         |
| Thallium                           | 6E-04       | N/A           | 2.2E+01    | 4.21E-06   |                | 7E-03          |               | 6.94E-05   |                 | 1E-01            |                 | 1.65E-06   |                 | 3E-03           | 1         |
| Vanadium                           | 7E-03       | N/A           | 6.9E+01    | 1.36E-05   |                | 2E-03          |               | 2.24E-04   |                 | 3E-02            |                 | 5.32E-06   |                 | 8E-04           |           |
| Total Hazard Quotient and Cancer R | isk:        |               |            |            |                | 2E-01          | 2E-05         |            |                 | 4E+00            | 2E-05           |            |                 | 9 <b>E-02</b>   | 2E-06     |
|                                    |             |               |            | A          | ssumptions for | Industrial Wor | ker           | A          | Assumptions for | Construction Wor | rker            | Ass        | umptions for Ac | dolescent Tresp | asser     |
|                                    |             |               |            | CF =       | 1E-06          | kg/mg          |               | CF =       | 1E-06           | kg/mg            |                 | CF =       | 1E-06           | kg/mg           |           |
|                                    |             |               |            | EPC=       | EPC Surface O  | nly            |               | EPC=       | EPC Surface O   | nly              |                 | EPC=       | EPC Surface Or  |                 |           |
|                                    |             |               |            | BW=        | 70             | kg             |               | BW=        |                 | kg               |                 | BW=        |                 | kg              |           |
|                                    |             |               |            | IR =       |                | mg/day         |               | IR =       |                 | mg/day           |                 | IR =       |                 | mg/day          |           |
|                                    |             |               |            | FI =       |                | unitless       |               | FI =       |                 | unitless         |                 | FI =       |                 | unitless        |           |
|                                    |             |               |            | EF =       |                | days/year      |               | EF =       |                 | days/year        |                 | EF =       |                 | days/year       |           |
|                                    |             |               |            | ED =       |                | years          |               | ED =       |                 | years            |                 | ED =       |                 | years           |           |
|                                    |             |               |            | AT (Nc) =  | 9,125          | •              |               | AT (Nc) =  |                 | days             |                 | AT (Nc) =  | 1,825<br>25,550 |                 |           |
|                                    |             |               |            | AT (Car) = | 25,550         | days           |               | AT (Car) = | 25,550          | days             |                 | AT (Car) = | 23,330          | uays            |           |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

#### Table 10E

#### CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211

Seneca Army Depot Activity

Equation for Intake (mg/kg-day) = EPC x CF x SA x AF x ABS x EV x EF x ED

BW x AT

BW = Bodyweight

AT = Averaging Time

Variables (Assumptions for Each Receptor are Listed at the Bottom): EPC = Exposure Point Concentration in Ditch Soil, mg/kg

ABS = Absorption Factor

CF = Conversion Factor

SA = Surface Area Contact AF = Adherence Factor

EV = Event Frequency EF = Exposure Frequency ED = Exposure Duration

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Carc. Slope Absorption EPC Industrial Worker Construction Worker Adolescent Trespasser Dermal Absorbed Dose Analyte RM Dermal Factor\* Ditch Soil Absorbed Dose Hazard Cancer Absorbed Dose Hazard Cancer Hazard Cancer Quotient Rick (mg/kg-day) Quotient Risk (mg/kg-day) Quotient Rick (mg/kg-day) (Car) (Car) (unitless) (Nc) (Car) (Nc) (Nc) (mg/kg-day (mg/kg-day)-1 (mg/kg) Semivolatile Organic Compounds 2.52E-07 2E-07 4.10E-08 3E-08 Benzo(a)anthracene 7.3E-01 1.3E-01 1.4E+01 8.40E-07 6E-07 N/A Benzo(a)pyrene N/A 7.3E+00 1.3E-01 1.6E+01 9.59E-07 7E-06 2.88E-07 2E-06 4.68E-08 3F-07 3.96E-07 6.44E-08 Benzo(b)fluoranthene N/A 7.3E-01 1.3E-01 2.2E+01 1.32E-06 1E-06 3E-07 5F\_08 IE-07 4.14E-07 3E-08 6.73E-08 5E-09 Benzo(k)fluoranthene N/A 7.3E-02 1.3E-01 2.3E+01 1.38E-06 4.50E-07 3E-09 7.31E-08 5E-10 N/A 7 3E-03 1.3E-01 2.5E+01 1.50E-06 1E-08 Chrysene Dibenz(a,h)anthracene N/A 1.3E-01 5.0E+00 3.00E-07 2E-06 8.99E-08 7E-07 1.46E-08 1E-07 7.3E+00 3.51E-08 3E-08 Indeno(1,2,3-cd)pyrene N/A 7.3E-01 1.3E-01 1.2E+01 7.20E-07 5F-07 2.16E-07 2E-07 Metals 3.25E-06 3E-06 1.0E-03 1.0E+04 1.33E-05 1E-05 9.98E-05 1E-04 Aluminum 1E+00 N/A 1.44E-06 1E-01 6E-07 9.83E-07 7.02E-08 3E-03 1E-07 3.0E-02 4.03E-06 1E-02 3.02E-05 4.32E-07 Arsenic 3E-04 1.5E+00 1.0E+02 1.19E-07 6E-06 8.90E-07 4E-05 2.90E-08 1E-06 Cobalt 2E-02 1.0E-03 9.2E+01 N/A 9.58E-06 3E-05 3E-01 N/A 1.0E-03 3.0E+04 3.93E-05 1E-04 2.94E-04 1E-03 Iron 4.69E-06 5E-03 2E-02 1.44E-04 2E-01 Manganese 9E-04 N/A 1.0E-03 1.5E+04 1.92E-05 6.77E-09 1E-05 2.08E-07 3E-04 Thallinm 6F-04 N/A 1.0E-03 2.2E+01 2.78E-08 4E-05 6.72E-07 4E-03 2.19E-08 1E-04 Vanadium 2E-04 N/A 1.0E-03 6.9E+01 8.96E-08 5E-04 Total Hazard Quotient and Cancer Risk: 3E-02 1E-05 3E-01 4E-06 8E-03 7E-07

| A          | sumptions for Industrial Worker |           | Assumptions for Construction Worker |            | Assumptions for Adolescent Trespasser |
|------------|---------------------------------|-----------|-------------------------------------|------------|---------------------------------------|
| CF =       | 1E-06 kg/mg                     | CF =      | 1E-06 kg/mg                         | CF =       | 1E-06 kg/mg                           |
| EPC =      | EPC Surface Only                | EPC =     | EPC Surface Only                    | EPC =      | EPC Surface Only                      |
| BW=        | 70 kg                           | BW=       | 70 kg                               | BW =       | 50 kg                                 |
| SA =       | 3,300 cm <sup>2</sup>           | SA =      | 3,300 cm <sup>2</sup>               | SA =       | 5,867 cm <sup>2</sup>                 |
| AF =       | 0.2 mg/cm <sup>2</sup> -event   | AF=       | 0.3 mg/cm <sup>2</sup> -event       | AF =       | 0.07 mg/cm <sup>2</sup> -event        |
| EV =       | 1 event/day                     | EV=       | I event/day                         | EV=        | 1 event/day                           |
| EF =       | 50 days/year                    | EF =      | 250 days/year                       | EF =       | 14 days/year                          |
| ED =       | 25 years                        | ED =      | 1 years                             | ED =       | 5 years                               |
| AT (Nc) =  | 9,125 days                      | AT (Nc) = | = 365 days                          | AT (Nc) =  | 1,825 days                            |
| AT (Car) = | 25,550 days                     | AT (Car)  | = 25,550 days                       | AT (Car) = | = 25,550 days                         |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

N/A= Information not available.

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

<sup>\*</sup> Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Absorption factors for iron, manganese, and thallium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

#### Table 10F

#### CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 DITCH SOIL

#### Seneca Army Depot Activity

| Equation for Intake (mg/kg-day) =                                   | EPC x IR x EF x ED     |   |
|---|------------------------|---|
|   | BW x AT                | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose |
| Variables (Assumptions for Each Receptor are Listed at the Bottom): |                        |   |
| EPC = EPC in Air, mg/m <sup>3</sup>                                 | ED = Exposure Duration | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor    |
| IR = Inhalation Rate  | BW = Bodyweight        | · · · · · · · · · · · · · · · · · · ·                                   |
| EF = Exposure Frequency   | AT = Averaging Time    |   |

|                                       | Inhalation  | Carc. Slope   | Air EPC from         | Air EPC from      |            | Industria        | I Worker            | 1      | 1 1 3 2 2 2 | Construction    | n Worker        | a francisco  | 14,79 1 4 14.5 | Adolescent 1    |                     | manipole ( |
|---------------------------------------|-------------|---------------|----------------------|-------------------|------------|------------------|---------------------|--------|-------------|-----------------|-----------------|--------------|----------------|-----------------|---------------------|------------|
| Analyte                               | RfD         | Inhalation    | Ditch Soil           | Ditch Soil        | In         | take             | Hazard              | Cancer | In          | take            | Hazard          | Cancer       | Int            | take            | Hazard              | Canc       |
|                                       |             |               | (1)                  | Const. Worker (2) | (mg/l      | kg-day)          | Quotient            | Risk   | (mg/k       | (g-day)         | Quotient        | Risk         | (mg/k          | g-day)          | Quotient            | Risk       |
|                                       | (mg/kg-day) | (mg/kg-day)-1 | (mg/m <sup>3</sup> ) | (mg/m³)           | (Nc)       | (Car)            |                     |        | (Nc)        | (Car)           |                 |              | (Nc)           | (Car)           |                     |            |
| emivolatile Organic Compounds         | 1           |               |                      |                   |            |                  |                     |        |             |                 |                 |              |                |                 |                     |            |
| Benzo(a)anthracene                    | N/A         | N/A           | 2.4E-07              | 1.5E-06           |            | 1                |                     | ļ      |             | 1               | ļ               |              | [              | Į.              |                     |            |
| Benzo(a)pyrene                        | N/A         | 3.10E+00      | 2.7E-07              | 1.8E-06           | 1          | 1.90E-08         |                     | 6E-08  |             | 4.92E-09        | 1               | 2E-08        | i              | 2.38E-11        | 1                   | 7E-11      |
| Senzo(b)fluoranthene                  | N/A         | N/A           | 3.7E-07              | 2.4E-06           | 1          | ì                |                     |        | ļ           |                 |                 |              |                | İ               |                     |            |
| Benzo(k)fluoranthene                  | N/A         | N/A           | 3.9E-07              | 2.5E-06           |            |                  | 1                   |        | 1           |                 |                 |              |                |                 |                     |            |
| Chrysene                              | N/A         | N/A           | 4.3E-07              | 2.8E-06           |            |                  | i                   |        | 1           |                 |                 | f            |                |                 |                     |            |
| Dibenz(a,h)anthracene                 | N/A         | N/A           | 8.5E-08              | 5.5E-07           |            |                  |                     |        | 1           | ]               |                 | i            |                |                 | }                   |            |
| Indeno(1,2,3-cd)pyrene                | N/A         | N/A           | 2.0E-07              | 1.3E-06           |            |                  |                     |        | 1           | 1               | ļ               |              |                |                 | !                   |            |
| Metals                                |             |               |                      |                   | 1          | 1                |                     |        |             |                 |                 |              | ļ              |                 |                     |            |
| Aluminum                              | 1.43E-03    | N/A           | 1.8E-04              | 1.1E-03           | 3.43E-05   |                  | 2E-02               |        | 2.22E-04    |                 | 2E-01           |              | 2.15E-07       | !               | 2E-04               |            |
| Arsenic                               | N/A         | 1.51E+01      | 1.8E-06              | 1.1E-05           |            | 1.24E-07         | į.                  | 2E-06  |             | 3.20E-08        |                 | 5E-07        |                | 1.55E-10        |                     | 2E-09      |
| Cobalt                                | 5.71E-06    | 9.80E+00      | 1.6E-06              | 1.0E-05           | 3.06E-07   | 1.09E-07         | 5E-02               | 1E-06  | 1.98E-06    | 2.83E-08        | 3E-01           | 3E-07        | 1.92E-09       | 1.37E-10        | 3E-04               | 1E-09      |
| Iron                                  | N/A         | N/A           | 5.2E-04              | 3.3E-03           |            |                  |                     |        |             |                 |                 |              |                |                 |                     |            |
| Manganese                             | 1.43E-05    | N/A           | 2.5E-04              | 1.6E-03           | 4.96E-05   |                  | 3E+00               | 1      | 3.21E-04    | Į.              | 2E+01           | 1            | 3.11E-07       |                 | 2E-02               |            |
| Thallium                              | N/A         | N/A           | 3.7E-07              | 2.4E-06           | ļ          |                  |                     | ĺ      | 1           | 1               |                 | i            |                |                 |                     |            |
| Vanadium                              | N/A         | N/A           | 1.2E-06              | 7.6E-06           | <u> </u>   |                  |                     |        |             |                 |                 |              |                |                 |                     |            |
| Total Hazard Quotient and Cancer Risk | :           |               |                      |                   |            |                  | 4E+00               | 3E-06  |             |                 | 2E+01           | 8E-07        |                |                 | 2É-02               | 4E-09      |
|                                       |             |               |                      |                   | A          | ssumptions for I | ndustrial Work      | er     | Assu        | mptions for Cor | nstruction Wor  | ker          | Assur          | nptions for Ado | lescent Trespa      | isser      |
|                                       |             |               |                      |                   | EPC =      | EPC Surface O    | nly                 |        | EPC =       | EPC Surface O   | nly for Constru | ction Worker | EPC =          | EPC Surface O   | nly                 |            |
|                                       |             |               |                      |                   | BW =       | 70               | kg                  |        | BW =        | 70              | kg              |              | BW =           | 50              | kg                  |            |
|                                       |             |               |                      |                   | IR =       | 20               | m <sup>3</sup> /day |        | IR =        | 20              | m³/day          |              | IR =           | 1.6             | m <sup>3</sup> /day |            |
|                                       |             |               |                      |                   | EF =       |                  | days/year           |        | EF =        |                 | days/year       |              | EF =           |                 | days/year           |            |
|                                       |             |               |                      |                   | ED =       |                  | years               |        | ED =        |                 | year            |              | ED =           |                 | years               |            |
|                                       |             |               |                      |                   | AT (Nc) =  | 9,125            |                     |        | AT (Nc) =   |                 | days            |              | AT (Nc) =      | 1,825           |                     |            |
|                                       |             |               |                      |                   | AT (Car) = | 25,550           |                     |        | AT (Car) =  | 25,550          |                 |              | AT (Car) =     | 25,550          |                     |            |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data. NA= Information not available.

(2) This EPC was used for the construction worker.

<sup>(1)</sup> This EPC was used for the industrial worker and the adolescent trespasser.

#### Table 10G

# CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121I

Seneca Army Depot Activity

| Equation for Dermal (mg/kg-day) =  | DA x SA x EF x ED x EV<br>BW x AT                                | Equation for Absorbed Dose per Event (DA):  For inorganics: $DA = Kp \times EPC \times t_{exem} \times C$ | K <sub>p</sub> ≈ Permeability Coefficient, cm/hr<br>EPC = EPC in Groundwater, mg/L<br>C = Conversion Factor, 10 <sup>-3</sup> L/cm <sup>3</sup> |   |
|--|--|---|---|---|
| Variables (Assumptions for Each Receptor are Listed at   | the Bottom):   |   |   | Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RfD) |
| DA = Absorbed Dose per Event, mg/cm²-event<br>SA = Surface Area Contact<br>EF = Exposure Frequency<br>EV = Event Frequency | ED = Exposure Duration<br>BW = Bodyweight<br>AT = Averaging Time |   |   | Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor          |

|                             | Dermal      | Carc. Slope   | Permeability | EPC       | Absorbed                    | Industrial Worker |          |                                | Sec. 2.35 | Construction          | on Worker                              | 1.000             | New York States | Adolescent T         | respasser      | 91.9 julija, 201 |        |
|-----------------------------|-------------|---------------|--------------|-----------|-----------------------------|-------------------|----------|--------------------------------|-----------|-----------------------|--|-------------------|-----------------|----------------------|----------------|------------------|--------|
| Analyte                     | RfD         | Dermal        | Coefficient  | Surface   | Dose/Event                  | In                | ıtake    | Hazard                         | Cancer    | Int                   | ake                                    | Hazard            | Cancer          | Inta                 |                | Hazard           | Сапсег |
|                             |             |               | Кp           | Water     |                             | (mg/              | kg-day)  | Quotient                       | Risk      | (mg/kg-day)           |  | ay) Quotient Risk |                 | (mg/kg-day)          |                | Quotient         | Risk   |
|                             | (mg/kg-day) | (mg/kg-day)-1 | (cm/hr)      | (mg/L)    | (mg/cm <sup>2</sup> -event) | (Nc)              | (Car)    |                                |           | (Nc)                  | (Car)                                  |                   |                 | (Nc)                 | (Car)          |                  |        |
|                             |             |               |              |           |                             |                   |          |                                |           |                       |  |                   |                 | 1                    | 1              | 1                |        |
| Metals                      | l l         |               |              |           |                             |                   | D 10     |                                |           |                       |  |                   |                 |                      | 1              |                  |        |
| Iron                        | 3.0.E-01    | N/A           | 1.0.E-03     | 3.41.E+00 | 1.71E-06                    |                   |          | t to Surface Wate<br>pplicable |           | 1.66E-05              |  | 6E-05             |                 | 7.67E-06             |                | 3E-05            |        |
| Manganese                   | 9.3.E-04    | N/A           | 1.0.E-03     | 2.06.E-01 | 1.03E-07                    |                   |          | trial Worker                   |           | 1.00E-06              |  | 1E-03             |                 | 4.64E-07             | l              | 5E-04            |        |
| Vanadium                    | 1.8.E-04    | N/A           | 1.0.E-03     | 3.90.E-03 | 1.95E-09                    |                   | ioi nida | dia worker                     |           | 1.90E-08              |  | 1E-04             |                 | 8.78E-09             |                | 5E-05            |        |
|                             |             |               |              |           |                             |                   |          |                                |           |                       |  | 47.00             | 07.00           |                      |                | CT 04            | 071.00 |
| Total Hazard Quotient and C | ancer Risk: |               |              |           |                             |                   |          |                                |           |                       | ······································ | 1E-03             | 0E+00           | A                    | ptions for Ado | 6E-04            | 0E+00  |
|                             |             |               |              |           |                             |                   |          |                                |           |                       |  | nstruction V      |                 |                      |                |                  | isser  |
|                             |             |               |              |           |                             |                   |          |                                |           | BW =                  |  | kg                |                 | BW=                  |                | kg               | 1      |
|                             |             |               |              |           |                             |                   |          |                                |           | SA =                  | 2,490                                  | cm <sup>2</sup>   |                 | SA =                 | 5,867          | cm <sup>2</sup>  |        |
|                             |             |               |              |           |                             |                   |          |                                |           | EV=                   | 1                                      | event/day         |                 | EV=                  | 1              | event/day        |        |
|                             |             |               |              |           |                             |                   |          |                                |           | EF =                  | 100                                    | days/year         |                 | EF =                 | 14             | days/year        | 1      |
| 1                           |             |               |              |           |                             |                   |          |                                |           | ED =                  | 1                                      | year              |                 | ED =                 | 5              | year             |        |
|                             |             |               |              |           |                             |                   |          |                                |           | t <sub>event</sub> == |  | hr/event          |                 | t <sub>event</sub> = | 0.5            | hr/event         |        |
|                             |             |               |              |           |                             |                   |          |                                |           | AT (Nc) =             | 365                                    | days              |                 | AT (Nc) =            | 1,825          | days             |        |
|                             |             |               |              |           |                             |                   |          |                                |           | AT (Car) =            | 25,550                                 | days              |                 | AT (Car) =           | 25,550         | days             |        |

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

Kp value from Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used. Kp for Cr(VI) was used for chromium.

#### Table 11A

# CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-121C REASONABLE MAXIMUM EXPOSURE (RME)

Seneca Army Depot Activity

|                                    |   |              |                         | DNABLE MAXIMUM EXPOSURE (RME)  CANCER |                         |  |  |  |
|------------------------------------|---|--------------|-------------------------|---------------------------------------|-------------------------|--|--|--|
| RECEPTOR                           | EXPOSURE ROUTE                            | HAZA<br>IND  |                         | RIS                                   |                         |  |  |  |
|                                    |   | Hazard Index | Percent<br>Contribution | Cancer Risk                           | Percent<br>Contribution |  |  |  |
| INDUSTRIAL WORKER                  | Inhalation of Dust in Ambient Air (Soil)  | 1E-01        | 14%                     | 1E-07                                 | 0%                      |  |  |  |
| (Soil)                             | Ingestion of Soil                         | 4E-01        | 40%                     | 1E-05                                 | 58%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 3E-02        | 3%                      | 1E-05                                 | 42%                     |  |  |  |
|                                    | Intake of Groundwater                     | 4E-01        | 43%                     | 0E+00                                 | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>9E-01</u> | 100%                    | <u>3E-05</u>                          | 100%                    |  |  |  |
| INDUSTRIAL WORKER                  | Inhalation of Dust in Ambient Air (Ditch) | 3E-01        | 37%                     | 2E-07                                 | 11%                     |  |  |  |
| (Ditch Soil)                       | Ingestion of Ditch Soil                   | 5E-02        | 7%                      | 1E-06                                 | 59%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 3E-03        | 0%                      | 6E-07                                 | 30%                     |  |  |  |
|                                    | Intake of Groundwater                     | 4E-01        | 56%                     | 0E+00                                 | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>7E-01</u> | 100%                    | 2E-06                                 | 100%                    |  |  |  |
| CONSTRUCTION WORKER                | Inhalation of Dust in Ambient Air (Soil)  | 8E+00        | 86%                     | 2E-07                                 | 13%                     |  |  |  |
| <u>(Soit)</u>                      | Ingestion of Soil                         | 9E-01        | 10%                     | 1E-06                                 | 67%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 3E-02        | 0%                      | 4E-07                                 | 20%                     |  |  |  |
|                                    | Intake of Groundwater                     | 4E-01        | 4%                      | 0E+00                                 | 0%                      |  |  |  |
|                                    | Dermal Contact to Groundwater             | 2E-04        | 0%                      | 0E+00                                 | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>9E+00</u> | 100%                    | <u>2E-06</u>                          | 100%                    |  |  |  |
| CONSTRUCTION WORKER                | Inhalation of Dust in Ambient Air (Ditch) | 2E+00        | 58%                     | 6E-08                                 | 5%                      |  |  |  |
| (Ditch Soil)                       | Ingestion of Ditch Soil                   | 8E-01        | 27%                     | 8E-07                                 | 76%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 2E-02        | 1%                      | 2E-07                                 | 18%                     |  |  |  |
|                                    | Intake of Groundwater                     | 4E-01        | 13%                     | 0E+00                                 | 0%                      |  |  |  |
|                                    | Dermal Contact to Groundwater             | 2E-04        | 0%                      | 0E+00                                 | 0%                      |  |  |  |
|                                    | Dermal Contact to Surface Water           | 4E-02        | 1%                      | 5E-09                                 | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (No & Car)            | <u>3E+00</u> | 100%                    | 1E-06                                 | 100%                    |  |  |  |
| ADOLESCENT TRESPASSER              | Inhalation of Dust in Ambient Air (Soil)  | 9E-04        | 1%                      | 2E-10                                 | 0%                      |  |  |  |
| (Soil)                             | Ingestion of Soil                         | 3E-02        | 31%                     | 2E-07                                 | 69%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 1E-03        | 1%                      | 1E-07                                 | 31%                     |  |  |  |
|                                    | Intake of Groundwater                     | 6E-02        | 66%                     | 0E+00                                 | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>9E-02</u> | 100%                    | <u>3E-07</u>                          | 100%                    |  |  |  |
| ADOLESCENT TRESPASSER (Ditch Soil) | Inhalation of Dust in Ambient Air (Ditch) | 2E-03        | 2%                      | 3E-10                                 | 0%                      |  |  |  |
| (Diteil Suit)                      | Ingestion of Ditch Soil                   | 2E-02        | 18%                     | 1E-07                                 | 69%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 8E-04        | 1%                      | 3E-08                                 | 22%                     |  |  |  |
|                                    | Intake of Groundwater                     | 6E-02        | 60%                     | 0E+00                                 | 0%                      |  |  |  |
|                                    | Dermal Contact to Surface Water           | 2E-02        | 19%                     | 1E-08                                 | 9%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>1E-01</u> | 100%                    | <u>1E-07</u>                          | 100%                    |  |  |  |

#### Attachment 2 Table 11B

# CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-121I REASONABLE MAXIMUM EXPOSURE (RME)

**Seneca Army Depot Activity** 

|                                    |   | REASONABLE MAXIMUM EXPOSURE (RME) |                         |              |                         |  |  |  |
|------------------------------------|---|-----------------------------------|-------------------------|--------------|-------------------------|--|--|--|
| RECEPTOR                           | EXPOSURE ROUTE                            | HAZ.<br>IND                       |                         | CAN:         | -                       |  |  |  |
| RECEI TOX                          | EAF OSCAL ROOTE                           | Hazard Index                      | Percent<br>Contribution | Cancer Risk  | Percent<br>Contribution |  |  |  |
| INDUSTRIAL WORKER                  | Inhalation of Dust in Ambient Air (Soil)  | 2E+01                             | 82%                     | 5E-06        | 6%                      |  |  |  |
| (Soil)                             | Ingestion of Soil                         | 5E+00                             | 16%                     | 4E-05        | 54%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 8E-01                             | 2%                      | 3E-05        | 39%                     |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E+01</u>                      | 100%                    | <u>7E-05</u> | 100%                    |  |  |  |
| INDUSTRIAL WORKER (Ditch Soil)     | Inhalation of Dust in Ambient Air (Ditch) | 4E+00                             | 93%                     | 3E-06        | 7%                      |  |  |  |
| (Ditti Soil)                       | Ingestion of Ditch Soil                   | 2E-01                             | 6%                      | 2E-05        | 59%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 3E-02                             | 1%                      | 1E-05        | 33%                     |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>4E+00</u>                      | 100%                    | <u>4E-05</u> | 100%                    |  |  |  |
| CONSTRUCTION WORKER (Soil)         | Inhalation of Dust in Ambient Air (Soil)  | 2E+02                             | 91%                     | 1E-06        | 15%                     |  |  |  |
| (3011)                             | Ingestion of Soil                         | 1.55E+01                          | 9%                      | 5E-06        | 64%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 1.1E+00                           | 1%                      | 2E-06        | 21%                     |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | 2E+02                             | 100%                    | <u>8E-06</u> | 100%                    |  |  |  |
| CONSTRUCTION WORKER (Ditch Soil)   | Inhalation of Dust in Ambient Air (Ditch) | 2E+01                             | 85%                     | 8E-07        | 4%                      |  |  |  |
| (Ditti Soil)                       | Ingestion of Ditch Soil                   | 4E+00                             | 14%                     | 2E-05        | 77%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 3E-01                             | 1%                      | 4E-06        | 20%                     |  |  |  |
|                                    | Dermal Contact to Surface Water           | 1E-03                             | 0%                      | 0.0E+00      | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E+01</u>                      | 100%                    | <u>2E-05</u> | 100%                    |  |  |  |
| ADOLESCENT TRESPASSER (Soil)       | Inhalation of Dust in Ambient Air (Soil)  | 2E-01                             | 28%                     | 6E-09        | 1%                      |  |  |  |
| (3011)                             | Ingestion of Soil                         | 4E-01                             | 66%                     | 6E-07        | 68%                     |  |  |  |
|                                    | Dermal Contact to Soil                    | 4E-02                             | 7%                      | 3E-07        | 31%                     |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>6E-01</u>                      | 100%                    | <u>9E-07</u> | 100%                    |  |  |  |
| ADOLESCENT TRESPASSER (Ditch Soil) | Inhalation of Dust in Ambient Air (Ditch) | 2E-02                             | 19%                     | 4E-09        | 0%                      |  |  |  |
| (Ditti 30ii)                       | Ingestion of Ditch Soil                   | 9E-02                             | 74%                     | 2E-06        | 74%                     |  |  |  |
|                                    | Dermal Contact to Ditch Soil              | 8E-03                             | 7%                      | 7E-07        | 26%                     |  |  |  |
|                                    | Dermal Contact to Surface Water           | 6E-04                             | 0%                      | 0.0E+00      | 0%                      |  |  |  |
|                                    | TOTAL RECEPTOR RISK (Nc & Car)            | <u>1E-01</u>                      | 100%                    | <u>3E-06</u> | 100%                    |  |  |  |

Shading indicates that the HQ > 1, or the cancer risk is greater than  $10^{-4}$ .

# Attachment 2 Table 12

### Contributing COPCs to Human Health Risk at SEAD-121I SEAD-121I

### Seneca Army Depot Activity

|                       | Exposure  | Contributing | Hazard   | Percent      |
|-----------------------|---|--------------|----------|--------------|
| Receptors             | Route   | COPC         | Quotient | Contribution |
|                       | Inhalation of Dust in Ambient Air Due to Soil       | Manganese    | 2E+01    | 100%         |
| Industrial Worker     | Ingestion of Soil                                   | Manganese    | 4.5E+00  | 95%          |
| madstriar worker      | Dermal Contact to Soil                              | Manganese    | 7E-01    | 97%          |
|                       | Inhalation of Dust in Ambient Air Due to Ditch Soil | Manganese    | 3.5E+00  | 98%          |
|                       | Inhalation of Dust in Ambient Air Due to Soil       | Manganese    | 2E+02    | 100%         |
|                       | Ingestion of Soil                                   | Manganese    | 1.47E+01 | 95%          |
|                       | Dermal Contact to Soil                              | Manganese    | 1E+00    | 97%          |
| Construction Worker   | Inhalation of Dust in Ambient Air Due to Ditch Soil | Manganese    | 2E+01    | 98%          |
|                       | Ingestion of Ditch Soil                             | Arsenic      | 1E+00    | 30%          |
|                       |   | Iron         | 3E-01    | 9%           |
|                       |   | Manganese    | 2E+00    | 56%          |
|                       | Dermal Contact to Ditch Soil                        | Manganese    | 2E-01    | 59%          |
|                       | Inhalation of Dust in Ambient Air Due to Soil       | Manganese    | 2E-01    | 100%         |
| Adolescent Trespasser | Ingestion of Soil                                   | Manganese    | 3.50E-01 | 95%          |
|                       | Dermal Contact to Soil                              | Manganese    | 4E-02    | 97%          |

#### Attachment 2 TABLE 13

# Comparison of SEAD-121C Aluminum, Iron, and Manganese Concentrations with Seneca Background SEAD-121C and SEAD-121I RI

Seneca Army Depot Activity

| Preliminary | SEAI    | D-121C Soil Co | ncentration (n | ng/kg)    | SEAD-1  | 21C Ditch Soil | Concentration | ı (mg/kg) | Seneca Soil Background (mg/kg) |         |         |                      |  |
|-------------|---------|----------------|----------------|-----------|---------|----------------|---------------|-----------|--------------------------------|---------|---------|----------------------|--|
| COC         | Maximum | Minimum        | Average        | 95% UCL 1 | Maximum | Minimum        | Average       | 95% UCL 1 | Maximum                        | Minimum | Average | 95% UCL <sup>2</sup> |  |
| Aluminum    | 17,600  | 1,730          | 11,072         | 11,758    | 21,500  | 2,850          | 9,373         | 12,333    | 20,500                         | 5,560   | 13,206  | 14,315               |  |
| Iron        | 54,100  | 4,230          | 25,557         | 27,507    | 27,300  | 5,650          | 18,305        | 21,728    | 38,600                         | 8,770   | 24,700  | 26489                |  |
| Manganese   | 858     | 213            | 482            | 510       | 918     | 126            | 556           | 688       | 2,380                          | 207     | 609     | 701                  |  |

<sup>1. 95%</sup> UCL calculated in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004c).

<sup>2.</sup> Based on normal distribution.

#### Attachment 2 TABLE 14

# Comparison of SEAD-121I Arsenic Concentrations with Seneca Background SEAD-121C and SEAD-121I RI

#### Seneca Army Depot Activity

| Preliminary          |         |         |         |                      | s       | eneca Soil Back | ground (mg/l | kg)                  |
|----------------------|---------|---------|---------|----------------------|---------|-----------------|--------------|----------------------|
| COC                  | Maximum | Minimum | Average | 95% UCL <sup>1</sup> | Maximum | Minimum         | Average      | 95% UCL <sup>2</sup> |
| Arsenic <sup>3</sup> | 104     | 3.8     | 23      | 57                   | 22      | 2.3             | 5            | 6                    |
| Arsenic <sup>4</sup> | 27.4    | 3.8     | 9.8     | 20                   | 22      | 2.3             | 5            | 6                    |

#### Notes:

- 1. 95% UCL calculated in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004c).
- 2. Based on normal distribution.
- 3. Seven samples collected at the site were included in the evaluation.
- 4. All samples collected from the site except the highest hit of 104 mg/kg were included in the evaluation.

#### Table 15A

#### Comparison Between Aluminum Concentrations in SEAD-121C Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 9:49:13 AM

Sample 1: Workbook = AlMnFedata.xls / Sheet = 121Cdata / Range = '121Cdata'!\$A\$3:\$A\$70 / 68 rows and 1 column (SEAD-121C Soil)

Sample 2: Workbook = AlMnFedata.xls / Sheet = 121Cdata / Range = '!\$C\$3:\$C\$56 / 54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

•

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|---------------------------|----------|-----------|-----------|----------------|
| Varl     | 6            | 8 0                    | 68                        | 1730.000 | 17600.000 | 11072.426 | 3389.584       |
| Var1(2)  | 5            | 4 0                    | 54                        | 5560.000 | 20500.000 | 13205.741 | 4158.638       |

Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 0.663, 0.663 [

| Ratio                | 0.664    |
|----------------------|----------|
| F (Observed value)   | 13.287   |
| F (Critical value)   | 1.003    |
| DF1                  | 67       |
| DF2                  | 53       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |
|                      |          |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Lower-tailed test (assumed different variances for two samples):

95% confidence interval on the difference between the means:

]-Inf, -972.216[

| Difference           | -2133.314 |
|----------------------|-----------|
| t (Observed value)   | -3.050    |
| t (Critical value)   | 1.660     |
| DF                   | 101       |
| p-value (one-tailed) | < 0.0001  |
| alpha                | 0.05      |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

#### Table 15B

## Comparison Between Aluminum Concentrations in SEAD-121C Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 9:54:14 AM

•

Sample 1: Workbook = AlMnFedata.xls / Sheet = 121Cdata / Range = '121Cdata'!\$A\$3:\$A\$70 / 68 rows and 1 column (SEAD-121C Soil)

Sample 2: Workbook = AlMnFedata.xls / Sheet = 121Cdata / Range = '!\$C\$3:\$C\$56 / 54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5 Continuity correction: Yes

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|---------------------------|----------|-----------|-----------|----------------|
| Varl     | 68           | 0                      | 68                        | 1730.000 | 17600.000 | 11072.426 | 3389.584       |
| Var1(2)  | . 54         | 0                      | . 54                      | 5560.000 | 20500.000 | 13205.741 | 4158.638       |

#### Mann-Whitney test / Lower-tailed test:

| U                    | 1327.000  |
|----------------------|-----------|
| Expected value       | 1836.000  |
| Variance (U)         | 37630.786 |
| p-value (one-tailed) | 0.004     |
| alpha                | 0.05      |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.44%.

#### Table 16A

## Comparison Between Iron Concentrations in SEAD-121C Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 12:11:59 PM

Sample 1: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$E\$3:\$E\$70/68 rows and 1 column (SEAD-121C Soil)

•

Sample 2: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$G\$3:\$G\$56/54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

Summary statistics:

| Variable | Observations Obs. with | n missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|------------------------|----------------|---------------------------|----------|-----------|-----------|----------------|
| Var1     | 68                     | 0              | 68                        | 4230.000 | 54100.000 | 25557.132 | 9550.291       |
| Var1(2)  | 54                     | 0              | 54                        | 8770.000 | 38600.000 | 24660.556 | 6853.812       |

#### Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 1.937, 1.937 [

| Ratio                | 1.942    |
|----------------------|----------|
| F (Observed value)   | 38.833   |
| F (Critical value)   | 1.003    |
| DF1                  | 67       |
| DF2                  | 53       |
| p-value (Two-tailed) | < 0.0001 |
| alpha                | 0.05     |
|                      |          |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly different from 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Two-tailed test (assumed different variances for two samples):

95% confidence interval on the difference between the means:

]-2077.203, 3870.357[

| Difference           | 896.577 |
|----------------------|---------|
| t (Observed value)   | 0.603   |
| t (Critical value)   | -2.000  |
| DF                   | 119     |
| p-value (Two-tailed) | 0.548   |
| alpha                | 0.05    |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

#### Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly different from 0.

As the computed p-value is greater than the significance level alpha=0.05, one should accept the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 54.77%.

#### Table 16B

## Comparison Between Iron Concentrations in SEAD-121C Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 12:13:50 PM

Sample 1: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$E\$3:\$E\$70/68 rows and 1 column (SEAD-121C Soil)

Sample 2: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$G\$3:\$G\$56/54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Continuity correction: Yes

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|---------------------------|----------|-----------|-----------|----------------|
| Var1     | 68           | 0                      | 68                        | 4230.000 | 54100.000 | 25557.132 | 9550.291       |
| Var1(2)  | 54           | 0                      | 54                        | 8770.000 | 38600.000 | 24660.556 | 6853.812       |

#### Mann-Whitney test / Two-tailed test:

| U                    | 1879.000  |
|----------------------|-----------|
| Expected value       | 1836.000  |
| Variance (U)         | 37635.388 |
| p-value (Two-tailed) | 0.827     |
| alpha                | 0.05      |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly different from 0.

As the computed p-value is greater than the significance level alpha=0.05, one should accept the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 82.66%.

#### Table 17A

## Comparison Between Manganese Concentrations in SEAD-121C Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 10:01:03 AM

Sample 1: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range ="!\$1\$3:\$1\$70/68 rows and 1 column (SEAD-121C Soil)

Sample 2: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\\$K\$3:\\$K\\$53/51 rows and 1 column (Seneca Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum | Maximum  | Mean    | Std. deviation |
|----------|--------------|------------------------|---------------------------|---------|----------|---------|----------------|
| Var1     | 68           | 0                      | 68                        | 213.000 | 858.000  | 482.338 | 138.653        |
| Var1(2)  | 51           | 0                      | 51                        | 207.000 | 2380.000 | 609.069 | 334.524        |

•

#### Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 0.171, 0.171 [

| Ratio                | 0.172    |
|----------------------|----------|
| F (Observed value)   | 3.436    |
| F (Critical value)   | 1.003    |
| DF1                  | 67       |
| DF2                  | 50       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Lower-tailed test (assumed different variances for two samples);

95% confidence interval on the difference between the means:

]-Inf, -43.645 [

| Difference           | -126.730 |
|----------------------|----------|
|                      | -2.546   |
| t (Observed value)   |          |
| t (Critical value)   | 1.669    |
| DF                   | 63       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

#### Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

#### Table 17B

## Comparison Between Manganese Concentrations in SEAD-121C Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 10:02:07 AM

•

Sample 1: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range="!\$\\$3:\$\\$70/68 rows and 1 column (SEAD-121C Soil)

Sample 2: Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\\$K\\$3:\\$K\\$53/51 rows and 1 column (Seneca Background)

Hypothesized difference (D): 0

Significance level (%): 5 Continuity correction: Yes

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum | Maximum  | Mean    | Std. deviation |
|----------|--------------|------------------------|---------------------------|---------|----------|---------|----------------|
| Var1     | 68           | 0                      | 68                        | 213.000 | 858.000  | 482.338 | 138.653        |
| Var1(2)  | 51           | 0                      | 51                        | 207.000 | 2380.000 | 609.069 | 334.524        |

#### Mann-Whitney test / Lower-tailed test:

| U                    | 1334.500  |
|----------------------|-----------|
| Expected value       | 1734.000  |
| Variance (U)         | 34678.148 |
| p-value (one-tailed) | 0.016     |
| alpha                | 0.05      |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 1.61%.

#### Table 18A

## Comparison Between Aluminum Concentrations in SEAD-121C Ditch Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 9:55:16 AM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\$B\$3:\$B\$12/10 rows and 1 column (SEAD-121C Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\$C\$3:\$C\$56 / 54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

|▼|

#### Summary statistics:

| Variable | Observations | Obs. with r | nissing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|-------------|--------------|---------------------------|----------|-----------|-----------|----------------|
| Var1     | 10           |             | 0            | 10                        | 2850.000 | 21500.000 | 9373.000  | 5106.765       |
| Var1(2)  | 54           |             | 0            | 54                        | 5560.000 | 20500.000 | 13205.741 | 4158.638       |

Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 1.606, 1.606 [

| Ratio                | 1.508    |
|----------------------|----------|
| F (Observed value)   | 30.159   |
| F (Critical value)   | 0.939    |
| DF1                  | 9        |
| DF2                  | 53       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05,

one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Lower-tailed test (assumed different variances for two samples):

95% confidence interval on the difference between the means:

]-Inf, -767.506[

| Difference           | -3832.741 |
|----------------------|-----------|
| t (Observed value)   | -2.240    |
| t (Critical value)   | 1.791     |
| DF                   | 11        |
| p-value (one-tailed) | < 0.0001  |
| alpha                | 0.05      |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

#### Table 18B

## Comparison Between Aluminum Concentrations in SEAD-121C Ditch Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 9:56:20 AM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\\$B\$3:\\$B\$12/10 rows and 1 column (SEAD-121C Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$C\$3:\$C\$56/54 rows and 1 column (SENECA Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Continuity correction: Yes

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs.<br>without<br>missing<br>data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|------------------------------------|----------|-----------|-----------|----------------|
| Var1     | 10           | 0                      | 10                                 | 2850.000 | 21500.000 | 9373.000  | 5106.765       |
| Var1(2)  | 54           | 0                      | 54                                 | 5560.000 | 20500.000 | 13205.741 | 4158.638       |

#### Mann-Whitney test / Lower-tailed test:

| U                    | 143.000  |
|----------------------|----------|
| Expected value       | 270.000  |
| Variance (U)         | 2924.330 |
| p-value (one-tailed) | 0.010    |
| alpha                | 0.05     |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.97%.

#### Table 19A

#### Comparison Between Iron Concentrations in SEAD-121C Ditch Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 9:59:36 AM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range="!\$F\$3:\$F\$12/10 rows and 1 column (SEAD-121C Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$G\$3:\$G\$56/54 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

•

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|---------------------------|----------|-----------|-----------|----------------|
| Var1     | 10           | C                      | 10                        | 5650.000 | 27300.000 | 18305.000 | 5904.727       |
| Var1(2)  | 54           |                        | 54                        | 8770.000 | 38600.000 | 24660.556 | 6853.812       |

#### Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 0.791, 0.791 [

| Ratio                | 0.742    |
|----------------------|----------|
| F (Observed value)   | 14.844   |
| F (Critical value)   | 0.939    |
| DF1                  | 9        |
| DF2                  | 53       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | <br>0.05 |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Lower-tailed test (assumed different variances for two samples):

95% confidence interval on the difference between the means:

]-Inf, -2677.526 [

| Difference           | -6355.556 |
|----------------------|-----------|
| t (Observed value)   | -3.045    |
| t (Critical value)   | 1.762     |
| DF                   | 14        |
| p-value (one-tailed) | < 0.0001  |
| alpha                | 0.05      |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

#### Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

#### Table 19B

#### Comparison Between Iron Concentrations in SEAD-121C Ditch Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 10:00:11 AM Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range="!\$F\$3:\$F\$12/10 rows and 1 column (SEAD-121C Ditch Soil) Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\$G\$3:\$G\$56/54 rows and 1 column (Seneca Soil Background) Hypothesized difference (D): 0

Significance level (%): 5 Continuity correction: Yes

Summary statistics •

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum  | Maximum   | Mean      | Std. deviation |
|----------|--------------|------------------------|---------------------------|----------|-----------|-----------|----------------|
| Var1     | 10           | 0                      | 10                        | 5650.000 | 27300.000 | 18305.000 | 5904.727       |
| Var1(2)  | 54           | 0                      | 54                        | 8770.000 | 38600.000 | 24660.556 | 6853.812       |

#### Mann-Whitney test / Lower-tailed test:

| U                    | 133.000  |
|----------------------|----------|
| Expected value       | 270.000  |
| Variance (U)         | 2924.063 |
| p-value (one-tailed) | 0.006    |
| alpha                | 0.05     |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.58%.

#### Table 20A

## Comparison Between Manganese Concentrations in SEAD-121C Ditch Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 10:02:45 AM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$J\$3:\$J\$12/10 rows and 1 column (SEAD-121C Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$K\$3:\$K\$53/51 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum | Maximum  | Mean    | Std. deviation |
|----------|--------------|------------------------|---------------------------|---------|----------|---------|----------------|
| Var1     | 10           | 0                      | 10                        | 126.000 | 918.000  | 556.400 | 226.822        |
| Var1(2)  | 51           | 0                      | 51                        | 207.000 | 2380.000 | 609.069 | 334.524        |

•

#### Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 0.489, 0.489 [

| Ratio                | 0.460    |
|----------------------|----------|
| F (Observed value)   | 9.195    |
| F (Critical value)   | 0.940    |
| DF1                  | 9        |
| DF2                  | 50       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Lower-tailed test (assumed different variances for two samples);

95% confidence interval on the difference between the means:

]-Inf, 96.007 [

| Difference           | -52.669  |
|----------------------|----------|
| t (Observed value)   | -0.615   |
| t (Critical value)   | 1.735    |
| DF                   | 18       |
| p-value (one-tailed) | < 0.0001 |
| alpha                | 0.05     |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

#### Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly lower than 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

#### Table 20B

#### Comparison Between Manganese Concentrations in SEAD-121C Ditch Soil and Seneca Background - Mann-Whitney Test Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 10:03:20 AM Sample 1:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range='!\$J\$3:\$J\$12/10 rows and 1 column (SEAD-121C Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Cdata/Range=!\\$K\$3:\$K\$53/51 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5 Continuity correction: Yes

• Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data |    | Minimum | Maximum  | Mean    | Std. deviation |
|----------|--------------|------------------------|---------------------------|----|---------|----------|---------|----------------|
| Var1     | 10           | 0                      | •                         | 10 | 126.000 | 918.000  | 556.400 | 226.822        |
| Var1(2)  | 51           | 0                      |                           | 51 | 207.000 | 2380.000 | 609.069 | 334.524        |

#### Mann-Whitney test / Lower-tailed test:

| U                    | 270.500  |
|----------------------|----------|
| Expected value       | 255.000  |
| Variance (U)         | 2634.721 |
| p-value (one-tailed) | 0.622    |
| alpha                | 0.05     |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is greater than the significance level alpha=0.05, one should accept the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 62.24%.

#### Table 21A

#### Comparison Between Arsenic Concentrations in SEAD-121I Ditch Soil and Seneca Background - Student's T Test Seneca Army Depot Activity

XLSTAT 2006 - Two-sample t-test and z-test - on 4/12/2006 at 10:22:28 AM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Idata/Range="\\$A\$3:\$A\$9/ 7 rows and 1 column (SEAD-121I Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Idata/Range="!\$B\$3:\$B\$53/51 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

Significance level (%): 5

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum | Maximum | Mean   | Std. deviation |
|----------|--------------|------------------------|---------------------------|---------|---------|--------|----------------|
| Var1     | 7            | 0                      | 7                         | 3.800   | 104.000 | 23.221 | 36.521         |
| Var1(2)  | 51           | 0                      | 51                        | 2.300   | 21.500  | 5.213  | 2.765          |

#### Fisher's F-test / Two-tailed test:

95% confidence interval on the ratio of variances:

] 193.117, 193.117 [

| Ratio                            | 174.477          |
|----------------------------------|------------------|
| F (Observed value)               | 3489.548         |
| F (Critical value)<br>DF1<br>DF2 | 0.903<br>6<br>50 |
| p-value (Two-<br>tailed)         | < 0.0001         |
| alpha                            | 0.05             |

#### Test interpretation:

H0: The ratio between the variances is not significantly different from 0.

Ha: The ratio between the variances is significantly different from 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

t-test for two independent samples / Two-tailed test (assumed different variances for two samples):

95% confidence interval on the difference between the means:

] -15.786 , 51.803 [

| Difference         | 18.009 |
|--------------------|--------|
| t (Observed value) | 1.304  |
| t (Critical value) | -2.447 |
| DF                 | 6      |
| p-value (Two-      | 0.240  |
| tailed)            | 0.240  |
| alpha              | 0.05   |

The number of degrees of freedom is approximated by the Welch-Satterthwaite formula

The critical t is estimated using the Cochran-Cox approximation

#### Test interpretation:

H0: The difference between the means is not significantly different from 0.

Ha: The difference between the means is significantly different from 0.

As the computed p-value is greater than the significance level alpha=0.05, one should accept the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 23.99%.

#### Attachment 2 Table 21B

## Comparison Between Arsenic Concentrations in SEAD-121I Ditch Soil and Seneca Background - Mann-Whitney Test (Two-Tailed Test) Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 12:18:27 PM

Sample 1:Workbook=AlMnFedata.xls/Sheet=121Idata/Range="!\$A\$3:\$A\$9/7 rows and 1 column (SEAD-121I Ditch Soil)

Sample 2:Workbook=AlMnFedata.xls/Sheet=121Idata/Range="!\$B\$3:\$B\$53/51 rows and 1 column (Seneca Soil Background)

Hypothesized difference (D): 0

•

Significance level (%): 5

Continuity correction: Yes

Summary statistics

#### Summary statistics:

| Variable | Observations | Obs. with missing data | Obs. without missing data | Minimum | Maximum | Mean   | Std. deviation |
|----------|--------------|------------------------|---------------------------|---------|---------|--------|----------------|
| Var1     | 7            | 0                      | 7                         | 3.800   | 104.000 | 23.221 | 36.521         |
| Var1(2)  | 51           | 0                      | 51                        | 2.300   | 21.500  | 5.213  | 2.765          |

#### Mann-Whitney test / Two-tailed test:

| U              | 278.500  |
|----------------|----------|
| Expected value | 178.500  |
| Variance (U)   | 1753.576 |
| p-value (Two-  | 0.017    |
| tailed)        | 0.017    |
| alpha          | 0.05     |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

Ha: The location difference between the samples is significantly different from 0.

As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

The risk to reject the null hypothesis H0 while it is true is lower than 1.75%.

#### Table 21C

## Comparison Between Arsenic Concentrations in SEAD-1211 Ditch Soil and Seneca Background - Mann-Whitney Test (Lower-Tailed Test)

#### Seneca Army Depot Activity

XLSTAT 2006 - Comparison of two samples (Wilcoxon, Mann-Whitney, ...) - on 4/12/2006 at 10:25:18 AM Sample 1:Workbook=AlMnFedata.xls/Sheet=121Idata/Range='!\$A\$3:\$A\$9/7 rows and 1 column (SEAD-121I Ditch Soil) Sample 2:Workbook=AlMnFedata.xls/Sheet=121Idata/Range='!\$B\$3:\$B\$53/51 rows and 1 column (Seneca Soil Background) Hypothesized difference (D): 0

Significance level (%): 5 Continuity correction: Yes

Summary statistics

#### Summary statistics:

| - 1      | ···          |                        | Obs. without |         |         |        |                |
|----------|--------------|------------------------|--------------|---------|---------|--------|----------------|
| Variable | Observations | Obs. with missing data | missing data | Minimum | Maximum | Mean   | Std. deviation |
| Var1     | 7            | 0                      | 7            | 3.800   | 104.000 | 23.221 | 36.521         |
| Var1(2)  | 51           | 0                      | 51           | 2.300   | 21.500  | 5.213  | 2.765          |

#### Mann-Whitney test / Lower-tailed test:

| U              | 278.500  |  |  |
|----------------|----------|--|--|
| Expected value | 178.500  |  |  |
| Variance (U)   | 1753.576 |  |  |
| p-value (one-  |          |  |  |
| tailed)        | 0.992    |  |  |
| alpha          | 0.05     |  |  |
|                |          |  |  |

The exact p-value could not be computed. An approximation has been used to compute the p-value.

#### Test interpretation:

H0: The location difference between the samples is not significantly different from 0.

•

Ha: The location difference between the samples is significantly lower than 0.

As the computed p-value is greater than the significance level alpha=0.05, one should accept the null hypothesis H0.

The risk to reject the null hypothesis H0 while it is true is 99.18%.

## ATTACHMENT 2 TABLE 22

# TOTAL NON-CARCINOGENIC AND CARCINOGENIC RISKS FOR ADOLESCENT TRESPASSER - UNCERTAINTY ANALYSIS

### REASONABLE MAXIMUM EXPOSURE (RME)

SEAD-121C AND SEAD-121I RI Seneca Army Depot Activity

|                  |   | REASONABLE MAXIMUM EXPOSURE (RME) |              |              |              |  |
|------------------|---|-----------------------------------|--------------|--------------|--------------|--|
| Site             |   | HAZARD                            |              | CANCER       |              |  |
|                  | EXPOSURE ROUTE                            | INDEX                             |              | RISK         |              |  |
|                  |   |                                   | Percent      |              | Percent      |  |
|                  |   | Hazard Index                      | Contribution | Cancer Risk  | Contribution |  |
| <u>SEAD-121C</u> | Inhalation of Dust in Ambient Air         | 3E-03                             | 1%           | 5E-10        | 0%           |  |
| (Soil)           | Ingestion of Soil                         | 1E-01                             | 31%          | 8E-07        | 69%          |  |
|                  | Dermal Contact to Soil                    | 5E-03                             | 1%           | 4E-07        | 31%          |  |
|                  | Intake of Groundwater                     | 2E-01                             | 66%          | 0E+00        | 0%           |  |
|                  | TOTAL RECEPTOR RISK (Nc & Car)            | <u>3E-01</u>                      | 100%         | <u>1E-06</u> | 100%         |  |
| <u>SEAD-121C</u> | Inhalation of Dust in Ambient Air (Ditch) | 6E-03                             | 2%           | 1E-09        | 0%           |  |
| (Ditch Soil)     | Ingestion of Ditch Soil                   | 7E-02                             | 18%          | 3E-07        | 69%          |  |
|                  | Dermal Contact to Ditch Soil              | 3E-03                             | 1%           | 1E-07        | 22%          |  |
|                  | Intake of Groundwater                     | 2E-01                             | 60%          | 0E+00        | 0%           |  |
|                  | Dermal Contact to Surface Water           | 7E-02                             | 19%          | 4E-08        | 9%           |  |
|                  | TOTAL RECEPTOR RISK (Nc & Car)            | <u>4E-01</u>                      | 100%         | <u>5E-07</u> | 100%         |  |
| <u>SEAD-121I</u> | Inhalation of Dust in Ambient Air         | 6E-01                             | 28%          | 2E-08        | 1%           |  |
| (Soil)           | Ingestion of Soil                         | 1E+00                             | 66%          | 2E-06        | 68%          |  |
|                  | Dermal Contact to Soil                    | 1E-01                             | 7%           | 1E-06        | 31%          |  |
|                  | TOTAL RECEPTOR RISK (Nc & Car)            | <u>2E+00</u>                      | 100%         | <u>3E-06</u> | 100%         |  |
| SEAD-121I        | Inhalation of Dust in Ambient Air (Ditch) | 8E-02                             | 19%          | 1E-08        | 0%           |  |
| (Ditch Soil)     | Ingestion of Ditch Soil                   | 3E-01                             | 74%          | 7E-06        | 74%          |  |
|                  | Dermal Contact to Ditch Soil              | 3E-02                             | 7%           | 2E-06        | 26%          |  |
|                  | Dermal Contact to Surface Water           | 2E-03                             | 0%           | 0E+00        | 0%           |  |
|                  | TOTAL RECEPTOR RISK (Nc & Car)            | <u>4E-01</u>                      | 100%         | <u>9E-06</u> | 100%         |  |

A 50 days/year exposure frequency was assumed for the adolescent trespasser (11-16 yr).