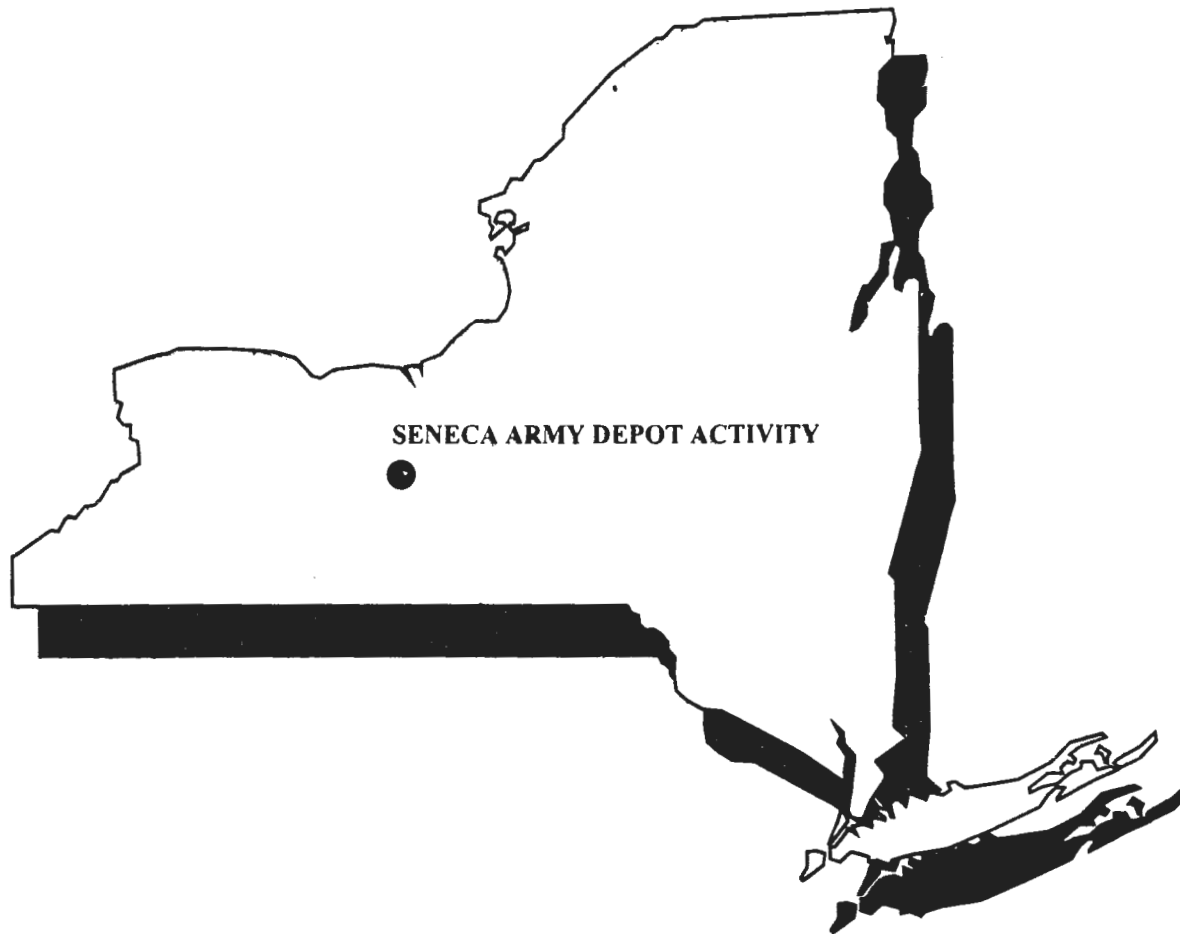


U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA



00856



DRAFT

SEAD-46 and SEAD-57

REMEDIAL INVESTIGATION REPORT

CONTRACT NO. DACA87-95-D-0031
DELIVERY ORDER NO. 0024

DECEMBER 2001

Response to Comments
by
US Army Corps of Engineers, New York District
on
DRAFT SEAD-46 and SEAD-57 RI Report
Seneca Army Depot Activity
Romulus, New York

Issue Date: September 28, 2001
Response Date: December 21, 2001

Comment 1:

Paragraph 1.3, page 1-8 states that there is a potential threat due to metals in soil and groundwater. No turbidity values are shown for groundwater. Also, the TAGM is not the only criteria to be used to determine there is a threat.

Response:

The referenced paragraph is provided in the first section of the Draft RI report, in a subsection that is titled "SITE BACKGROUND." The intent of this subsection is to provide a summary of information that is known about SEAD-57. The referenced paragraph states "The draft final ESI Report (Parsons ES, June 1995) indicated that a potential threat existed due to the presence of metals in soil and groundwater." This summary statement is based on the following citation is provided in the Final Expanded Site Inspection for Three Moderate Priority SWMU's SEAD 11, 13, and 57, dated December 1995, on Page 7-2.

"The ESI conducted at SEAD-57 indicates that impacts to the soils have occurred at this site. Based upon the results of the ESI, it appears that the site soils have been impacted by the release of heavy metals. In particular, the metals aluminum, chromium, copper, lead, nickel, potassium and zinc were identified at concentrations which were significantly above TAGM values and/or present above the TAGM value in a large number of samples. While, in general, these exceedances were only slightly above the associated TAGM values, test pit sample TP57-2 had copper, lead, and zinc concentrations which exceeded their respective TAGM values by at least an order of magnitude. This test pit sample was collected from within the bermed area at SEAD-57.

The results of the groundwater sampling program at SEAD-57 indicated that antimony was present in the groundwater collected from MW57-1 and MW57-3 at concentrations which exceeded both MCL and NY AWQS Class GA criteria. Additionally, magnesium and manganese were detected in the

groundwater sample collected from MW57-2 at concentration which exceeded their respective NW AWQS Class GA criteria.

The results of the ESI suggest that a threat exists due to the presence of heavy metals in site soils. However, it does not appear that these constituents are migrating off-site. Therefore, it is recommended that an RI/FS be conducted to fully define the impacts and the risks from site soils and groundwater.”

Thus, the statement, as it stands, is consistent with test that has been previously issued to oversight agencies. However, given the Army’s comment, this section will be revised to indicate that soils in the area may be impacted by the release of metals from historic operations and activities that were conducted in the area of the SWMU, although the full extent of the potential threat posed by the identified metal concentrations has not been fully determined. Furthermore, the statements regarding metals in groundwater will be similarly changed to indicate that they exceeded regulatory criteria levels. A qualifying statement regarding the presence of turbidity will also be added to this section. The use of the word “threat” will be eliminated.

Comment 2:

The groundwater flow directions are not indicated clearly in the report for both sites. Also, page 1-10, second paragraph, has a misleading indication for groundwater flow. Groundwater flow at various sites on Seneca has typically (but not always) flowed toward surface water flows for the upper aquifer, and has not been determined for the lower aquifer,

Response:

Appropriate local groundwater flow maps have been added to the report. They are now shown as **Figures 3-3** and **3-4** for SEAD-46 and **Figures 3-12** and **3-13** for SEAD-57.

The discussion provided on Page 1-10 is a regional discussion and not a facility- or SWMU-specific discussion. Based on the limited data that has been collected from the bedrock aquifer at SEDA, we have no basis for disputing the validity of the regional discussions presentation of the groundwater flow. SWMU- or facility-specific discussions will be provided in subsequent portions of the report.

Comment 3:

Para 1.4.3 should indicate land use due to base closure.

Response:

A discussion of the post BRAC plan for land use within the depot was previously provided on Page 1-4, and the future land use was displayed on Figure 1-3. However, in response to the Army's comment, the future land use of SEADs 46 and 57 will be re-iterated in Paragraph 1.4.3.

Comment 4:

Fig 1-11 and/or discussions should show whether or not private wells are still in use or where the local water system exists, particularly [sic] near SEAD-46. This is very old data.

Response:

Data that is provided on **Figure 1-11** is the most recent information that is available regarding the location of potential wells surrounding the site. A statement regarding its age and source will be included in the text for clarification.

Based on a telephone discussion with Mr. Holger Karlsen, Jr., Commissioner of Public Works for Seneca County there is no centralized town, village or county records kept regarding who has dug or drilled wells and who is using wells for drinking water in the area surrounding the SEDA. If this information is desired to update text provided in this report, a separate task would need to be performed to collect this data on a house-by-house basis. This would either delay the transmission of the draft RI report to the regulators until the search was completed and summarized, or would need to be completed and summarized before the Draft – Final RI Report was submitted.

Comment 5:

Para 2.2.8, page 2.17 implies that hazardous wastes were stored in the building at SEAD 57 and that LDRs will be considered as ARARs. This is not accurate and should be deleted: Munitions are not hazardous wastes, and it appears that the statement that the building was used to store munitions that were scheduled to be disposed of at the EOD area is an assumption of the writer, and not a fact. Regardless, RCRA storage requirements do not apply to munitions.

Response:

Equivalent language was first contained in the Draft Project Scoping Plan that was submitted in February 1996. Thus, this terminology was brought along to provide continuity between the two documents. However, at the Army's request, this paragraph has been revised to eliminate all reference to the building as a storage location for munitions that were scheduled for disposal or treatment in the EOD area. Additionally, use of the LDRs as ARARs will not be considered.

Comment 6

Page 4-59 contains several statements that need revisions. Again, TAGMs do not determine that there is a potential impact. Additionally, the last paragraph implies that the building debris is contaminated with pesticides and PCBs. According to para 4.3.1.3, PCBs were detected at a J-qualified value of 27 ug/kg. This is two orders of magnitude under the cleanup action level of 1000 ug/kg. These types of statements create enormous, time consuming issues for the Army. .

Response:

The language summarizing the data for SEAD-57 will be revised per the Army's request. Similar changes will also be made to the summary language for SEAD-46 data.

The last paragraph states "The building debris on SEAD-57 contained VOCs, SVOCs, metals, and pesticides/PCBs. There is no established criterion set for building debris." These are true statements, as members of all of the identified groups were present in samples that were collected of the debris. None of the debris data has been compared to any regulatory criteria; thus there is no statement regarding any assessment of impact. Paragraph 4.3.1.3 deals with soil samples and not debris samples. Debris data is discussed in Section 4.3.5. Data for debris is provided in Appendix Table F-11. These results indicate that Aroclor-1254 was detected in 3 of 3 debris samples at concentrations ranging from 110 J to 220 J ug/Kg. Aroclor-1260 was detected in a single sample at a level of 260 J ug/Kg.

Comment 7

General- no turbidity values were given for surface water results; the metals values measured may be misleading due to turbidity.

Response:

Turbidity data was not collected for surface water samples collected from SEAD-46. Turbidity data was collected with the surface water samples collected in SEAD-57 and is provided in Table 3-20. The available data shows that all measured turbidities were below 90 NTUs. Plots of this data did not indicate any strong correlations between increasing turbidity levels and increasing metal concentrations in the surface water. There are a few points (three) in the metal concentration versus turbidity comparisons where slight increases in the concentration of certain metals (i.e., aluminum, barium, iron, manganese, and zinc) do occur, but in other samples with higher turbidity levels the concentration of these metals all decrease, resulting in a saw-tooth shaped correlation. Given the lack of a strong correlation to support the argument that metals content in surface water result from turbidity issues, this discussion is intentionally omitted from the text.

Comment 8

Extensive acetone contamination was found in the data. Generally, the cause is stated as lab contamination. Has this been verified by QA/QC? Was acetone and hexachlorobenzene used in field decontamination? If these solvents were used in the field, cross contamination may have occurred.

Response:

Acetone and hexachlorobenzene were not used in the field for any activity. The standard decontamination solvents used in fieldwork are methanol, isopropanol, and/or hexane. Follow-up conversations with laboratory and data validation personnel indicate that there is growing evidence that an artifact of the SW846 Method 5035 sample collection, preservation and analytical preparation procedure for soils and sediment in which a sodium bisulfate solution is used to preserve the sample either in the laboratory or in the field (we did both for work conducted at SEADs 46 and 57) is the generation of acetone as a by-product. This is believed to be the source of the acetone found in the soil and sediment samples collected from SEADs 46 and 57.

Comment 9

Surface water and ditch soil sample results should be compared to background soil values for all parameters.

Response:

Surface water should not be compared to solid standards.

There are advantages and disadvantages to the use of both the NYSDEC sediment and soil criteria levels. Use of the soil criteria provides some relief for the metals and pesticides, but highlights potential concerns that result from PAH compounds. Use of the sediment criteria provides some relief for the PAH compounds, but highlight potential problems with metals and pesticides. For this report, comparison have been made to both sets of criteria, while the discussions have been modified to indicate that the material at the bottom of the drainage ditches is more closely related to soils based on observations made during the ecological assessments at both site. Additional assessments may need to be performed at both sites in the future to more fully substantiate this argument. This is currently one of the topics receiving additional review based on the September 2001 AEC review meeting.

**DRAFT REMDIAL INVESTIGATION REPORT
SEAD-46 (Small Arms Range) and
SEAD-57 (Explosive Ordnance Disposal Area)**

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK 14541

and

US ARMY CORPS OF ENGINEERS
HUNTSVILLE, ALABAMA 35816

Prepared by:

**Parsons Engineering Science, Inc
30 Dan Road
Canton, Massachusetts 02021**

Contract Number DACA87-95-D-0031
Delivery Order # 0024
736676

December 2001

EXECUTIVE SUMMARY

This document report describes the Remedial Investigation (RI) activities that have been conducted at, and presents the results and findings obtained from, SEAD-46 (i.e., the Small Arms Range) and SEAD-57 (i.e., the Explosive Ordnance Disposal Area) at the Seneca Army Depot Activity (SEDA) 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, and
- identify areas where potential environmental impacts have been identified at each of the areas.

Activities conducted during the RI of these two sites at SESA included performance of: unexploded ordnance avoidance services; land surveying; geophysical surveys; ecological surveys; environmental drilling and test pitting operations; monitoring well installation, development, and testing; sample collection of soil, sediment (i.e., drainage ditch soils), surface water, groundwater and debris; physical and chemical testing of collected samples; data validation; data management; and reporting.

SEDA is included on the federal facilities National Priorities List (NPL) and has been listed since July 13, 1989.

Parsons Engineering Science, Inc. (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.

Based on the analytical results developed as part of this RI, the most significant compounds detected in samples collected from SEAD-46 appear to be limited to metals. Metals have been found in both the shallow and subsurface soils at SEAD-46. Furthermore, based on the analytical results developed for SEAD-57 as part of this effort, the most prevalent compounds detected at the site are metals in the soil. SVOCs and pesticides were also identified in samples that were collected.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Executive Summary	
Table of Contents	i
List of Tables	viii
List of Figures	x
List of Appendices	xii
List of Acronyms	xiii
References	xxi
Data Qualifiers	xxx
1.0 <u>INTRODUCTION</u>	1-1
1.1 PURPOSE OF REPORT	1-1
1.2 GENERAL DESCRIPTION OF SEDA.....	1-1
1.3 SITE BACKGROUND..	1-2
1.3.1 <u>The Small Arms Range – SEAD-46</u>	1-2
1.3.2 <u>The Explosive Ordnance Disposal Area –SEAD-57</u>	1-3
1.4 ENVIRONMENTAL SETTING	1-4
1.4.1 <u>Geology</u>	1-4
1.4.2 <u>Hydrogeology</u>	1-5
1.4.3 <u>Regional/Local Land Use</u>	1-6
1.4.4 <u>Regional Topography</u>	1-7
1.4.5 <u>Regional Climate</u>	1-7
1.5 OFF-SITE WELL INVENTORY	1-9
1.6 REPORT ORGANIZATION	1-9
2.0 <u>STUDY AREA INVESTIGATION</u>	2-1
2.1 INTRODUCTION	2-1
2.2 METHODS AND MATERIALS	2-3
2.2.1 <u>UXO Avoidance</u>	2-3
2.2.2 <u>Site Survey Program</u>	2-3
2.2.3 <u>Geophysical Investigation</u>	2-4
2.2.4 <u>Soil Investigation</u>	2-4
2.2.4.1 . Test Pits(Geophysical Anomaly Excavations)	2-5
2.2.4.2 . Soil Borings	2-5
2.2.4.3 . Surface Soils	2-7
2.2.5 <u>Surface Water and Sediment Investigations</u>	2-8

TABLE OF CONTENTS

(continued)

<u>Section</u>	<u>Page</u>
2.2.6 <u>Groundwater Investigation</u>	2-10
2.2.6.1 . Monitoring Well Installation	2-10
2.2.6.2 . Monitoring Well Development	2-12
2.2.6.3 . Groundwater Sampling.....	2-13
2.2.7 <u>Aquifer Testing Investigation</u>	2-17
2.2.7.1 . Groundwater Level Measurements	2-17
2.2.7.2 . Rising Head Slug Testing	2-17
2.2.8 <u>Building Investigations</u>	2-18
2.2.9 <u>Sample Analyses</u>	2-19
2.2.9.1 . Soil Samples	2-19
2.2.9.2 . Surface Water and Sediment Samples	2-19
2.2.9.3 . Groundwater Samples	2-19
2.2.9.4 . Building Debris Samples	2-19
2.2.10 <u>Qualitative Ecological Assessments</u>	2-19
3.0 <u>DETAILED SITE DESCRIPTION</u>	3-1
3.1 SEAD-46 SMALL ARMS RANGE INVESTIGATIONS.....	3-1
3.1.1 <u>Previous Investigations</u>	3-1
3.1.2 <u>Components of the RI at SEAD-46</u>	3-1
3.1.3 <u>Site Survey</u>	3-1
3.1.4 <u>Soil Investigation</u>	3-2
3.1.4.1 . Berm Sampling Program	3-2
3.1.4.2 . Soil Borings	3-2
3.1.4.3 . Surface Soils	3-3
3.1.5 <u>Surface Water and Sediment</u>	3-4
3.1.6 <u>Groundwater Investigation</u>	3-4
3.1.6.1 . Monitoring Well Installation.....	3-4
3.1.6.2 . Monitoring Well Development	3-5
3.1.6.3 . Groundwater Sampling.....	3-5
3.1.7 <u>Aquifer Testing</u>	3-5
3.1.7.1 . Groundwater Flow Contours.....	3-5
3.1.7.2 . Rising Head Slug Tests	3-6
3.1.8 <u>Ecological Assessment</u>	3-6
3.1.8.1 . Introduction.....	3-6
3.1.8.2 . Site Habitat Characterization	3-7

TABLE OF CONTENTS

(continued)

<u>Section</u>	<u>Page</u>
3.1.8.3 . Meteorology.....	3-7
3.1.8.4 . Physical Site Description.....	3-8
3.1.8.5 . Land Use and Vegetative Cover	3-8
3.1.8.6 . Upland Communities.....	3-9
3.1.8.7 . Wetland Communities.....	3-10
3.1.8.8 . Terrestrial Cultural Communities	3-12
3.1.8.9 . Wildlife Resources	3-12
3.1.8.10 Endangered Species and Significant Habitats	3-13
3.1.8.11 Resource Value to Humans	3-14
3.2 SEAD-57: EXPLOSIVE ORDNANCE DISPOSAL AREA	3-15
3.2.1 <u>Results of Previous Investigations</u>	3-15
3.2.1.1 . SWMU Classification Report	3-15
3.2.1.2 . SEAD-57 ESI... ..	3-15
3.2.2 <u>Components of the ESI and RI at SEAD-57</u>	3-15
3.2.3 <u>Site Survey</u>	3-16
3.2.4 <u>Geophysical Investigations</u>	3-16
3.2.5 <u>Soil Investigation</u>	3-17
3.2.5.1 . Introduction.....	3-17
3.2.5.2 . Subsurface Soils.....	3-17
3.2.5.3 . Surface Soils	3-18
3.2.6 <u>Surface Water and Sediment</u>	3-19
3.2.7 <u>Groundwater Investigation</u>	3-20
3.2.7.1 . Monitoring Well Installation.....	3-20
3.2.7.2 . Monitoring Well Development	3-21
3.2.7.3 . Groundwater Sampling.....	3-21
3.2.8 <u>Aquifer Testing</u>	3-21
3.2.8.1 . Groundwater Flow	3-21
3.2.8.2 . Rising Head Slug Tests	3-22
3.2.9 <u>Building Investigation</u>	3-22
3.2.10 <u>Ecological Assessment</u>	3-23
3.2.10.1 Introduction.....	3-23
3.2.10.2 Site Habitat Characterization	3-23
3.2.10.3 Meteorology.....	3-24
3.2.10.4 Physical Site Description.....	3-24
3.2.10.5 Land Use and Vegetative Cover	3-25

TABLE OF CONTENTS

(continued)

<u>Section</u>	<u>Page</u>
3.2.10.6 Upland Communities	3-25
3.2.10.7 Wetland Communities	3-26
3.2.10.8 Terrestrial Cultural Communities	3-27
3.2.10.9 Wildlife Resources	3-28
3.2.10.10 Endangered Species and Significant Habitats	3-29
3.2.10.11 Resource Value to Humans	3-30
4.0 <u>NATURE OF EXTENT OF IMPACTS</u>	4-1
4.1 INTRODUCTION	4-1
4.2. SEAD-46 SMALL ARMS RANGE	4-3
4.2.1 <u>Soil</u>	4-3
4.2.1.1 Volatile Organic Compounds	4-3
4.2.1.2 Semivolatile Organic Compounds (SVOCs)	4-4
4.2.1.3 Pesticides and PCBs	4-6
4.2.1.4 Nitroaromatics	4-6
4.2.1.5 Herbicides	4-7
4.2.1.6 Metals	4-7
4.2.1.7 Other Constituents	4-8
4.2.2 <u>Groundwater</u>	4-9
4.2.2.1 Volatile Organic Compounds	4-9
4.2.2.2 Semivolatile Organic Compounds (SVOCs)	4-9
4.2.2.3 Pesticides and PCBs	4-10
4.2.2.4 Nitroaromatics	4-10
4.2.2.5 Herbicides	4-10
4.2.2.6 Metals	4-10
4.2.2.7 Other Constituents	4-11
4.2.3 <u>Surface Water</u>	4-12
4.2.3.1 Volatile Organic Compounds	4-12
4.2.3.2 Semivolatile Organic Compounds	4-12
4.2.3.3 Pesticides and PCBs	4-12
4.2.3.4 Nitroaromatics	4-13
4.2.3.5 Herbicides	4-13
4.2.3.6 Metals	4-13
4.2.3.7 Other Constituents	4-14
4.2.4 <u>Drainage Ditch Soil/Sediment</u>	4-14

TABLE OF CONTENTS

(continued)

<u>Section</u>	<u>Page</u>
4.2.4.1 . Volatile Organic Compounds.....	4-15
4.2.4.2 . Semivolatile Organic Compounds	4-16
4.2.4.3 . Pesticides and PCBs	4-16
4.2.4.4 . Nitroaromatics	4-16
4.2.4.5 . Herbicides	4-16
4.2.4.6 . Metals..	4-16
4.2.4.7 . Other Constituents	4-17
4.2.5 <u>Building Material or Debris</u>	4-17
4.2.6 Summary of Extent of Impact at SEAD-46.....	4-17
4.3 SEAD-57, EXPLOSIVE ORDNANCE DISPOSAL AREA	4-19
4.3.1 <u>Soils</u>	4-19
4.3.1.1 . Volatile Organic Compounds (VOCs).....	4-20
4.3.1.2 . Semivolatile Organic Compounds (SVOCs).....	4-20
4.3.1.3 . Pesticides and PCBs	4-21
4.3.1.4 . Nitroaromatics	4-22
4.3.1.5 . Herbicides	4-22
4.3.1.6 . Metals..	4-22
4.3.1.7 . Other Constituents	4-24
4.3.2 <u>Groundwater</u>	4-24
4.3.2.1 . Volatile Organic Compounds (VOCs).....	4-25
4.3.2.2 . Semivolatile Organic Compounds (SVOCs).....	4-25
4.3.2.3 . Pesticides and PCBs	4-25
4.3.2.4 . Nitroaromatics	4-25
4.3.2.5 . Herbicides	4-25
4.3.2.6 . Metals..	4-26
4.3.2.7 . Other Constituents	4-27
4.3.3 <u>Surface Wasters</u>	4-28
4.3.3.1 . Volatile Organic Compounds.....	4-28
4.3.3.2 . Semivolatile Organic Compounds (SVOCs).....	4-28
4.3.3.3 . Pesticides/PCBs	4-29
4.3.3.4 . Nitroaromatics	4-29
4.3.3.5 . Herbicides	4-29
4.3.3.6 . Metals..	4-29
4.3.3.7 . Other Constituents	4-30
4.3.4 <u>Drainage Ditch Soils/Sediments</u>	4-31

TABLE OF CONTENTS

(continued)

<u>Section</u>	<u>Page</u>
4.3.4.1 . Volatile Organic Compounds (VOCs).....	4-32
4.3.4.2 . Semivolatile Organic Compounds (SVOCs).....	4-33
4.3.4.3 . Pesticides/PCBs	4-33
4.3.4.4 . Nitroaromatics	4-33
4.3.4.5 . Herbicides	4-33
4.3.4.6 . Metals..	4-34
4.3.4.7 . Other Constituents	4-34
4.3.5 <u>Debris Samples</u>	4-35
4.3.5.1 Volatile Organic Compounds (VOCs)	4-35
4.3.5.2 . Semivolatile Organic Compounds (SVOCs).....	4-35
4.3.5.3 . Pesticides/PCBs	4-35
4.3.5.4 . Nitroaromatics	4-36
4.3.5.5 . Herbicides	4-36
4.3.5.6 . Metals..	4-36
4.3.5.7 . Other Constituents	4-36
4.3.6 <u>Summary of the Extent of Impact at SEAD-57</u>	4-36

LIST OF TABLES

<u>Table</u>	
<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 and Sediment Sample Analyses
2-4	Summary of Groundwater Sample Analyses
2-5	Summary of Building Debris Sample Analyses
3-1	Summary of Survey Data: SEAD-46
3-2	Summary of Soil Sample Analyses: SEAD-46
3-3	Summary of Surface Water Sample Analyses: SEAD-46
3-4	Summary of Sediment Sample Analyses: SEAD-46
3-5	Summary of Sediment Sample Characteristics: SEAD-46
3-6	SEAD-46 – Monitoring Well Construction Details
3-7	SEAD-46 – Monitoring Well Development Information
3-8	Summary of Groundwater Sample Analyses: SEAD-46
3-9	Monitoring Well Field Sampling Information
3-10	Summary of Groundwater Elevation Data: SEAD-46
3-11	Summary of Hydraulic Conductivity Data: SEAD-46
3-12	Summary of Hydraulic Conductivity Field Results: SEAD-46
3-13	Species Observed at the SEAD 46 Site
3-14	Vegetation Map – Percent Coverage, SEAD-46
3-15	Flora and Fauna Listed by the State of New York and USFWS as Endangered, Threatened or of Special Concern
3-16	Summary of Survey Data: SEAD-57
3-17	Summary of Soil Sample Analyses: SEAD-57
3-18	Summary of Surface Water Sample Analyses: SEAD-57
3-19	Summary of Sediment Sample Analyses: SEAD-57
3-20	Summary of Surface Water Sample Characteristics: SEAD-57
3-21	Summary of Sediment Sample Characteristics: SEAD-57
3-22	SEAD-57 – Monitoring Well Construction Details
3-23	Summary of Monitoring Well Development Data: SEAD-57

LIST OF TABLES

(continued)

<u>Table Number</u>	<u>Title</u>
3-24	Summary of Groundwater Sample Analyses: SEAD-57
3-25	SEAD-57 – Monitoring Well Field Sampling Information
3-26	Summary of Groundwater Elevation Data: SEAD-57
3-27	Data for Slug Test Hydraulic Conductivity Determinations
3-28	Summary of Hydraulic Conductivity Field Results: SEAD-57
3-29	Summary Description of Debris Material Identified During Building Inspection: SEAD-57
3-30	Summary of Debris Material Sample Analyses: SEAD-57
3-31	Species Observed at the SEAD-57 Site
3-32	Vegetation Map – Percent Coverage, SEAD-57
4-1	Summary Statistics – Surface Soil: SEAD-46
4-2	Summary Statistics – All Soil: SEAD-46
4-3	Summary Statistics – Groundwater: SEAD-46
4-4	Summary Statistics – Surface Water: SEAD-46
4-5	Summary Statistics – Drainage Ditch Soil/Sediment: SEAD-46
4-6	Summary Statistics – Shallow Soil: SEAD-57
4-7	Summary Statistics – All Soil: SEAD-57
4-8	Summary Statistics – Groundwater: SEAD-57
4-9	Summary Statistics – Surface Water: SEAD-57
4-10	Summary Statistics – Drainage Ditch Soil/Sediment: SEAD-57
4-11	Summary Statistics – Debris: SEAD-57

LIST OF FIGURES

<u>Figure Number</u>	<u>Title</u>
1-1	Location Map
1-2	Seneca Army Depot Map
1-3	Future Land Use Plan
1-4	Site Map, Small Arms Range, SEAD-46
1-5	Site Map, SEAD-57, Explosive Ordnance Disposal Area
1-6	Regional Geologic Cross Sections
1-7	Wind Rose, Syracuse New York
1-8	Regional/Local Land Use Map
1-9	Wind Roses
1-10	Average Monthly Precipitation in Proximity of Seneca Army Depot Activity
1-11	Distribution of Known Private Wells Near SEAD-46 and SEAD-57
2-1	SEAD-46 Site Map
2-2	SEAD-57 Site Map
3-1	SEAD-46 Sample Locations
3-2	SEAD-46 Surface Soil Sample Locations
3-3	SEAD-46, January 2000 Goundwater Elevation Contours
3-4	SEAD-46, April 2000 Groundwater Elevation Contours
3-5	SEAD-46 Vegetation Map
3-6	SEAD-57, Explosive Ordnance Disposal Area, Location of Geophysical Surveys
3-7	SEAD-57, Explosive Ordnance Area, EM Survey, Apparent Conductivity
3-8	SEAD-57, Explosive Ordnance Area, EM Survey, In Phase Response
3-9	SEAD-57, Explosive Ordnance Area, GPR Profile A-A'
3-10	SEAD-57, Explosive Ordnance Area, GPR Profile B-B'
3-11	SEAD-57 Sampling Locations
3-12	SEAD-57, January 2000 Groundwater Elevation Contours
3-13	SEAD-57, April 2000 Groundwater Elevation Contours
3-14	SEAD-57 Vegetation Map
4-1	SEAD-46 Surface Soil Metals Exceedances
4-2	SEAD-46 Berm Area Soil Metals Exceedances

LIST OF FIGURES

(continued)

<u>Figure Number</u>	<u>Title</u>
4-3	SEAD-46 Groundwater Metals Exceedances
4-4	SEAD-46 Surface Water Metals Exceedances
4-5a	SEAD-46 Ditch Soil Exceedances vs. Sediment Criteria
4-5b	SEAD-46 Ditch Soil Exceedances vs. Soil Criteria
4-6	SEAD-57 Soil Metal Exceedances
4-7	SEAD-57 Berm Area Soil Metal Exceedances
4-8	SEAD-57 Groundwater Exceedances
4-9	SEAD-57 Surface Water Exceedances
4-10a	SEAD-57 Ditch Soil Exceedances vs. Sediment Criteria
4-10b	SEAD-57 Ditch Soil Exceedances vs. Soil Criteria

LIST OF APPENDICES

- Appendix A Groundwater Sampling Procedure, Low Flow Pump Purging and Sampling
- Appendix B Soil Boring and Test Pit Logs
- Appendix C Slug Test Data and Hydraulic Conductivity Results
- Appendix D Monitoring Well Installation Diagrams
- Appendix E Grain Size Analysis Results for Soils and Sediments
- Soils
 - Sediments
- Appendix F Analytical Results
- Building Soil/Debris
 - Soil
 - Groundwater
 - Surface Water
 - Sediment
 - Soil Analysis Results from Pond Area
 - Background Soil Data
 - Background Groundwater Data

LIST OF ACRONYMS

ABS	Absorption Fraction
ACBM	Asbestos Containing Building Material
AET	Actual Evapotranspiration
AMC	U.S. Army Material Command
AOC	Area of Concern
AQCR	Genesee-Finger Lakes Air Quality Control Region
1,2-DCA	1,2-Dichloroethane
1,2,-DCE	1,2-Dichloroethylene or 1,2-Dichloroethene (total)
2,4,5-TP	Silvex
ARAR	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AW	Drilling Rod Size
ATSDR	Agency for Toxic Substances and Disease Registry
AWQS	Ambient Water Quality Standards
B	Boring
BAF	Bioaccumulation Factor
BALAT	Benthic Aquatic Life Acute Toxicity Criteria
BALCT	Benthic Aquatic Life Chronic Toxicity Criteria
BAP	Benzo(a)pyrene
BCF	Bioconcentration Factor
BDL	Below Detection Limit
bgs	below grade surface
BOD	Biological Oxygen Demand
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
C	Carcinogenic Risk
CEC	Cation Exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
Cl	Chloride
CLP	Contract Laboratory Program

LIST OF ACRONYMS

(continued)

cm	Centimeters
cm/sec	Centimeters per second
CME	Central Mine Equipment
COC	Chemical of Concern
COD	Chemical Oxygen Demand
COPC	Chemical of Potential Concern
CRAVE	USEPA Carcinogen Risk Assessment Verification Endeavor
CRT	Cathode Ray Tube
CSM	Conceptual Site Model
CT	Central Tendency
CV	Coefficient of Variance
DCE	Dichloroethylene or Dichloroethene
DDD	Dichlorodiphenyldichloroethane or 1,1'-(2,2-dichloroethylidene)bis[4-chlorobenzene]; chemical abstract number 72-54-8
DDE	Dichlorodiphenyldichloroethylene or 2,2-bis(4-chlorophenyl)-1,1-dichloroethylene; chemical abstract number 72-55-9
DDT	Dichlorodiphenyltrichloroethane or 2,2-bis(p-chlorophenyl)-1,1,1-trichloroethane; chemical abstract number 50-29-3
DES	Diethyl Stilbestrol
DO	Dissolved Oxygen
DOA	Department of the Army
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DWQS	Drinking Water Quality Standard
Eh	Oxidation Reduction Potential
EEC	Expected Exposure Point Concentration
EF	Exposure Factors
EIS	Environmental Impact Statement
EM	Electromagnetic
EMSOFT	Emission Model for Soil Organic Fate and Transport
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency

LIST OF ACRONYMS

(continued)

EPC	Explosive Point Concentration
EPM	Equivalent Porous Media
EQ	Ecological Quotient
ERA	Ecological Risk Assessment
ERQ	Ecological Risk Quotient
ESE	Environmental Science and Engineering
ESF	Environmental Science and Forestry
ESI	Expanded Site Inspection
FDA	Food and Drug Administration
FI	Fraction Ingested
FMP	Forest Management Plan
FS	Feasibility Study
ft	feet or foot
ft/day	Feet per day
ft/ft	Feet per foot
ft/sec	Feet per second
ft/yr	Feet per year
FWMP	Fish and Wildlife Management Plan
FWIA	Fish and Wildlife Impact Analysis
g	gram
GAE	Geophysical anomaly excavations
GC	Gas chromatograph
GC/MS	Gas chromatograph/Mass spectrum
gpm	Gallons per minute
GPR	Ground penetrating radar
GPS	Global Positioning System
GSSI	Geophysical Survey Systems, Inc.
HEAST	Health Effects Assessment Summary Tables
HHB	Human Health Bioaccumulation Criteria
HI	Hazard Index
HMX	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine; chemical abstract number 2691-41-0

LIST OF ACRONYMS

(continued)

HQ	Core Barrel Size
HSDB	Hazardous Substances Data Bank
I	Infiltration
IAG	Interagency Agreement
ICF	ICF Technology, Incorporated
I.D.	Inside diameter
IR	Ingestion Rate
IRIS	Integrated Risk Information System
IRP	Installation Restoration Program
lb(s)	pound(s)
LEL	Lowest Effect Level
LOAEL	Lowest Observed Adverse Effect Level
LOT	Limit of Tolerance
LRA	Local Redevelopment Authority
L/min	Liters per minute
m	meter
MCL	Maximum Contaminant Level
MCPA	(4-Chloro-o-tolyloxy)acetic acid or (4-Chloro-2-methylphenoxy)acetic acid; chemical abstract number 94-74-6
MCRW	Microwell
MCPP	4-Chloro-2-Methylphenoxy-2-propionic acid
mg/Kg	Milligrams per kilogram
mg/L	Micrograms per liter
mg/m ³	milligrams/cubic meter
MHz	Megahertz
MIE	Monitoring Instruments for the Environment, Inc.
mi	mile
mL(s)	milliliter(s)
ML	Inorganic Silt
mL/g	milliliter per gram
mL/min	milliliter per minute
mmhos/m	Millimhos per meter

LIST OF ACRONYMS

(continued)

mmHg	Millimeters Mercury
MRD	Missouri River Division
m/s	meter per second
MSL	Mean sea level
MW	Monitoring Well
NA	Not Applicable or Not Available
NAVD	North American Vertical Datum
NBS	National Bureau of Standards
Nc	Noncarcinogenic
ND	Not detected
NOAA	National Oceanic and Atmospheric Administration
NOAEL	No Observed Adverse Effect Level
NO ₂ /N	Nitrite-Nitrogen
NO ₃ /N	Nitrate-Nitrogen
NPL	National Priority List
NRMP	National Resources Management Plan
NSF	National Sanitation Foundation
NTU	Nephelometric turbidity units
NW	Drilling Rod Designation
NWI	National Wildlife Institute
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OB	Open Burning
ODAST	One Dimensional Analytical Solute Transport
ORP	Oxidation-reduction potential
OU	Operational Unit
OV	Specific Ovid Quadrangle
OVM	Organic Vapor Meter
PAH(s)	Polynuclear aromatic hydrocarbon(s)

LIST OF ACRONYMS

(continued)

Parsons or Parsons ES	Parsons Engineering Science, Inc.
PCB(s)	Plychlorinated Biphenyl(s)
PDM	Miniature Real-time Aerosol Monitor Model
PERC	Percolation
PET	Potential Evapo Transpiration
PID	Photoionization detector
ppm	part per million or parts per million
ppmv	part per million or parts per million by volume
PR	Percent Recovery
PSCR	Preliminary Site Characterization Report
Psi	Pounds per square inch
PT	Monitoring Well
PVC	Polyvinyl Chloride
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RF	Response Factor
RfC	Reference Concentration
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
RPD	Relative Percent Difference
RQD	Rock Quality Designation
SAF	Society of American Foresters
SARA	Superfund Amendments and Reauthorization Act
SB	Soil Boring
SCS	Soil Conservation Service
SD	Sediment
SDEF	Standard Default Exposure Factors
SDG	Sample Delivery Group

LIST OF ACRONYMS

(continued)

SEAD	Seneca Army Depot (old name)
SEDA	Seneca Army Depot Activity
Sec	Seconds
SF	Slope Factor
SFF	Site Foraging Factor
SI	Site Investigation
SIPT	Seismic Interpretation Program Terminal
SIR	Subsurface Interface
SO ₄	Sulfate
SOP	Standard Operating Procedures
SOW	Scope of Work
SQL	Sample Quantitation Limits
SS	Shallow soil sampling location designator
ST	Soil Moisture
STF	Soil Transport and Fate
SUNY-ESF	State University of NY College of Environmental Science and Forestry
SVOC(s)	Semi-Volatile Organic Compound(s)
SW	Sediment and surface water sample station
SWMU(s)	Solid Waste Management Unit(s)
TAGM	New York State Technical and Administrative Guidance Memorandum
TAL	Target analyte list
TCL	Target compound list
TEC	Toxicological Endpoint Concentration
TEF	Toxicity Equivalency Factor
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl/Nitrogen
TOC	Total Organic Carbon
TOX	Total Organic Halogens
TP	Test Pit
TPH	Total Petroleum Hydrocarbon
TRPH	Total Recovered Petroleum Hydrocarbon
TRV	Toxicity Reference Value
TS	Total Solids

LIST OF ACRONYMS

(continued)

ug/g	Micrograms per gram
ug/wp	Micrograms per wipe
ug/Kg	Micrograms per kilogram
UCL	Upper Confidence Limit
URF	Unit Risk Factor
USACE	United States Army Corps of Engineers
USAEHA	United States Army Environmental Hygiene Agency
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UV/VIS	Ultraviolet/Visible
UXB	Unexploded Ordnance Clearance Subcontractor
UXO	Unexploded Ordnance
VLF-EM	Very Low Frequency Electromagnetic
VOA	Volatile organic analyte
VOC(s)	Volatile Organic Compound(s)
Vs	Volt Second
WB	Wildlife Bioaccumulation
WRS	Wilcoxon Rank Sum Test
YSI	YSI Incorporated

REFERENCES

- American Geophysical Union, 1984. Groundwater Transport: Handbook of Mathematical Models, pp. 5-22.
- American Society for Testing and Materials, (ASTM) 1984 Methods for Penetration Test and Split-Barrel Sampling of Soils: D-1586-84. Volume 04.08.
- Anderson, M.P., 1979, Using Models to Simulate the Movement of Contaminants Through Groundwater Flow Systems, Critical Reviews in Environmental Control, v. 9, no. 2, pp. 97-156.
- Bouwer H. and Rice R.C., 1976, A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, Volume 12, No. 3, pp. 423-428.
- Bouwer H. and Rice R.C., 1989, The Bouwer and Rice Slug Test - An Update, Groundwater, Volume 27, No. 3, pp 304-309.
- Brett, C.E., Dick, V.B, Baird, G.C., 1991, "Comparative Taphonomy and Paleoecology of Middle Devonian 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.
- Buffington, B., 1991, Significant Habitat Unit, N.Y.S. Dept. Envir. Conservation. Personal communications with R.B. Olsen, Chas. T. Main, Inc. October 8, 1991, Seneca
- Butler, J.J., Jr., McElwee, C.D., and Liu, W.Z., 1996, Improving the quality of parameter estimates obtained from slug tests: Ground Water, v. 34, no. 3, pp. 480-490.
- Cornell University, 1967. Land Use Report.
- Cowardin, L.M., et. al., December, 1979, Classification of Wetlands and Deepwater Habitats of the United States, U.S. Fish and Wildlife Service, U.S. Department of the Interior.
- Crain, L.J., "Groundwater Resources of the Western Oswego River Basin, New York". U.S. Geological Survey and State of New York Basin Planning Report ORB-5, 1974.

- Cravens, Stuart J. and Lon C. Ruedisili, 1987, "Water Movement in Till of East-Central South Dakota." *Groundwater*, Vol 25, No. 5, September-October.
- Dalrymple, B.W., 1978, *North American game animals*, Times Mirror Magazines, Inc., 516 pp.
- Davis, Stanley N, and Roger J.M. DeWiest, 1966. *Hydrogeology*. John Wiley and Sons, Inc., New York.
- de Marsily, Ghislain, 1986. *Quantitative Hydrogeology*, Academic Press, Inc., Austin.
- Dragun, James, 1988. *The Soil Chemistry of Hazardous Materials*. The Hazardous Materials Control Research Institute.
- Driscoll, F.G., 1988, *Groundwater and Wells*.
- Federal Facilities Agreement under CERCLA Section 120. Docket Number: II-CERCLA-FFA-00202, in the Matter of Seneca Army Depot, Romulus, New York, 1992.
- Federal Interagency Committee for Wetland Delineation, 1989, *Unified Federal Method for Wetland Delineation*.
- Fetter, C.W. Jr., 1980. *Applied Hydrogeology*. Charles E. Merrill Publishing Co., Columbus, Ohio
- Freeze, R.A. and Cherry, J.A., 1979. *Groundwater*, Prentice-Hall, Inc. Englewood Cliffs, New Jersey 07632, 604 pp.
- 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.
- Holzworth, George C., "Mixing Heights, Windspeed, and Potential for Urban Air Pollution throughout the Contiguous United States," January 1972.
- Houlsby, A.C., 1976. "Routine Interpretation of the Lugeon Water-Test." *Quarterly Journal of Engineering Geology*. Vol. 9, pp. 303-313.

- Hutton, 1972, Soil Survey of Seneca County, N.Y, U.S. Department of Agriculture, Soil Conservation Service.
- Hyder, Z, and Butler, J.J., 1995, Slug Tests in Unconfined Formations: An Assessment of the Bouwer and Rice Technique Vol. 33, pp. 16-22.
- Installation Restoration Program Toxicity Guide. 1987.
- Jones, LaDon, Tracy Lemar, and Chin-Ta Tsai, 1992. "Results of Two Pumping Tests in Wisconsin Age Weathered Till in Iowa." *Groundwater*, Vol 30, No. 4, July-August.
- Keller, C.K., G. Van Der Kamp, and J.A. Cherry, 1988. "Hydrogeology of Two Saskatchewan Tills, I. Fractures, Bulk Permeability, and Spatial Variability of Downward Flow." *Journal of Hydrology*, 101:97-121.
- Lasala, A.M., Jr., 1968. *Groundwater Resources of the Erie-Niagra Basin, New York. Basic Planning Report ENB-3, State of New York Conservation Department with Resources Commission.*
- Martin and Johnson, 1989. *Hazardous Waste Management Engineering.* Edward J. Martin, and James H. Johnson, Jr., editors. New York: Van Nostrand Reinhold Company.
- Merrin, 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.*
- Michel, R. L. and Kraemer, F. 1995. *Journal of Hydrology*. Vol. 164. pp. 1-18
- Morrison, R., 1992, *Forest Resource Management Bureau, N.Y.S. Dept. Envir. Conservation, Personal Communication with R.B. Olson, Chas. T. Main, Inc.*
- 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.*

- Muller, E.H., and Cadwell, D.H., 1986. Surficial Geologic Map of New York State Finger Lakes Sheet Survey, Map, and Chart Series No. 40.
- National Oceanic and Atmospheric Administration (NOAA), 1990. Climatic Atlas of the United States.
- New York State Department of Transportation (NYSDOT), 1978. Quadrangles for Romulus, New York, and Geneva South.
- New York State's Solid Waste Management Regulations, 6NYCRR Part 360.
- New York State, Division Technical and Administrative Guidance Memorandum (TAGM): Fish and Wildlife Impact Analysis for inactive Hazardous Waste Sites; October 1994.
- New York State Drinking Water Regulations, 10 NYCRR Part 5.
- New York Division of Water Technical and Operational Guidance Series, 1998. Ambient Water Quality Standards (NYAWQS) and Guidance Values (1.1.1), June 1998.
- Northeast Regional Climate Center, Monthly Precipitation Data (1958-1992). Aurora Research Farm, Cornell University, Ithaca, New York.
- NYSDEC, 1985. NYSDEC Article 24 Freshwater Wetlands Classification and Delineation Report and Maps.
- NYSDEC, 1988. "Technical and Administrative Guidance Memorandum # 4015 Regarding Alteration of Groundwater Samples Collected For Metals Analysis", September 30, 1988.
- NYSDEC, 1991. "Technical and Administrative Guidance Memorandum, Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites", June 18, 1991.
- NYSDEC, 1993a. Division of Water Technical and Operations Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values. October 1993.
- NYSDEC, 1993b. Technical Guidance for Screening of Contaminated Sediments. November 1993.

- NYSDEC, 1994a. Technical and Administrative Guidance Memorandum # 4046: Determination of Soil Cleanup Objectives And Cleanup Levels”, January 24, 1994.
- NYSDEC, 1994b. Technical and Administrative Guidance Memorandum (TAGM): Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites, October 1994
- NYSDEC, 1994c. Wildlife Resources Center, Natural Heritage Program, 1994. Threatened and Endangered Species and Significant Habitat Report.
- NYSDEC, 1998, Division of Water Technical and Operational Guidance Series (1.1.1). Ambient Water Quality Standards and Guidance Values, June 1998..
- NYSDEC, 1999, Technical Guidance for Screening of Contaminated Sediments.
- NYSOGS. 1998. Wetland Delineation Report for the New York State Department of Correctional Services.
- Parsons Engineering Science, Inc., 1995a. SWMU Classification Report, December 1995.
- Parsons Engineering Science, Inc., 1995b. Generic Installation Remedial Investigation/Feasibility Study (RI/FS) Workplan for Seneca Army Depot Activity, Final, August 1995.
- Parsons Engineering Science, Inc., 1996. SEAD-45 and SEAD-57, DRAFT Project Scoping Plan, February 1996.
- Parsons Engineering Science, Inc., 1997. SEAD-46, DRAFT FINAL Project Scoping Plan, November 1997.
- Parsons Engineering Science, Inc., 1995e. Generic Installation RI/FS Workplan, August, 1995.
- Parsons Engineering Science, Inc., 1995b. Final Expanded Site Inspection Three Moderate Priority SWMU’s – SEAD 11, 13, and 57, December 1995.
- Ravi, V. and Johnson, J.A., VLEACH-A One Dimensional Finite Difference Vadose Zone Leaching Model, Manual and Software: ver. 2.2a, 1996.

Refuge, Seneca Falls, New York Final Report 3. New York Cooperative Wildlife Research Unit. 59 pp.

Region 8, Personal communication with R.B. Olson, Chas. T. Main, Inc. February 27, 1992.

Reschke, 1990. Ecological Communities of New York State, New York Natural Heritage Program, NYSDEC, March, 1990.

Sax, N.I. 1984. Dangerous Properties of Industrial Chemicals. 6th Ed.

Sax, N.I. and R.J. Lewis, Sr. (ed.), 1989. Dangerous Properties of Industrial Materials, vol. 1, 7(2): 13-35. Van Nostrand Reinhold, New York, New York.

Seneca Army Depot (SEDA), 1992a. Seneca Army Depot Fish and Wildlife Management Plan.

Seneca Army Depot (SEDA), 1992b. Seneca Army Depot Forest Management Plan.

Seneca Army Depot (SEDA), 1992c. Natural Resources Management Plan.

Seneca Army Depot (SEDA), 1995. Seneca Army Depot Activity Wetlands, Fish and Wildlife Plan: A Habitat Based Inventory and Management Plan Including Guidelines for Fisheries, North American Waterfowl Plan Goals and Nongame Birds. December.

Seneca Chamber of Commerce 1991, Seneca County Vineyards.

Sims, 1990. "Soil Remediation Techniques at Uncontrolled Hazardous Waste Sites, a Critical Review," Journal of the Air and Waste Management Association, (May 1990) pp. 703-732.

Smith, C.L., 1985, The Inland Fishes of New York State, New York State Department of Env. Cons. [522 pp].

Society of American Foresters, 1963. Atlas of Forestry in New York.

Society of American Foresters, 1973. Atlas of Forestry in New York.

Thorntwaite and J.R., Mather, 1957. Publications in Climatology, Volume X, Number 3;

- Todd, David Keith, 1980. Groundwater Hydrology. John Wiley & Sons, New York. (2nd ed.)
- U.S. Army Environmental Hygiene Agency (USAEHA), 1985. Hazardous Waste Study No. 37-26-0479-85.
- U.S. Army Environmental Hygiene Agency (USAEHA), 1987. Evaluation of Solid Waste Management Units, Seneca Army Depot, Interim Final Report, Groundwater Contamination Survey, No. 38-26-0868-88.
- U.S. Army Environmental Hygiene Agency (USAEHA), 1987b. Geohydrologic Study No.38-26-0313-88, Seneca Army Depot, Romulus, New York, 13-21, October 1987.
- U.S. Army Toxic and Hazardous Materials Agency (USATHMA), 1980, Installation Assessment of Seneca Army Depot, Report No. 157, AMXTH-IR-A-157, January 1980.
- U.S. Department of Agriculture, Soil Conservation Service, April 1972 Soil Survey, Seneca County New York.
- U.S. Department of Agriculture, Soil Conservation Service, 1989. New York State Watershed Map, Seneca County New York Soil Survey.
- U.S. Department of Commerce, 1983. Climate Atlas of the United States.
- USEPA, 1975. Use of the Water Balance Method for Predicting Leachate Generation from Solid Waste Disposal Sites.
- USEPA, 1983. Hazardous Waste Land Treatment (revised edition). Office of Solid Waste and Emergency Response. Washington, D.C. SW-874.
- USEPA, 1988c. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. EPA/540/G-88/004. Washington, D.C. U.S. Environmental Protection Agency.
- USEPA, 1988d. Interim Final "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA ", OSWER Directive 9344.3-01, Office of Emergency and Remedial Response, October, 1988.
- USEPA. 1989f. Methods for Evaluating the Attainment of Cleanup Standards. Vol. 3

- USEPA, 1989g. Handbook of Suggested Practice for the Design and Installation of Groundwater Monitoring Wells, EPA 600/A-89/034.
- USEPA, 1989i. Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference. EPA/600/3-89/013. Washington, D.C., March, 1989.
- USEPA, 1990b. Guidance for Data Usability in Risk Assessment. EPA/540/G-90/008, October 1990.
- USEPA. 1994f. Statistical Methods for Evaluating the Attainment of Cleanup Standards.
- USEPA, 1995b. Final Water Quality Guidance for the Great Lakes System; Final Rule. 40 CFR Parts 9, 122, 123, 131, and 132.
- USEPA, 1996e. Soil Transport and Fate Database.
- USEPA. 1998d. Final USEPA Region II Low Stress (Low Flow) Groundwater Sampling Standard Operating Procedure, March 20, 1998.
- USEPA, 2000. Drinking Water Standards and Health Advisories, EPA 822-B-00-001, USEPA, Washington, DC.
- U.S. Fish and Wildlife Services, 1990, 1991a, 1991b, Montezuma National Wildlife Refuge.
- U.S. Fish and Wildlife Services, 1991. National Wetlands Inventory, Ovid, New York, 7-1/2 minute Quadrangle Map.
- U.S. Fish and Wildlife Services, 1996. Rare Species Survey- Seneca Army Depot Activity.
- U.S. Geological Map of New York State, 1978.
- U.S. Geological Survey Quadrangle Maps, Towns of Ovid and Dresden, New York, 1970.
Unconfined Aquifers with Completely or Partially Penetrating Wells, Water.
- Water Information Center, "Water Atlas of the United States," 1973.
- Wentsel, R.S., T.W. LaPoint, M. Simini, R.T. Checkai, D. Ludwig and L. Brewer, 1994.
Procedural Guidelines for Ecological Risk Assessments at U.S. Army Sites, Volume I.

Edgewood Research, Development & Engineering Center, U.S. Army Chemical and Biological Defense Command, Aberdeen Proving Ground, MD. ERDEC-TR-221.

Wildlife Resources Center, 1994. Natural Heritage Program.

Zlotnik, V., 1994, Interpretation of Slug and Packer Tests in Anisotropic Aquifers, Groundwater, Vol. 32, No. 5, pp: 761-766.

DATA QUALIFIERS

EPA - defined qualifiers for Organic Analyses are as follows:

- B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number for the diluted sample, and all concentration values reported are flagged with the "D" flag.
- E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data identification criteria but the result is less than the sample quantitation limit but greater than zero.
- L - The analyte is a suspected laboratory contaminant. It's presence in the sample is unlikely (applies to volatile and semi-volatile organic results).
- S - The compound was detected above instrument saturation levels (applies to semi-volatile organic results).
- U - Indicates compound was analyzed for but not detected.
- X - The reported result was derived from instrument response outside the calibration range (applies to pesticide/PCB results).
- Y - The reported result is below the specified reporting limit (applies to pesticide/PCB results).

DATA QUALIFIERS

(continued)

EPA - qualifiers for Inorganic Analyses are as follows:

B - Concentration qualifier which indicates that the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - The analyte was analyzed for but not detected.

1 INTRODUCTION

1.1 PURPOSE OF REPORT

This report describes the Remedial Investigation (RI) activities that have been conducted at SEAD-46 (i.e., the Small Arms Range) and SEAD-57 (i.e., the Explosive Ordnance Disposal Area) at the Seneca Army Depot Activity (SEDA) 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, and
- identify areas where potential environmental impacts have been identified at each of the areas.

SEDA is included on the federal facilities National Priorities List (NPL) and has been listed since July 13, 1989.

Parsons Engineering Science, Inc. (Parsons) has been 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 60 miles northwest, and Syracuse, NY, which is located 60 miles northeast, respectively.

SEDA is located in an uplands area, at an elevation of approximately 600 feet Mean Sea Level (MSL), that 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 was constructed in 1941 and has been owned by the United States Government and operated by the Department of the Army (DOA) since that date. 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. Congress approved this recommendation on September 28, 1995 and the Depot is scheduled for closure by July 2001.

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 future prison. **Figure 1-3** shows the distribution of the planned future land use at SEDA and the location of SEAD-46 and SEAD-57. SEADs 46 and 57 are both located in the northern portion of SEDA, in land that is proposed as conservation/recreational land. More detailed descriptions of both of these SEADs are provided below.

1.3 SITE BACKGROUND

1.3.1 The Small Arms Range – SEAD-46

SEAD-46 is the Small Arms Range and it is located in the northeastern portion of SEDA in Romulus, NY (**Figure 1-4**). The site covers approximately 2 acres and its main feature is a large earthen barricade that is composed of soil. A dirt access road also traverses the central portion of the site (**Figure 1-4**).

Through 1960, SEAD-46 was used for testing fire tracers, 3.5-inch rockets and possibly other ammunition. An unknown number of rockets were fired into the large earthen barricade located at the northern end of the range.

In January 1980, this facility was identified by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) as a location of known or suspected waste materials. In 1987, the Small Arms Range was deleted from the solid waste management unit (SWMU) submission list by the U.S. Army Environmental Hygiene Agency based on its determination that wastes were not handled at the unit. The New York Department of Environmental Conservation (NYSDEC) added the Small Arms Range back to the SWMU list in August 1988.

The Small Arms Range was included in the final list of SWMUs at SEDA in the Federal Facilities Agreement under CERCLA Section 120 (Docket Number: II-CERCLA-FFA-00202) signed by the US EPA, US Army and NYSDEC. In accordance with the decision process outlined in the Interagency Agreement (IAG) between the U.S. Army Corps of Engineers (USACE) the U.S. Environmental Protection Agency (EPA) Region II, and NYSDEC, SEAD-46 is classified as a Low Priority Area of Concern (AOC) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

1.3.2 The Explosive Ordnance Disposal Area – SEAD-57

SEAD-57 is the Explosive Ordnance Disposal (EOD) Area and it is located in the northwestern portion of SEDA (**Figure 1-5**). The disposal area was used by Army EOD personnel for the disposal of conventional ammunition or explosives weighing less than 5 pounds. The site was active from 1941 until 1993. Because of the nature of EOD work, open detonations at the site were performed irregularly. According to one SEDA employee however, a training mission was performed approximately every month.

The open detonation at the site was performed inside a rectangular, bermed enclosure that measures approximately 100 by 70 feet in size. Before the berm was built, detonation may have been performed in four open pits that were located immediately west of the unpaved road, as shown in **Figure 1-5**. Each of these pits measured approximately 15 feet by 30 feet in size.

SEAD-57 is classified as a Moderately High Priority Area of Concern (AOC) under the CERCLA. In accordance with the decision process outlined in the IAG that exists between the U.S. Army Corps

of Engineers (USACE), the US EPA Region II, and the NYSDEC, an Expanded Site Inspection (ESI) was performed at SEAD-57 in 1993 and 1994. Sampling results collected as part of the ESI indicated that metal concentrations in excess of NYSDEC Technical and Administrative Guidance Memorandum (TAGM) # 4046 guidance values were present in soils found at SEAD-57. Furthermore, concentrations of some metal species detected in groundwater samples collected from SEAD-57 were also present at levels that exceeded their federal EPA's Maximum Contaminant Levels (MCLs) and their NYSDEC Ambient Water Quality Standards (AWQS) GA criteria levels, while other metals were detected at levels exceeding only their NYSDEC GA criteria levels. These results were obtained for groundwater samples that contained turbidity levels in excess of 5 Nephelometric Turbidity Units (NTUs). Explosive compounds did not appear at levels that exceeded any regulatory guidance values in either soil or groundwater during the ESI.

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 with the average being only a few feet thick. 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 1-6** 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 reviewed 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 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 half way 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 toward Seneca Lake.

Surface drainage from SEDA flows to four creeks. In the southern portion of the Depot, the surface drainage flows through ditches and streams into Indian and Silver Creeks. These creeks then flow into Seneca Lake just south of the SEDA airfield. The central part and administration area of SEDA drain into Kendaia Creek. Kendaia Creek discharges into Seneca Lake near the Lake Housing Area. The majority of the northwestern and north-central portions of SEDA drain into Reeder Creek. The northeastern portion of the Depot, which includes a marshy area called the Duck Ponds, drains into Kendaia Creek and then flows north into the Cayuga-Seneca Canal and to Cayuga Lake.

Data from site quarterly groundwater monitoring program 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 increases. Although rainfall is fairly consistent at SEDA, averaging approximately 3 inches per month, evapotranspiration is a likely reason for the large fluctuations observed in the saturated thickness of the overburden aquifer.

Regional precipitation is derived principally from cyclonic storms that pass from the interior of the country through the St. Lawrence Valley with local influence derived from lakes Seneca, Cayuga, and Ontario providing some lake effect snows, leading to a significant amount of the winter precipitation and a moderate the local climate. 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 1-7**).

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 1-8**). 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. The USGS quadrangle maps for the Towns of Ovid and Dresden, New York (1970), New York State Department of Transportation (DOT) quadrangles for Romulus, New York (1978) and Geneva South, New York (1978) do not indicate land designated for dairy production in the vicinity of SEDA. Forested land adjacent to SEDA is primarily under regeneration although there are sporadic occurrences of mature forest. Public and semi-public land uses 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.

Future land use in the vicinity of both SEADs 46 and 57 is defined as conservation and recreational.

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 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 above MSL on the western boundary to 760 feet above MSL 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 climatological data for the SEDA area. The nearest source of climatological data is the Aurora Research Farm in Aurora, New York, which is 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. Only precipitation and temperature measurements 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, NY were used to prepare the wind roses presented in **Figure 1-9**.

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.

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 already reported in **Table 1-1**. An independent value of 27 inches for mean annual evaporation from open water surfaces was estimated from an isopleth figure in "Water Atlas of the United States" (Water Information Center, 1973).

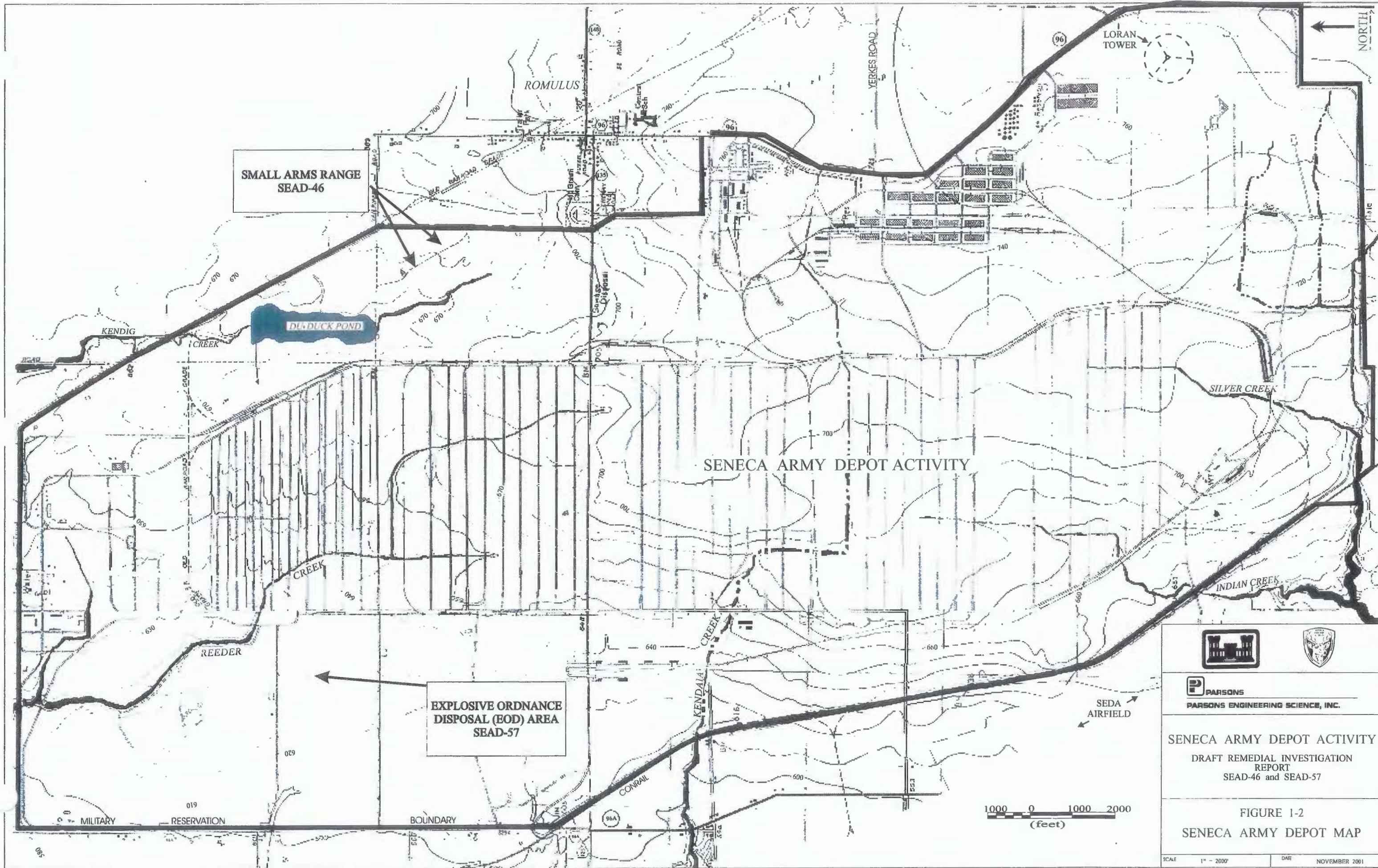
In general, climatological conditions that tend to promote good dispersions are high ambient temperatures, high wind speeds, low precipitation amounts, and a preponderance of clear skies. As **Table 1-1** shows, temperatures tend to be highest from June through September. Precipitation and relative humidity 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, US EPA, 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 "non-attainment" 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 that is in a more rural area.

1.5 OFF-SITE WELL INVENTORY

This section identifies private drinking water wells near SEAD-46 and SEAD-57. Knowledge of off-site wells is required when assessing any potential threats to drinking water supplies from releases at the site being investigated. Based on data collected during the preparation of the SEDA's Part B permit application (mid 1980s to mid 1990s), approximately 24 drinking water wells were identified within a one-mile distance of the SEAD-46 and SEAD-57 boundaries (**Figure 1-11**). Information defining the location of potential neighboring private wells has not been updated since that time. Sixteen of these wells are within one mile of SEAD-46 and are all located on property east of Route 96. Eight of the 24 identified water wells are located within one mile of SEAD-57, and seven of these are located west of Route 96A. The remaining well that is within one mile of SEAD-57 is located west of SEAD-12 and within the bounds of SEDA. The on-site well is and has historically been inactive, and was originally drilled to serve as an emergency supply well. The remaining 23 wells are all private drinking water wells. There are no public water supply wells within a one-mile radius of the site.

1.6 REPORT ORGANIZATION

The remaining sections of this report describe the investigation programs conducted, the procedures followed, and the results of the data collected during the RI and identify the magnitude and extent of impacts at the site. 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 RI and the rationale for choosing the locations investigated during the field program. This section relates the investigation programs (i.e., geophysical, surface water and sediment, soils, groundwater, and ecological) to the important site features and characteristics, and sources of contamination. Section 3.0 discusses the results of the investigation programs, specifically, surface features, ecology, surface water hydrology and sediments, geology and hydrogeology. The nature and extent of contamination on and off-site is discussed in **Section 4**.



PARSONS
 PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57

FIGURE 1-2
SENECA ARMY DEPOT MAP

SCALE 1" = 2000' DATE NOVEMBER 2001

Table 1-1

Climatological Data for Seneca Army Depot Activity
SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity

Month	Temperature (1), °F		Mean Precipitation (1), in.	Mean Relative Humidity (%)	Percent Sunshine		Mean Number of Days (4)	
	Maximum	Minimum			Clear	Partly Cloudy	Cloudy	
January	30.9	14.0	1.88	70	35	3	7	21
February	32.4	14.1	2.16	70	50	3	6	19
March	40.6	23.4	2.45	70	50	4	7	20
April	54.9	34.7	2.86	70	50	6	7	17
May	66.1	42.9	3.17	70	50	6	10	15
June	76.1	53.1	3.70	70	60	8	10	12
July	80.7	57.2	3.46	70	60	8	13	10
August	78.8	55.2	3.18	70	60	8	11	12
September	72.1	49.1	2.95	70	60	7	11	12
October	61.2	39.5	2.80	70	50	7	8	16
November	47.1	31.4	3.15	70	30	2	6	22
December	35.1	20.4	2.57	70	30	2	5	24
Annual	56.3	36.3	34.33	70	50	64	101	200

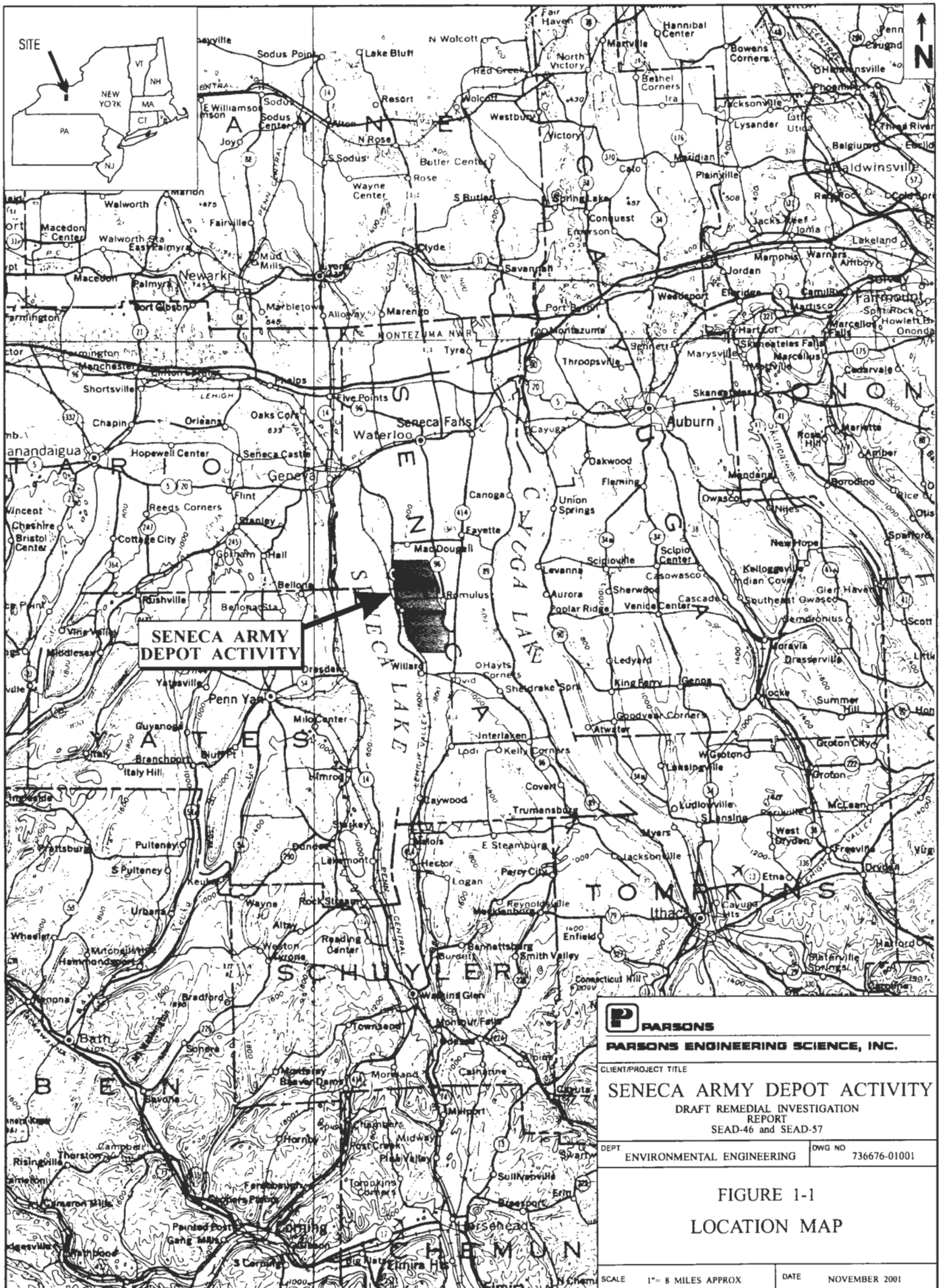
Period	Mixing Height (2), m	Wind Speed (2), m/s
Morning (Winter)	900	8
Morning (Spring)	700	6
Morning (Summer)	500	5
Morning (Autumn)	600	5
Morning (Annual)	650	6
Afternoon (Winter)	900	8
Afternoon (Spring)	1600	8
Afternoon (Summer)	1800	7
Afternoon (Autumn)	1300	7
Afternoon (Annual)	1400	7

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:

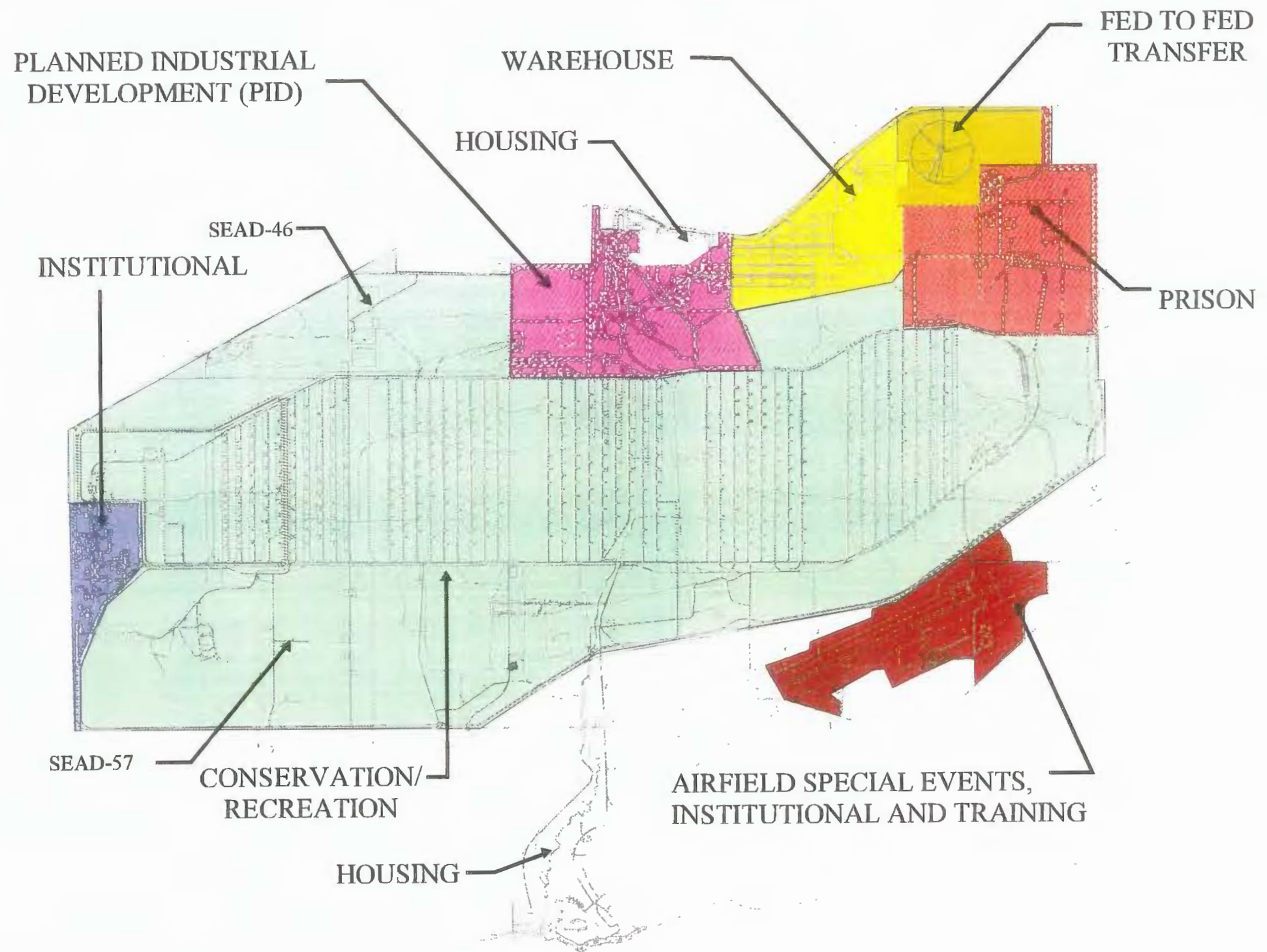
- 1) Climate of New York Climatology of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell University, NY.
- 2) Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972.
- 3) Climate Atlas of the United States. U.S. Department of Commerce, 1983.
- 4) Climate of New York Climatology of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.



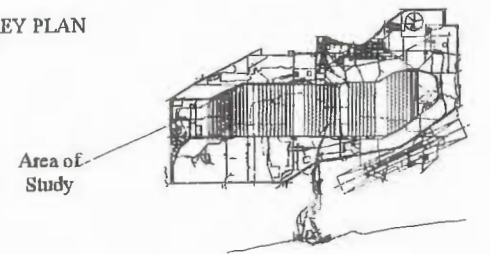


LEGEND

- Airfield
- Conservation
- Federal
- Industrial
- Institutional
- Prison
- Warehouse
- Housing



KEY PLAN

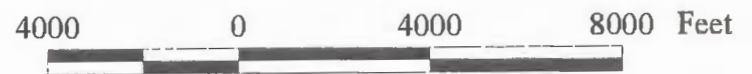


PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

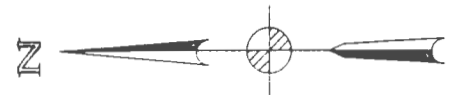
FIGURE 1-3
FUTURE LAND USE PLAN


SOURCE:
 AMENDED LAND USE PLAN - SENECA ARMY
 DEPOT, BERGMAN ASSOCIATES, MARCH 1999.

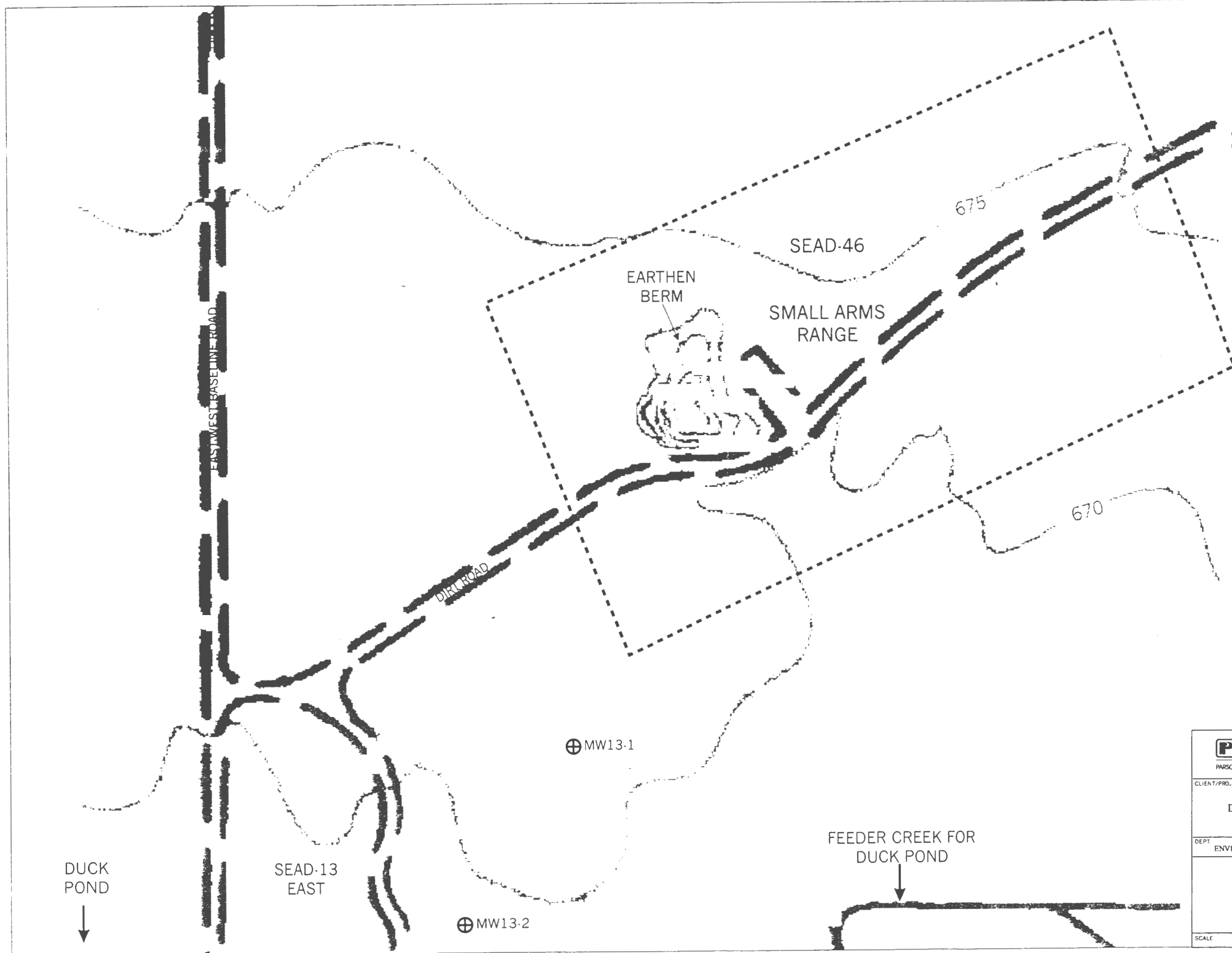


o:\seneca\sead5745\sead5757base.apr

Approximate Extent of SEAD



 PARSONS PARSONS ENGINEERING SCIENCE, INC.	
CLIENT/PROJECT TITLE SENECA ARMY DEPOT DRAFT REMEDIAL INVESTIGATION REPORT SEAD-46 SMALL ARMS RANGE	
DEPT. ENVIRONMENTAL ENGINEERING	DWG NO. 736676-01001
FIGURE 1-4 SITE MAP SMALL ARMS RANGE SEAD-46	
SCALE 1"=100'	DATE NOVEMBER 2001

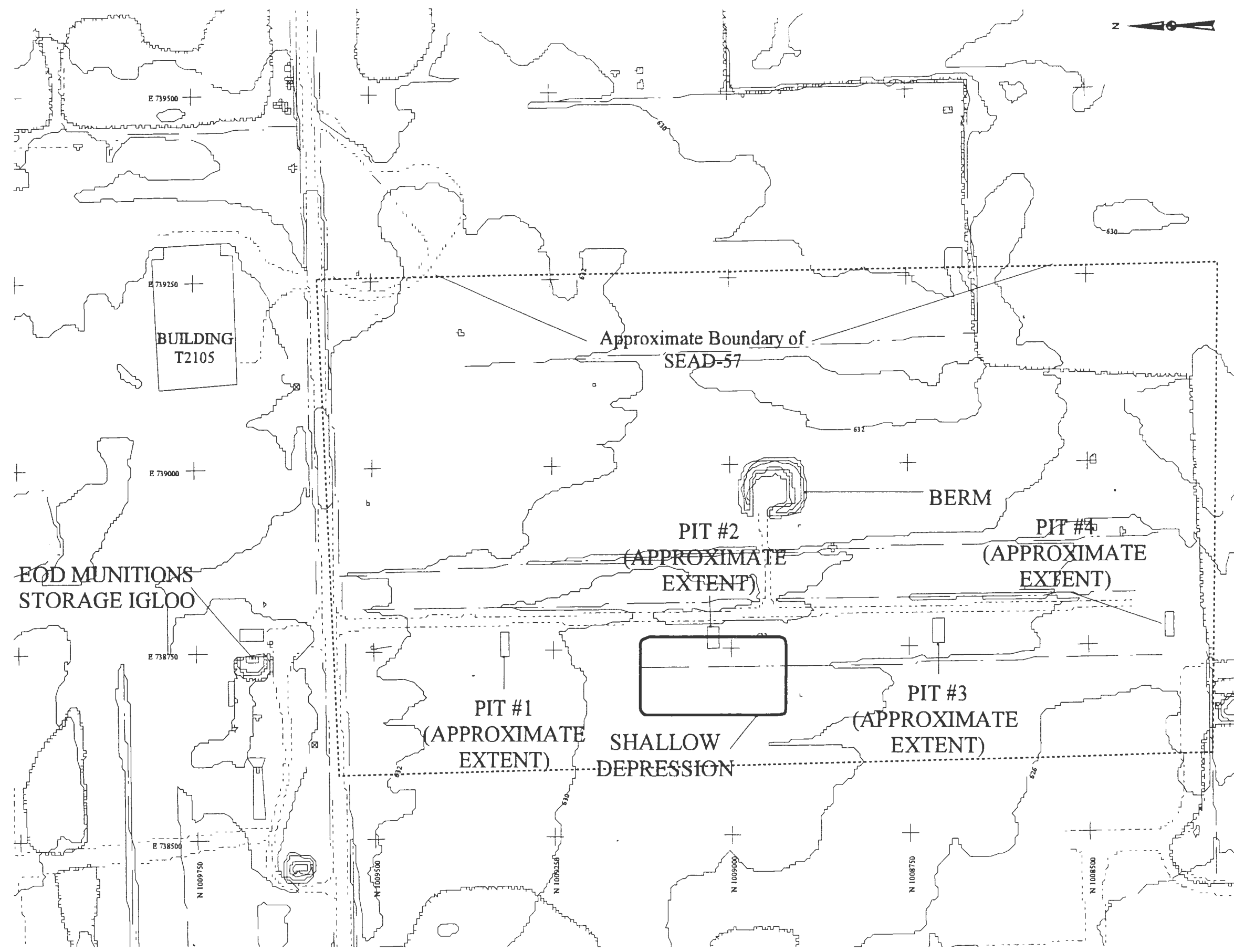


o:\scncca\scad5745\scad5757\basajwa.apr

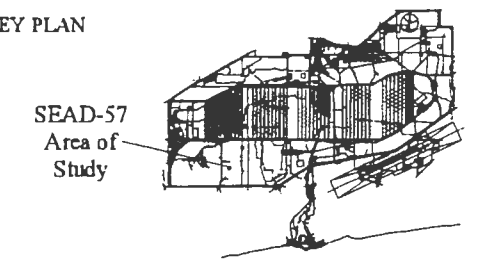


LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE



KEY PLAN



PARSONS

PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

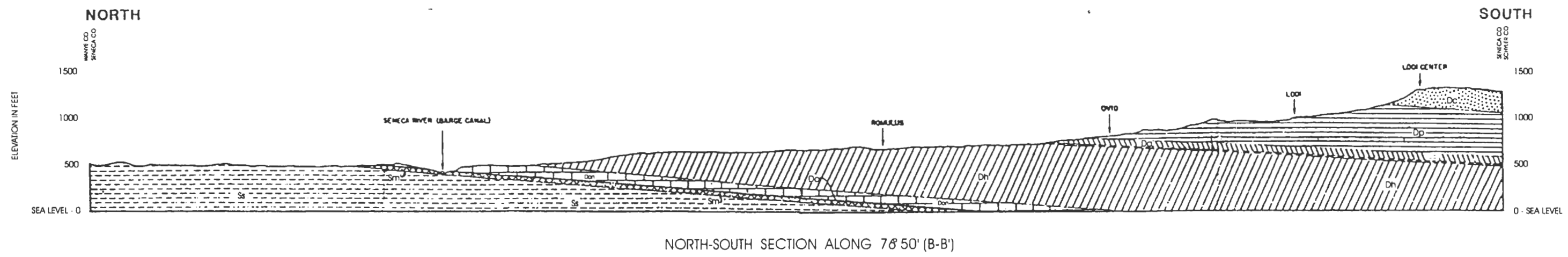
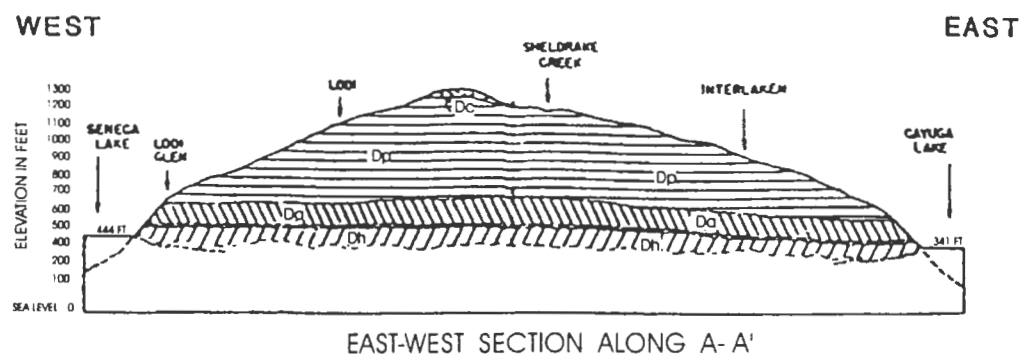
FIGURE 1-5

SITE MAP SEAD-57
 EXPLOSIVE ORDNANCE DISPOSAL AREA

SCALE:
 1 INCH = 150 FEET

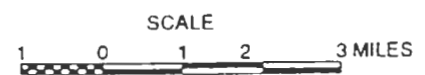
JOB NUMBER 736676-01002

DATE DECEMBER 2001



LEGEND

UPPER DEVONIAN	Dc	WISCOY SHALE NUNDA SANDSTONE WEST HILL FORMATION GRIMES SANDSTONE	DEVONIAN
	Dp	HATCH SHALE CASHAQUA SHALE	
	Da	WEST RIVER SHALE GENESEO SHALE	DEVONIAN
MIDDLE DEVONIAN	Dh	TULLY LIMESTONE	
MIDDLE OR LOWER DEVONIAN LOWER DEVONIAN	Don	MOSCOW SHALE LUDLOWVILLE SHALE SKANEATELES SHALE MARCELLUS SHALE	
	Do	ONONDAGA LIMESTONE	DEVONIAN
	Sm	ORISKANY SANDSTONE MANLIUS AND RONDOUT LIMESTONES AND COBLESKILL DOLOMITE	
SILURIAN (UPPER)	Ss	SALINA FORMATION INCLUDING BERTIE LIMESTONE MEMBER AND CAMILLUSSHALE MEMBER	



SOURCE: MODIFIED FROM THE GROUND WATER RESOURCES OF SENECA COUNTY, NEW YORK: MOZOLA, A.J., BULLETIN GW-26, ALBANY, NY, 1951

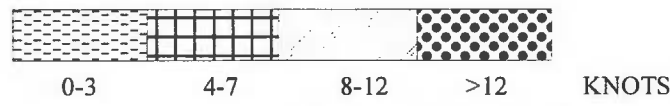
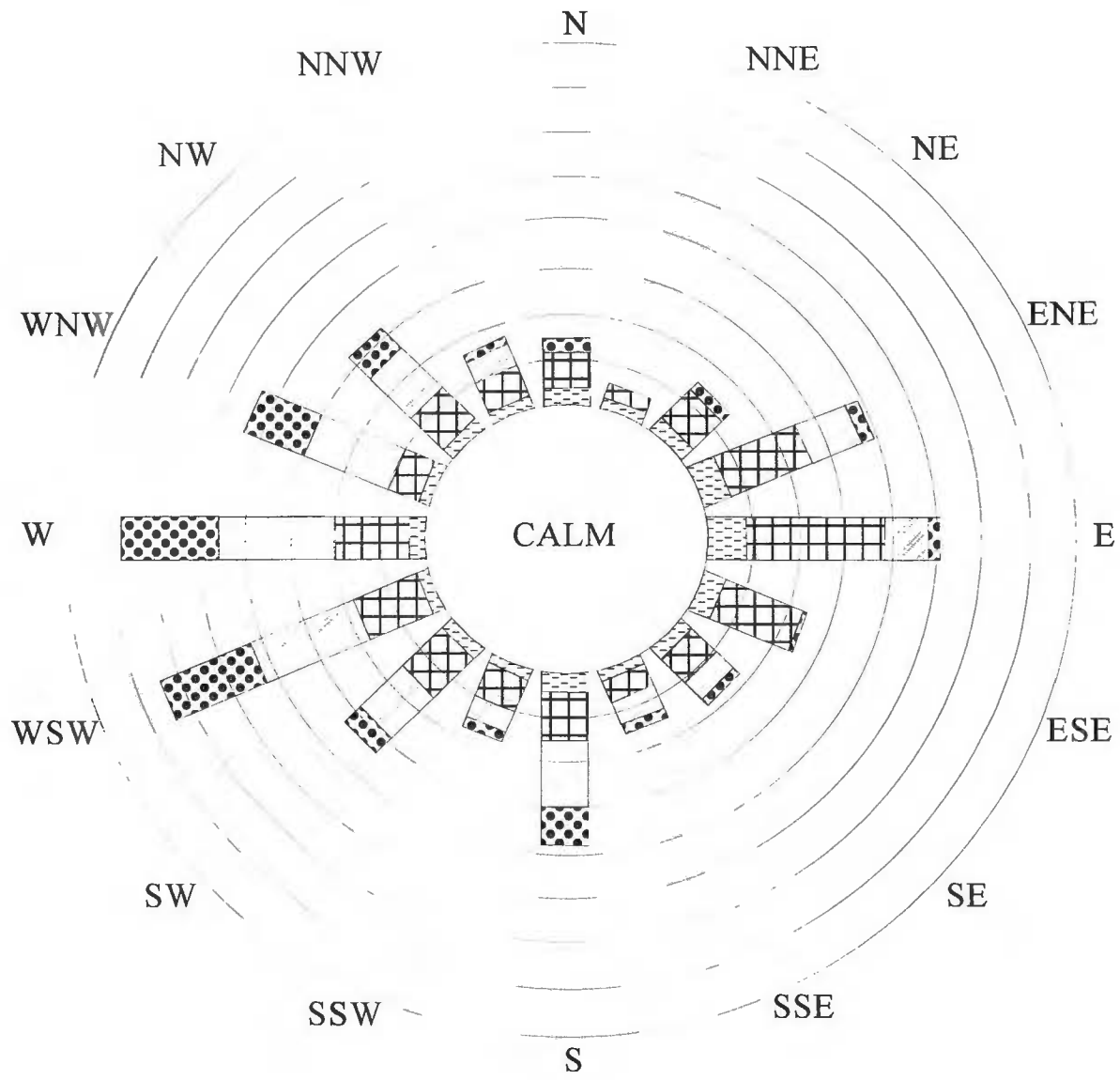
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

DEPT ENVIRONMENTAL ENGINEERING DWG NO 736676-01001

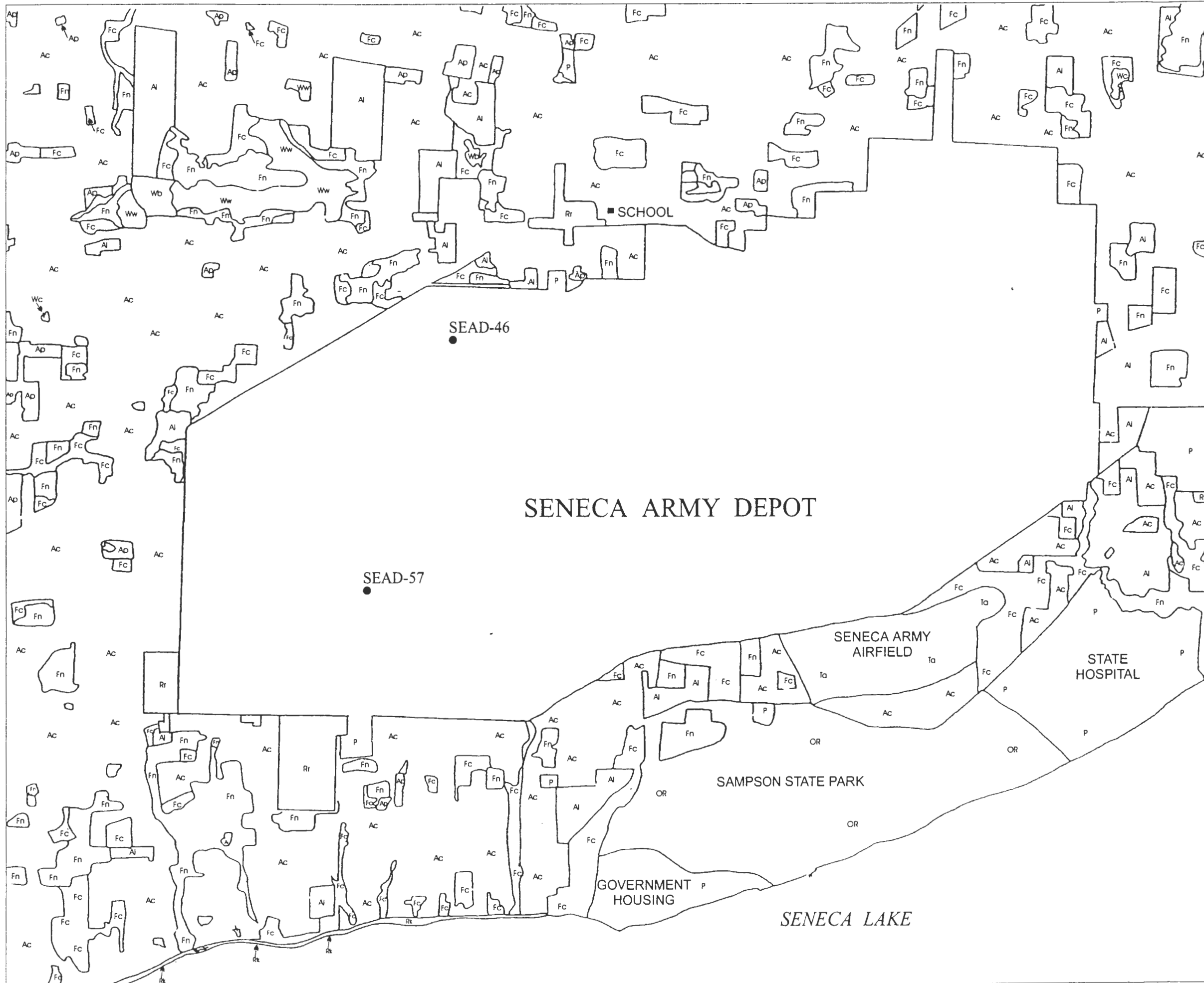
FIGURE 1-6
REGIONAL GEOLOGIC
CROSS SECTIONS

SCALE AS NOTED DATE NOVEMBER 2001



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 PARSONS ENGINEERING-SCIENCE, INC.	
<small>CLIENT/PROJECT TITLE</small> SENECA ARMY DEPOT ACTIVITY <small>DRAFT REMEDIAL INVESTIGATION REPORT</small> <small>SEAD-46 and SEAD-57</small>	
<small>DEPT</small> ENVIRONMENTAL ENGINEERING	<small>DWG NO</small> 736676-01001
FIGURE 1-7 WIND ROSE, SYRACUSE, NEW YORK	
<small>SCALE</small>	<small>DATE</small>
NA	NOVEMBER 2001



LEGEND

Active

- Ac Cropland/cropland pasture
- Ap Permanent pasture

Inactive

- Ai Agriculture inactive

Forestland

- Fc Brush cover up to fully stocked poles less than 30 feet
- Fn Forest over 30 feet

Water

- Wn Natural, any size
- Wc Artificial, one acre

Wetlands

- Wb Bogs, shrub wetlands
- Ww Wooded wetlands

Public

- P All Categories

Residential

- Rr Rural hamlet

Shoreline

- Rk Shoreline developed

Outdoor Recreation

- OR All categories

Transportation

- Ta Airport

Source: New York Land Use and Natural Resource Inventory



PARSONS ENGINEERING SCIENCE, INC.

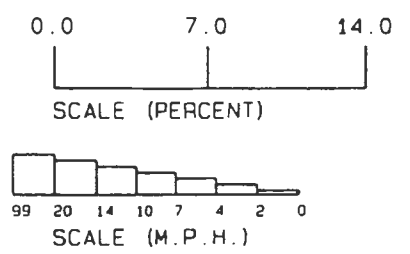
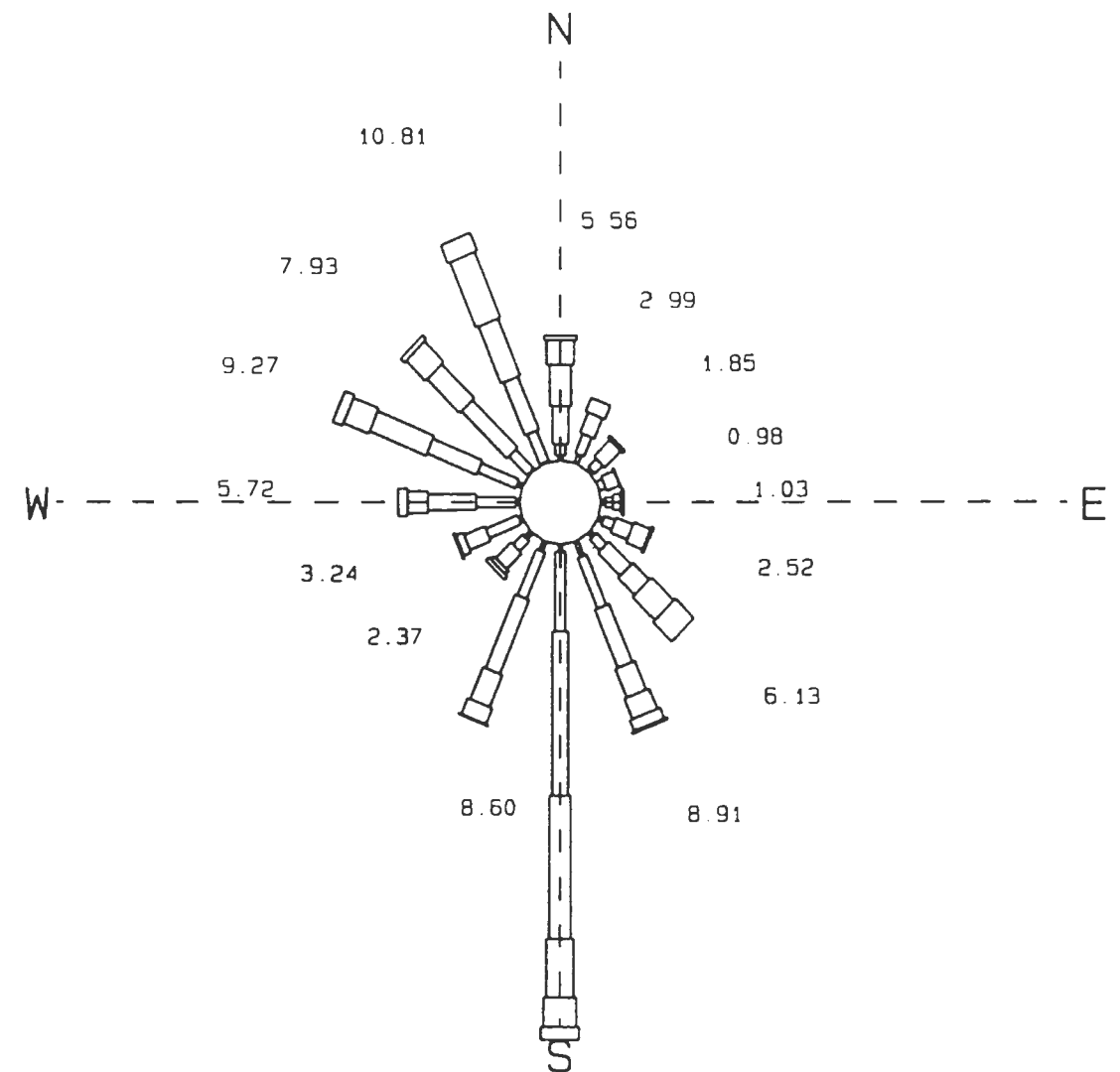
SENECA ARMY DEPOT ACTIVITY

DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

DEPT ENVIRONMENTAL ENGINEERING	DWG NO. 736676-01001
-----------------------------------	-------------------------

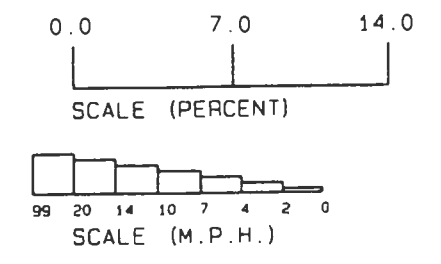
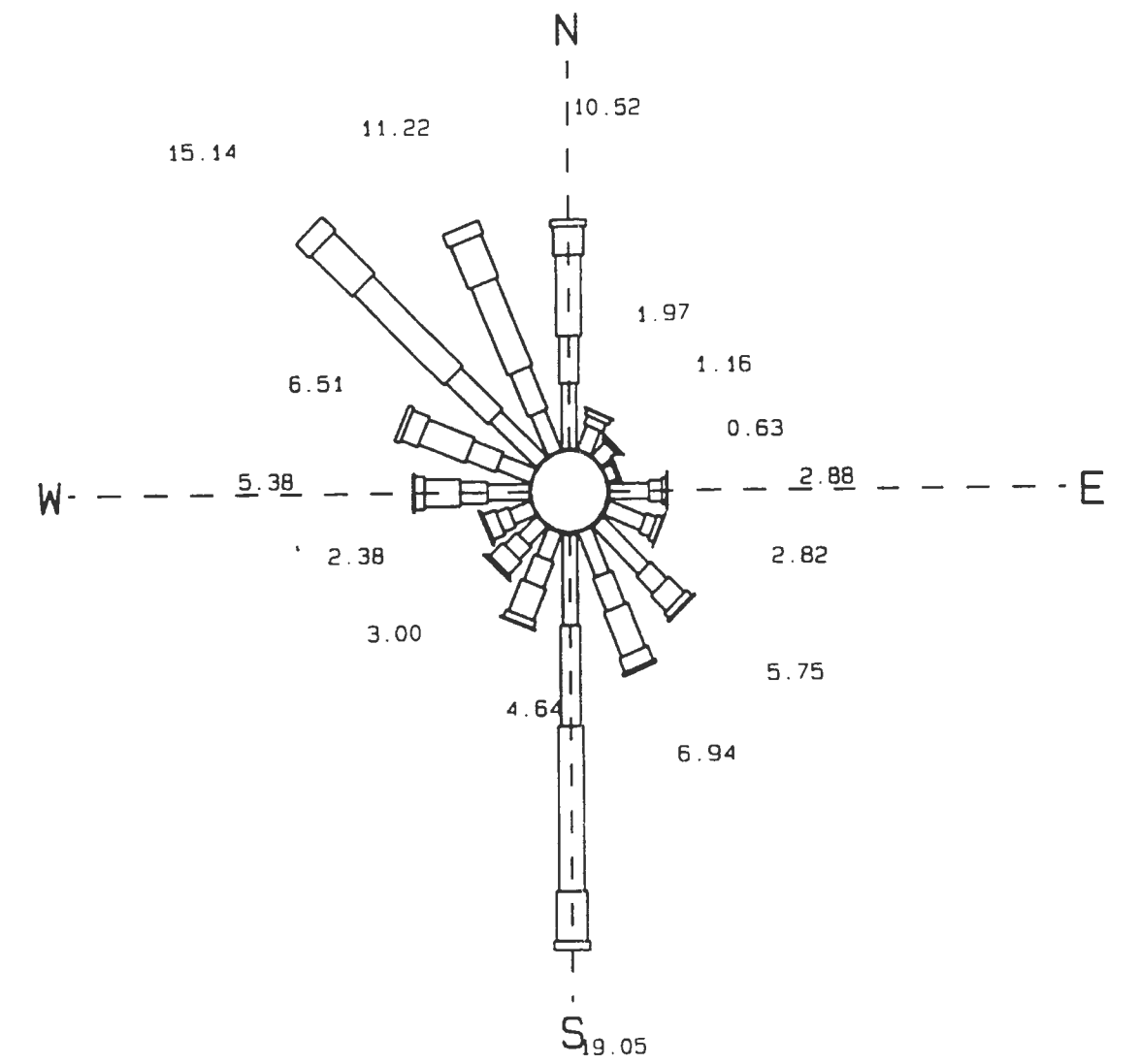
**FIGURE 1-8
REGIONAL/LOCAL
LAND USE MAP**

SCALE 1" = 2000'	DATE NOVEMBER 2001
---------------------	-----------------------



TOTAL HOURS: 2928
PERCENT CALM: 0.00

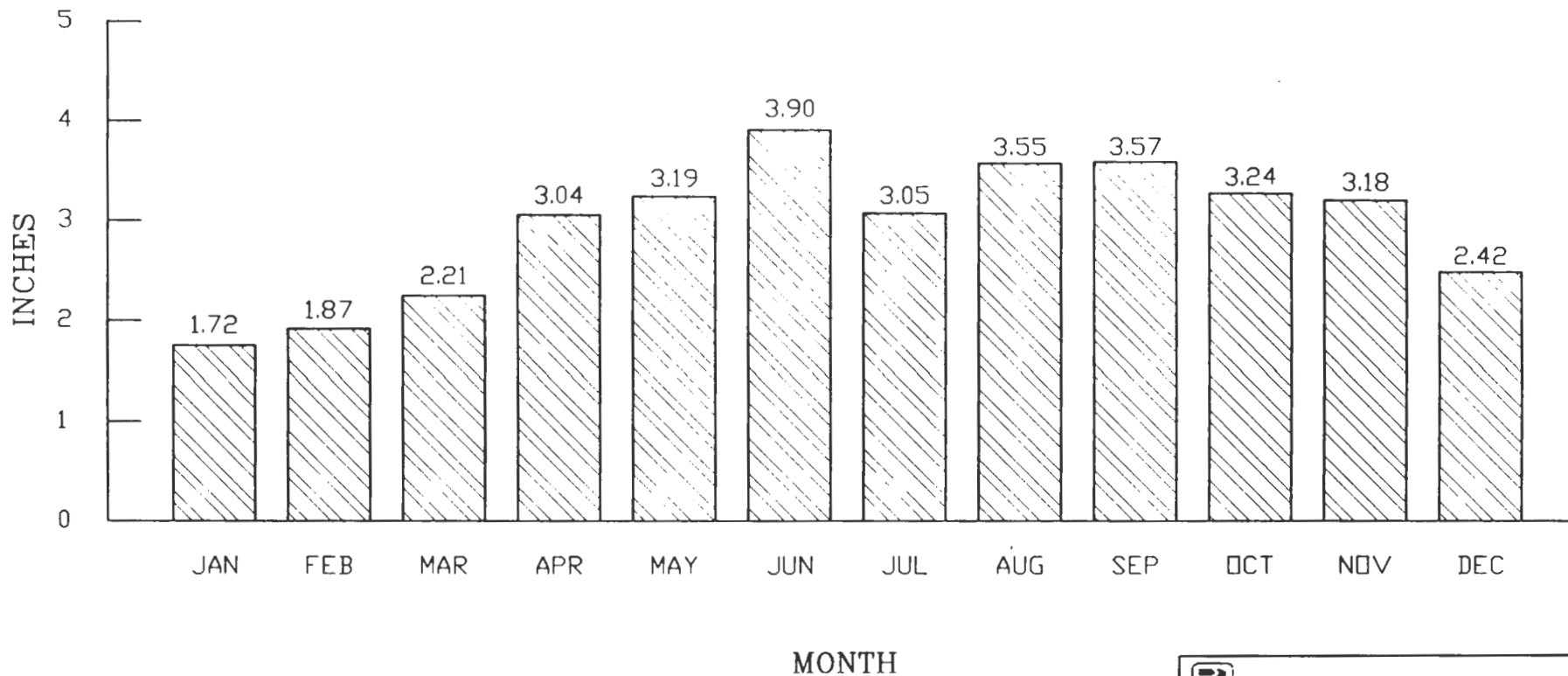
SENECA ARMY DEPOT
SENECA 10-M MET. TOWER
SEASONAL WIND ROSE
10 METER LEVEL APRIL 24 - JULY 14 1995




TOTAL HOURS: 29307
PERCENT CALM: 14.29
PERCENT MISSING: 0.00

SENECA ARMY DEPOT
ITHACA AIRPORT
ANNUAL WIND ROSE
20 FOOT LEVEL FOR: 1989-1993

PARSONS ENGINEERING SCIENCE, INC.	
CLIENT/PROJECT TITLE	
SENECA ARMY DEPOT ACTIVITY DECISION DOCUMENT SEAD-11	
DEPT	DWG NO
ENVIRONMENTAL ENGINEERING	
FIGURE 1-9 WIND ROSES	
SCALE	DATE
NA	NOVEMBER 2001



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.

	
PARSONS ENGINEERING SCIENCE, INC.	
SENECA ARMY DEPOT ACTIVITY DRAFT REMEDIAL INVESTIGATION REPORT SEAD-46 and SEAD-57	
FIGURE I-10 AVERAGE MONTHLY PRECIPITATION IN PROXIMITY OF SENECA ARMY DEPOT ACTIVITY	
JOB NUMBER 736676-01002	DATE NOVEMBER 2001

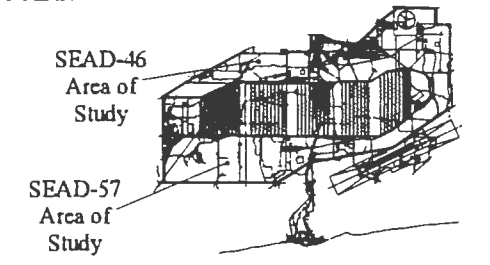
o:\scn\cca\scad5745\scad5757\base\jwa.apr



LEGEND

- △ Private Wells
- SEAD-46 and SEAD-57 Boundaries
- One Mile Radius Outline from Center of SEAD

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 1-11
DISTRIBUTION OF KNOWN
PRIVATE WELLS NEAR
SEAD-46 AND SEAD-57



2 STUDY AREA INVESTIGATION

2.1 INTRODUCTION

The purpose of this CERCLA investigation was to develop an understanding of the site conditions present at the Small Arms Range (SEAD-46) and the Explosive Ordnance Disposal Area (SEAD-57) located at the SEDA. This investigation was completed by combining data and information developed during several studies and investigations performed at SEDA. Data and information used to describe conditions found at SEAD-46, the Small Arms Range, result from work conducted as part of the SWMU Classification Report (Parsons ES, December 1995) for SEDA, and as part of a remedial investigation of the site conducted in late 1999 and 2000. Data and information used to describe conditions found at SEAD-57, the Explosive Ordnance Range, result from work conducted as part of the SWMU Classification Report (Parsons ES, December 1995a), an ESI of SEAD-57 (Parsons ES, December 1995b) and as part of a remedial investigation of the site conducted in late 1999 and 2000. The combination of data and results provided by these studies provide 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 development of the SWMU Classification Study Report for SEDA, which began in July 1988. The purpose of this report was to describe and evaluate the SWMUs at the SEDA. Each unit was classified as an area where "No Action is Required" or as an "AOC". The AOCs were prioritized according to the follow classifications:

- 1) High Priority AOC;
- 2) Moderate Priority AOC;
- 3) Moderately Low Priority AOC; and
- 4) Low Priority AOC.

AOCs included locations where releases of hazardous substances may have occurred and locations where there has been a release or threat of a release into the environment of a hazardous substance, pollutant or contaminant under the CERCLA.

Parsons SWMU Classification Study Report was based on, and expanded work, originally conducted and reported by Environmental and Energy Services Company, Inc. (ERCE) under Contract DACA87-88-D-0079. As a result of this initial work, SEAD-46 was classified as a Low Priority AOC while SEAD-57 was listed as a Moderate Priority AOC. A detailed description of the tasks associated with

each phase of the development of the SWMU Classification Study Report is provided in the referenced report (Parsons ES, December 1995a).

The second phase of the CERCLA investigation completed for SEAD-57 was an ESI that began in November 1993. A detailed description of the work completed at SEAD-57 as part of the ESI, and the results obtained from this investigation, are presented the Expanded Site Inspection of Three Moderate Priority SWMUs Report (Parsons ES, December 1995).

The next component of the investigation at both sites was the RI, which began in the late fall of 1999 with fieldwork continuing until May 2000. The proposed scope of the field investigations conducted at SEAD-46 is defined in the document entitled "Project Scoping Plan, Remedial Investigation/Feasibility Study at SEAD-46 (Parsons ES, November 1997)." The proposed scope of the work performed at SEAD-57 is identified in the document entitled "Project Scoping Plan, Remedial Investigation/Feasibility Study at SEAD-45 and SEAD-57 (Parsons ES, February 1996)." Both of these plans are supplemented by information provided in the document "Generic Installation Remedial Investigation/Feasibility Study (RI/FS) workplan (Parsons ES, August, 1995)," hereafter referred to as the Generic RI/FS workplan. The Generic workplan and the SEAD-46 and SEAD-57 Project Scoping Plans were approved by EPA Region II and the NYSDEC.

SEAD-46 and SEAD-57 both represent sites where munitions and explosives have been used during training exercises, stored or demilitarized. As such, both areas have the potential to contain unexploded ordnance (UXO) or debris resulting from the firing or detonation of munitions and explosives. Fieldwork associated with the determination of the location and clearance, as needed, of UXO and associated debris is currently underway under another Task Order. Data and results from this ongoing assessment is currently not available and thus, is not included in this report.

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

- UXO Avoidance,
- Surveying,
- Geophysical investigations (SEAD-57 only),
- Test pitting (SEAD-57 only),
- Soil sampling and characterization,
- Surface Water sampling,

- Sediment sampling,
- Installation of monitoring wells,
- Groundwater sampling,
- Building Investigation (SEAD-57 only),
- Chemical and Physical Characterization of samples, and,
- A qualitative ecological assessment of the area of SEAD-46, SEAD-57 and neighboring (0.5 mile radius) properties.

2.2 METHODS AND MATERIALS

2.2.1 UXO Avoidance

UXO avoidance procedures were implemented and completed prior to and during sampling to protect sampling personnel and equipment to the fullest extent possible. UXO avoidance procedures included clearing, using visual and geophysical survey techniques (i.e., magnetometry), all access/egress routes to and from the sampling locations and the actual sampling locations to ensure that incidental contact with potential UXO or debris was minimized to the fullest extent possible.

2.2.2 Site Survey Program

All of the SEDA was photographed from the air on December 14, 1993, and the collected stereo-photographs have been used to prepare SEDA-wide and SEAD-specific base maps. Ground control necessary to support completion of the site-wide photogrammetric mapping was performed between November of 1993 through February of 1994. Ground control needed to support the preparation of SEAD-specific base maps was completed as part individual SEAD investigations.

Prior to the initiation of each field investigation 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. All potential sampling locations were marked prior to sampling and documented on site maps.

After completion of the field tasks, a New York State licensed surveyor determined and documented the coordinates and elevation of all locations sampled or characterized as part of the field program. 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-46 is presented as **Figure 2-1** while a comparable map for SEAD-57 and vicinity is presented as **Figure 2-2**.

2.2.3 Geophysical Investigation

Geophysical surveys were proposed at both SEAD-46 and SEAD-57. The proposed geophysical survey was conducted at SEAD-57, but was not conducted at SEAD-46. The geophysical survey proposed at SEAD-46 in the area of the berm was replaced by UXO Avoidance activities that ensured that all sampling locations were free of potential ordnance debris prior to the initiation of sampling. UXO Avoidance was also conducted at SEAD-57 sampling locations prior to the initiation of sampling. Both SEAD-46 and SEAD-57 have been subjected to more extensive geophysical surveys conducted as part of ordnance and explosive (OE) risk management activities that were conducted after the completion of the RI.

Geophysical surveys proposed for SEAD-57 included seismic refraction, electromagnetometry (EM-31) and ground penetrating radar surveys. The goals of the proposed seismic refraction surveys were to assess groundwater flow direction and the relative elevation of the bedrock surface to assist in the subsequent siting of monitoring wells. Electromagnetic (EM-31) surveys were performed to delineate waste boundaries, identify the location of buried metallic objects, and identify the locations of old disposal pits. A ground penetrating radar (GPR) survey of selected areas within an AOC was conducted to locate buried structures (i.e., buried or filled-in pits, trenches, disposal areas) and obtain more information on anomalies detected during the EM-31 surveys. GPR can also identify the original ground surface beneath berms. The combination of the EM-31 method with GPR surveys provided significant redundancy during the geophysical investigations.

2.2.4 Soil Investigation

Soil investigations included in the ESI and RI of SEAD-46 and SEAD-57 included the collection of shallow surface soils, deeper soil samples from subsurface borings and soil samples from test pits (SEAD-57 only). The objectives of the soil investigation programs for the site investigations were to:

- Determine the nature and extent of contamination,
- Develop a database for the subsequent site risk assessment and feasibility study within and around the 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 impacts to the soil data in the SEAD-46 and SEAD-57 areas, especially near the bermed regions of both SEADs. A summary of the sample analyses completed on collected soil samples is provided in **Section 2.2.9**. Data resulting from sample analyses were compared to criteria levels defined by the NYSDEC in its Technical and Administrative Guidance Memorandum (TAGM #4046), Determination of Soil Cleanup Objectives and Cleanup Levels.

2.2.4.1 Test Pits (Geophysical Anomaly Excavations)

Test pits were not excavated at SEAD-46. Test pits were excavated at SEAD-57 during the ESI to provide a means for investigating anomalies discovered during the geophysical surveys and to provide a means of visual evaluation of subsurface soils and collection of soil samples.

Test pits were excavated to a final depth of up to 7 feet using a backhoe. Upon completion of the excavation, all excavated material was returned to the pit and covered. Unexploded ordnance (UXO) personnel performed the excavation and obtained the soil samples and Parsons personnel monitored for volatile organic compounds (VOCs) using a calibrated photoionization detector (i.e., PID – Thermo 580 Organic Vapor Meter (OVM)) and for radiation with a Dosimeter Mini Con Rad. All personnel were outfitted in Level B equipment to avoid possible exposure.

2.2.4.2 Soil Borings

Soil borings 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. All 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 purposes of these investigations, auger “refusal” in “competent” shale was defined as the depth, after penetrating the weathered shale, when auguring became significantly more difficult and auger advancement slows substantially.

During drilling, soil samples were collected continuously using decontaminated standard two or three-inch diameter, two-foot long carbon steel split-spoon samplers according to 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 rig-mounted 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 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, three soil samples were collected and submitted for chemical analysis from each soil boring. These samples generally included:

- 0 to 2 feet below grade.
- 2 to 4 feet below grade.
- Immediately above the water table.

Soil samples recovered for analysis of VOC contents were collected first, using one of three different methods. The first method was used exclusively during the ESI at SEAD-57, which was conducted in advance of new US EPA sample collection guidance (i.e., Method 5035) that was issued in June 1997. Under this process, samples of the soil were recovered 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.

Both of the remaining sampling procedures used for collecting VOCs in soil complied with the requirements of Method 5035 that was issued in 1997. The first of these sampling methods involved recovering samples directly from the split-spoon using an un-preserved Encore™ sampler. The sample was obtained by pushing the Encore™ sampler into the soil until the sampler was full. The sampler was then capped, sealed and placed on ice pending shipment to the laboratory. When this procedure was used, three separate samples were collected from each spoon.

Under the second approach, approximately 5 grams (gms) of soil was recovered by plunging the open-end of a pre-tared and calibrated syringe barrel and plunger assembly into the contents of the split-spoon sampler. Once the sample soil was packed in the barrel of the syringe, it was transferred into an open, pre-labeled 40-milliliter (mL) screw-capped septum vial that contained approximately 1 gram of sodium bisulfate and 5 mLs of organic free water. This sample was used for low concentration determinations of volatile organic compound content. A second sample was recovered in an equivalent manner, only in this instance it was transferred into an open, pre-labeled 40-mL screw-capped vial that contained 10 mLs of methanol solution. This sample was used for high-concentration determinations. Both screw-capped vials were then closed and immediately sealed. A third sample of the soil was then recovered and used for percent moisture determinations.

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.

Upon completion of sampling, soil borings were either grouted to the ground surface or a monitoring well was installed at the location. Drilling spoils brought to the surface by the augers were recovered and placed into 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.

2.2.4.3 Surface Soils

Samples of surface soils were collected at both SEADs at depths of between zero and two inches below ground surface. 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.

ESI Program

Grab samples of surface soils were obtained by removing representative sections of soil from 0 to 2 inches below ground surface in SEAD-57 only. Samples collected for volatile analyses were placed directly into sample containers at the time of collection using the procedure describe above, while other

sample fractions were placed in a mixing bowl and composited before being placed into the required sample containers.

RI Program

Surface soil samples were collected using either a decontaminated stainless steel trowel and a decontaminated stainless steel bowl, or an Encore™ or syringe barrel sampler. Samples collected for volatile organic compound analyses were collected first using one of the two methods mentioned in **Section 2.2.4.2**, above.

Once the volatile organic compound samples were collected, the remaining soil was placed into the stainless steel bowl, mixed (homogenized), and the homogenized contents were split among the remaining sample bottles. Sampling information such as sample location, number, depth, time, Burmister description, and laboratory QA/QC sample numbers were recorded on the Sampling Report Form. The sampling hole was then filled with the surrounding soil and the location stake replaced and checked for proper labeling.

2.2.5 Surface Water and Sediment Investigations

Samples of surface water and sediment were collected in the areas of SEAD-46 and SEAD-57. Surface water and sediment samples were only collected as part of the RI program conducted at both sites. The data resulting from the analysis of recovered samples were used to determine the background surface water and sediment chemical concentrations 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 and sediment sampling occurred during or immediately after rainstorms/snowstorms to maximize the probability that there would be surface water present for sampling.

The four surface water/sediment locations selected for sampling at SEAD-46 included two up-gradient and two down-gradient of the bermed area. Each of these locations was within a shallow drainage depression that channels runoff water away from the site to a feeder creek that flows towards the Duck Pond. Within SEAD-57, all of the selected surface water and sediment sampling locations were in drainage swales that capture or channel runoff away from the area of the site.

If standing water was not present at a point at the time of sampling, only sediment samples were collected from a designated location. Samples of the 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. Once the VOC samples were collected, water temperature, pH and specific conductivity were measured using a Hydac Model 910 field meter. Parameters were taken by the direct immersion of the portable meter's probe into the water body. If direct immersion was not possible, the parameters were obtained from a field sample container, separate from the analytical sample container. The remaining analysis bottles were filled and all the field data was recorded on the surface water Sampling Record form.

Once surface water sampling was completed at a location, sediment sampling began. The sediment sample was collected at a point directly beneath the location of the collocated surface water sample. Sediment samples were collected by personnel who either stood on the edge of the surface water body during sampling and reached into the sampling location, or by personnel who approached the proposed sampling location from the downstream direction to ensure that the sediment was not disturbed prior to collection. Samples were collected using either an Encore™ or syringe barrel sampler or a decontaminated stainless steel trowel to scoop the sediment from the base of the water body, prior to its transfer into the clean sample container or a decontaminated stainless steel bowl. VOC samples were taken first using the syringe barrel sampler or Encore™ method described above. Once the VOC samples were collected, the bowl was filled with additional sediment and thoroughly mixed (homogenized). The remaining analysis bottles were filled and all the field data was recorded on the soil/sediment Sampling Record form.

A summary listing of all the sample analyses completed on surface water and sediment samples is provided in **Section 2.2.9**.

2.2.6 Groundwater Investigation

Groundwater investigations were conducted as part of the ESI and RI programs at SEAD-57 and during the RI program at SEAD-46. Investigations conducted included the installation, development, testing 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 and for accurate determinations of piezometric head in the overburden aquifers. Two rounds of samples were collected from wells in SEAD-46, while three sets of samples were collected from wells at SEAD-57. Groundwater samples collected from monitoring wells were used to obtain background water quality data describing groundwater moving towards the SEADs, determine the groundwater flow direction, establish hydraulic conductivity and to evaluate the vertical and lateral extent of contaminant migration within the groundwater near the SEADs. A summary listing of groundwater sample analyses completed is provided in **Section 2.2.9**.

2.2.6.1 Monitoring Well Installation

Proper design, construction, and installation of the monitoring wells were essential for accurate interpretation of the groundwater data. The installation procedures were consistent with the US EPA Region II CERCLA QA Manual and the NYSDEC TAGM regarding design, installation, development and collection of groundwater samples. Further, these programs were in compliance with all requirements described in the NYSDEC, 6 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) with a well screen 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, all well components were inspected to ensure that a proper working condition would exist upon completion. All monitoring wells were inspected to guarantee that the components being

used were clean, uncontaminated and free of any defects in workmanship. All sampling was in accordance with ASTM Method D:1580-84.

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 at least 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. Distilled water was poured on the chips in a continuous stream during installation to ensure proper hydration and to create the seal.

Wells were screened from three feet 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 24.5 feet and were screened through the entire till/weathered shale aquifer.

In all instances, wells were protected with a steel casing, four inches in diameter. This protective steel casing extended 3.5 feet below the ground surface to prevent heaving by frost. The protective casing had a locking cap with a brass, 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. To allow the water in the well to equilibrate when the expandable cap is tightened, a small slot was cut in the PVC well pipe one-inch below the base of the expandable well cap. A cement collar was placed around each well and a permanent well identification number was painted on the steel protective casing.

Several methods for sizing sand pack materials and well screen openings are available in the literature. The methods are cited in Aller et al., (1989), Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells, Environmental Monitoring Systems Laboratory Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, Nevada, EPA 600/4-89/034, and Driscoll, F.G. (1988), Groundwater and Wells. Most methods are similar in concept and do not differ appreciably in their results. The first step in designing the filter pack is to obtain sieve analyses on the sample of the formation intended to be

monitored. The filter pack material size is selected on the basis of the finest formation materials present.

The slot size for the monitoring wells had been determined and approved as part of an earlier RI at the Ash Landfill at SEDA. NYSDEC, US EPA, and the Army had reviewed the grain size curves for till and weathered shale from the OB Grounds at the SEDA as well as the documentation determining the proper screen size based on these curves. Given the types of formation materials (which were confirmed from visual soil classification at the OB Grounds, Ash Landfill, and 25 ESI sites in various locations at SEDA) the nature of their deposition, and their widespread distribution in the area, the till and weathered shale do not vary significantly across the base to preclude the use of these curves from the OB Grounds for slot size selection. A 0.010-inch slot size used with a NJ # 0 filter pack was determined to be appropriate for the monitoring wells on-site.

2.2.6.2 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).

During this procedure, development consisted of light surging with a bailer until two to four gallons of water were removed. After surging, the water in the well was removed using a peristaltic pump at a rate between 1.5 and 3 liters per minute. At the end of the development process, the water was removed at a minimum rate of 0.1 liter per minute. 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 was based upon the guidance provided by the 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). 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

ESI at SEAD-57. 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.

2.2.6.3 Groundwater Sampling

Two different groundwater sampling procedures were used during the investigation of SEAD-57; only one was used during the investigation of SEAD-46. Details of these programs are provided below. A listing of sample analyses completed on the collected samples is provided in **Section 2.2.9**.

ESI Investigation (SEAD-57 only)

Wells installed during the ESI (SEAD-57 only) in 1994 were purged prior to sampling using a peristaltic pump equipped with a dedicated Teflon® tube that extended to the bottom of the well. The thickness of the silt was determined by measuring the depth to the top of the silt and subtracting that from the depth of the well. If the thickness of the silt was greater than 1 inch, then the silt was removed using the peristaltic pump and the dedicated Teflon® tubing. Silt removal was complete when the water was no longer silt-laden and dark brown-gray in color.

The purging process began with the open-end of the tube being placed at the bottom of the well screen (or at least 6 inches from the bottom of the well). The purging flow rate was between 0.01 and 2 liters per minute (L/min) and the purged water was collected in a graduated 5-gallon bucket. During the purging process, the water level in the well was monitored with an electronic water level meter. During purging, the static water level in the well was not allowed to drop below the 50 percent point of the original static water column height measured at the well before purging was initiated.

During the removal of the first volume of water from the well, a determination was made of whether the well was a slow or fast recharging well. A fast recharging well was defined as one where water from the surrounding aquifer is drawn into the well such that the static water level does not drop below the depth of one-half of the original static water column height while it is being pumped at rates between

0.01 and 2 L/min. A slow recharging well does not supply sufficient water to the well to maintain a water level at or above one-half of the static height of the water in the well when the minimum purge rate of 0.01 L/min was applied.

The following procedure was used to purge a fast recharging well. After approximately one well volume was removed, the time, flow rate, depth to the bottom of the opening of the Teflon® tube and the total volume of water removed was recorded on the sampling data sheet. Measurements of indicator parameters (temperature, specific conductance and pH) were collected and recorded at this time. The Teflon® tube was then slowly raised to a point between the top of the well screen and the water surface. After each subsequent well volume was removed, the water quality indicator parameters were re-measured and recorded. Purging of the well continued until three well volumes were removed. After removal of the third well volume of water, the indicator parameters were recorded for the last time. If required, additional temperature, specific conductance, and pH measurements were made until each stabilized (two successive measurements varied by less than 10 percent). The repositioning of the sample tube from the screened interval to a point near the top of the water surface during purging ensured the removal of any stagnant water from the well prior to sampling.

For wells that were slow to recharge, purging continued until approximately one-half the well volume had been removed or until the water level in the well reached the depth of one-half the original static height of the water column. At this time, the indicator parameters were measured and recorded along with the time, flow rate, depth to the bottom of the opening of the sampling tube, and total volume of water removed. The Teflon® sampling tube was then slowly raised to a point between the top of the well screen and the water surface. If this was not feasible, the open end of the tube was raised to the highest point possible to allow water to be pumped. The water level was monitored with an electronic water level meter. Purging of the well continued until one well volume had been removed. Minor adjustments in the depth of the open end of the Teflon® tube may have been made during this process, however; the depth to water was not allowed to fall below one-half the original height of the static water column.

If the water level was lowered to an unacceptable depth during purging, the pump was shut-off and the well was allowed to recharge before purging continued. After one well volume had been removed, indicator parameters were measured and recorded along with the time, flow rate, depths, and volume of water removed. If at least one well volume had been removed, and the measurements of temperature, specific conductance, and pH had stabilized (see requirements listed in **Table 2-1**), then purging stopped. If parameters had not stabilized, purging continued until they stabilized. At this time, the well

was considered to have been adequately purged to ensure that the subsequent water samples collected from the well would be representative of water found in the aquifer.

After stabilization, the well was allowed to sit for 2.5 hours prior to sampling at which time the static water level was re-measured. If the well had recovered to 95 percent of the original static level, then sampling began. If recovery to the 95 percent level had not been achieved after 3 hours, the recovery requirement for the well was reduced to 85 percent prior to sampling. If the well had not recharged to 85 percent after 6 hours, sampling of the well began.

A bailer was used to collect groundwater samples from the SEAD-57 wells during the ESI program. Prior to collecting the sample, the Teflon® tube used for purging was removed from the well and placed into a clean plastic bag. The bailer was lowered into the well at a rate of approximately 0.5 inch per second to minimize the disturbance of water and silt in the well. Once the bailer filled with water, it was removed at a rate of approximately 0.5-inch per second and the appropriate sample containers were filled. If the well was bailed to near dryness during the sampling process (i.e., the bailer reaches the bottom of the well), sampling was stopped until the well recharged to 85 percent of the original static level. If it did not recharge to 85 percent after 6 hours, sampling continued as water was available for each parameter. When sampling was complete, the dedicated Teflon tubing was returned to the well.

The order used for sample collection was as follows: 1) volatile organic compounds, 2) semivolatile organic compounds, 3) metals, 4) cyanide, 5) explosives 6) pesticides, 7) herbicides, 8) Total Recovered Petroleum Hydrocarbons (TRPH), 9) nitrates and PCBs, and 10) fluoride.

RI at SEAD-46 and SEAD-57

All groundwater sampling completed during the RI in SEAD-46 and SEAD-57 was conducted in accordance with procedures specified in the US EPA SOP titled *Groundwater Sampling Procedure, Low Flow Pump Purging and Sampling* (EPA, March 20, 1998). A copy of this SOP is presented in Appendix A.

Prior to sampling, 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.

All wells were purged prior to sampling using a Marschalk bladder pump constructed of stainless steel and containing 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 Liters per minute (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, dissolve 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.

The variability listed for each water quality indicator parameter is the current recommendation of the Final US EPA Region II Low Stress (Low Flow) Ground Water Sampling Standard Operating Procedure (March 20, 1998). If all indicator parameters except turbidity had stabilized, the pump flow rate was decreased to no more than 100 mL/min and sampling proceeded.

Groundwater sampling commenced as soon as 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 flow slowly down the inside of the container. The order used for sample collection was: 1) Volatile organic compounds, 2) Semivolatile organic compounds, 3) Metals, 4) Pesticides/PCBs, 5) Explosives, 6)

Cyanide, 7) Nitrates, and 10) TOC/COD. The collection of metals samples was placed early in the collection sequence (e.g., 3rd) to minimize the amount of turbidity degradation that could occur.

Purging and sampling equipment was decontaminated by standard procedures listed in the Generic Workplan prior to being used at each well. Water level indicators and pumps were placed into polyethylene bags to prevent contamination during storage or transit.

2.2.7 Aquifer Testing Investigation

2.2.7.1 Groundwater Level Measurements

Groundwater elevation measurements were collected once in three wells in SEAD-57 during the ESI and at all wells in SEAD-46 and SEAD-57 during the RI. All groundwater depth measurements were referenced to a notch on the top of the well casing (PVC) with water levels being measured to the nearest one hundredth of a foot using a battery-operated water level meter. Water level measurement equipment, including the water level indicator, was decontaminated according to the SOP outlined in the Generic Workplan before being used at other monitoring wells.

2.2.7.2 Rising Head Slug Testing

All slug tests were conducted during the RI at SEAD-46 and SEAD-57. Slug testing was not performed during the ESI on wells installed in SEAD-57.

The hydraulic conductivity of the overburden aquifer was determined using the Rising Head Slug Test method. The rising head test requires the instantaneous removal of a specific volume of water (or an equivalent removal of a solid slug) from the well that results in the simultaneous, instantaneous lowering of the water table. After the removal of the slug, the rising water levels are recorded with a data logger to compile a data set for later reduction and hydraulic conductivity calculations.

Prior to beginning the test, the static water level in the well was measured using an electronic water level meter. Then an In-Situ, model PDX-260 pressure transducer, rated to 10 pounds per square inch, was lowered into the well to a depth such that it did not interfere with the slug once it was lowered into the well. A distance of at least one-foot was allowed between the bottom of the well and the location of the transducer. A 0.11-foot diameter by three or five-foot long stainless steel slug

(Note: a 1.33' X 2.85" slug was used in MW57-2) was then lowered into the well using new nylon rope. The slug was positioned so the top of the slug was just below the measured static water level. Once the slug was lowered into the well, the water level was allowed to equilibrate. Water levels were measured until they stabilized to within 0.01 feet for five minutes by monitoring the transducer via the data logger.

After water level stabilization, the slug was quickly removed from the well and the data logger started, beginning the slug test. A two-channel Hermit model 1000C data logger was used to record the test data. The data logger was configured for logarithmic data collection so that early time water level changes could be adequately recorded. After 10 minutes of data collection, the water level was monitored with the data logger to determine if it had stabilized. When the water level reached 80 percent of the original static water level and stabilized to 0.02 feet over a five-minute time-period, the test was stopped. The test data was then downloaded to a portable computer, and reviewed to evaluate whether the data was acceptable.

The slug test information for each monitoring well was reduced with normalized recovery rates plotted against time on a semi-logarithmic plot and the hydraulic conductivity determined. Next, input data required for analyzing the slug test was entered. The input data consisted of the following:

- Initial drawdown in test well.
- Internal radius of the test well casing.
- Effective radius of the test well.
- Saturated aquifer thickness under static conditions.
- Length of the test well screen.
- Height of water column in test well under static conditions.

Once all the data was plotted, the hydraulic conductivity was determined using the automatic iterative estimating and interactive on-screen curve matching capabilities of the program to match the straight-line portion of the drawdown (displacement) curve.

2.2.8 Building Investigations

A munitions storage igloo (Building 128) is located to the northwest of the berm in SEAD-57, and available information indicated that this building may have occasionally been used to store munitions. As part of the RI, the building was opened and inspected to document the contents of the

building and the condition of the interior of the building. Additionally, volume estimates of media types encountered in the building were performed and estimates of contaminated surface areas were developed. A floor plan showing the approximate location of waste debris or surface contamination was prepared in the field. Three debris samples were collected from the floor of the building. No standing water was found inside the building.

These data will be used to develop estimates for building decontamination/demolition as part of a removal plan or as part of the development of remedial action alternatives.

2.2.9 Sample Analyses

2.2.9.1 Soil Samples

Soil sample analyses completed as part of the ESI (SEAD-57) only or the RI (SEAD-46 and SEAD-57) were submitted for the physical and chemical analyses listed in **Table 2-2**.

2.2.9.2 Surface Water and Sediment Samples

Surface Water sample analyses completed as part of the RI (SEAD-46 and SEAD-57) were submitted for the physical and chemical analyses listed in **Table 2-3**.

2.2.9.3 Groundwater Samples

Groundwater sample analyses completed as part of the ESI (SEAD-57 only) or the RI (SEAD-46 and SEAD-57) were submitted for the physical and chemical analyses listed in **Table 2-4**.

2.2.9.4 Building Debris Samples

Building debris samples were analyzed for the parameters listed in **Table 2-5**.

2.2.10 Qualitative Ecological Assessments

A qualitative assessment of the area of SEAD-46, SEAD-57, and surrounding land within a 0.5 mile radius of either SEAD was conducted to determine the ecological character of the sites. The results of the ecological assessment will be used in the planned screening level Ecological Risk Assessment

(ERA) prepared for the sites. The ERAs will evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to chemicals associated with the sites based on a weight-of-evidence approach.

The qualitative assessment addressed the potentially significant risks to the following biological groups and special-interest resources associated with the site: vegetation, wildlife, aquatic life, endangered and threatened species, and wetlands. The study areas included intermittent and perennial drainage ditches, a man-made lake, a small, man-made pond, forested wetlands, and terrestrial areas within the 0.5-mile radius.

Site-specific data were compiled regarding the types of habitats and wildlife species found in the site vicinity. The data were compiled during a site visit conducted by Parsons ES ecologists in May 2000. In order to characterize the site and the habitats within the 0.5-mile radius, pedestrian surveys were conducted throughout the study areas and a comprehensive list of all species observed was prepared for each SEAD. Observations included sightings, vocalizations, tracks, burrows, nests, and scat. Observations and assessments were concentrated on undeveloped upland areas, waterways, and wetlands located within the study areas. No biological sampling was conducted within either of the study areas.

The vegetation communities within the study areas were evaluated using the classification system developed by the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program Ecological Communities of New York State (Reschke, 1990).

Information presented in this section was assembled through a combination of literature review, file searches, telephone interviews, office visits, and site inspection. Information was obtained from various departments of the NYSDEC, Cornell University, the U. S. Fish and Wildlife Service (USFWS), and from various publications. Site-specific resource information was obtained from previous ecological characterizations, the *Seneca Army Depot Natural Resources Management Plan* (SEDA, 1992c), the *Rare Species Survey Seneca Army Depot Activity* (USFWS 1996), the *Wetland Delineation Report for the New York State Department of Correctional Services* (NYSOGS, 1998), and the *Wetlands, Fish, and Wildlife Plan* (SEDA, 1995). Regional information was obtained from the USGS 7.5 minute Romulus, Ovid, Dreden, and Geneva South.

TABLE 2-1
SUMMARY OF WELL DEVELOPMENT CRITERIA

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity – Romulus, New York

Water Quality Indicator Parameter	SEAD-57 ESI Development Criteria	SEAD 46/57 RI Development Criteria
Water Volume Removed	At least three well volumes*	At least three well volumes*
Dissolved Oxygen	Not Applicable	± 10%
PH	± 10 %	± 0.1 standard units
Specific Conductance	± 10 %	± 3%
Temperature	± 10%	± 10%
Turbidity	Preferably < 50 NTUs	Preferably < 50 NTUs
* unless well pumped to dryness and low recharge.		

TABLE 2-2
SUMMARY OF SOIL SAMPLE ANALYSES

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity – Romulus, New York

Sample Analysis	SEAD-46 RI	SEAD-57 ESI	SEAD-57 RI
TCL* volatile organic compounds by NYSDEC SOW	•	•	•
TCL* semivolatile organic compounds by NYSDEC CLP	•	•	•
TCL* pesticides/PCBs according the NYSDEC CLP SOW	•	•	
Explosives by EPA Method SW846 8330	•	•	•
TAL *metals and cyanide by NYSDEC CLP	•	•	•
Nitrate/Nitrogen by EPA Method 352.1	•	•	•
Chlorinated Herbicides by Method SW846 8150		•	
Density by COE* Method 1110	•		
Cationic Exchange Capacity by EPA Method SW846 9081			•
Grain Size by ASTM* Method D:422-63	•		•
pH by EPA Method 150.1			•
Total Organic Carbon by EPA Method 415.1	•		•
* TCL = Target Compound List TAL = Target Analyte List ESI = Expanded Site Investigation RI = Remedial Investigation			

TABLE 2-3
SUMMARY OF SURFACE WATER AND SEDIMENT SAMPLE ANALYSES

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity – Romulus, New York

Analysis	Surface Water		Sediment Samples	
	SEAD 46	SEAD 57	SEAD 46	SEAD 57
TCL* volatile organic compounds by NYSDEC CLP			•	•
Volatile organic compounds by Method 524.2	•	•		
TCL* semivolatile organic compounds by NYSDEC CLP	•	•	•	•
TCL* pesticides/PCBs according the NYSDEC CLP LOW	•	•	•	•
Explosives by EPA Method SW846 8330	•	•	•	•
TAL* metals and cyanide by NYSDEC CLP	•	•	•	•
Alkalinity by EPA Method 310.1/310.2		•		
Ammonia by EPA Method 350.1/350.2		•		
Cationic Exchange Capacity by EPA Method SW846 9081			•	•
Grain Size by ASTM Method D422-63			•	•
Hardness by EPA Method 130.2	•	•		
Nitrate-Nitrite/Nitrogen by EPA Method 3532	•	•	•	•
pH by EPA Method 150.1	•	•	•	
pH by EPA Method SW846 9045				•
Phosphate by EPA Method 365.2		•		
Total Organic Carbon by EPA Method 415.1	•	•		
Total Organic Carbon by Lloyd Kahn			•	•
Total Suspended / Dissolved Solids by EPA Method 160.1 / 160.2		•		
* TCL = Target Compound List TAL = Target Analyte List S-46 = SEAD-46 S-57 = SEAD-57				

TABLE 2-4
SUMMARY OF GROUNDWATER SAMPLE ANALYSES

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity – Romulus, New York

Analysis	SEAD-46		SEAD-57		
	R1	R2	ESI	R1	R2
TCL* volatile organic compounds by NYSDEC CLP			•		
Volatile organic compounds by Method 524.2	•	•		•	•
TCL* semivolatile organic compounds by NYSDEC CLP	•	•	•	•	•
TCL* pesticides/PCBs according the NYSDEC CLP LOW	•	•	•	•	•
Chlorinated Herbicides by SW846 8150			•		
Explosives by EPA Method SW846 8330	•	•		•	•
TAL* metals and cyanide by NYSDEC CLP	•	•	•	•	•
Chemical Oxygen Demand by EPA 410.1		•		•	•
Hardness by EPA Method 130.2		•		•	•
Nitrate-Nitrite/Nitrogen by EPA Method 3532	•	•		•	•
Total Dissolved Solids by EPA Method 160.1		•		•	•
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 2-5
SUMMARY OF BUILDING DEBRIS SAMPLE ANALYSES

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity – Romulus, New York

Analysis	SEAD-57
Volatile organic compounds by Method 524.2	•
TCL* semivolatile organic compounds by NYSDEC CLP	•
Explosives by EPA Method SW846 8330	•
TAL* metals and cyanide by NYSDEC CLP	•
Nitrate-Nitrite/Nitrogen by EPA Method 353.2	•
TCL = Target Compound List	
TAL = Target Analyte List	

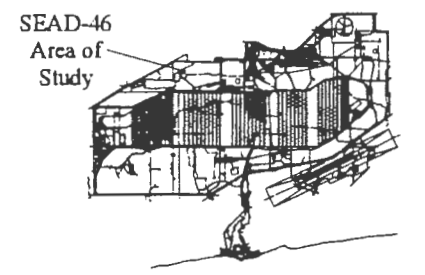
o:\seneca\scad5745\scad46\scad46jwa.apr



LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE

KEY PLAN



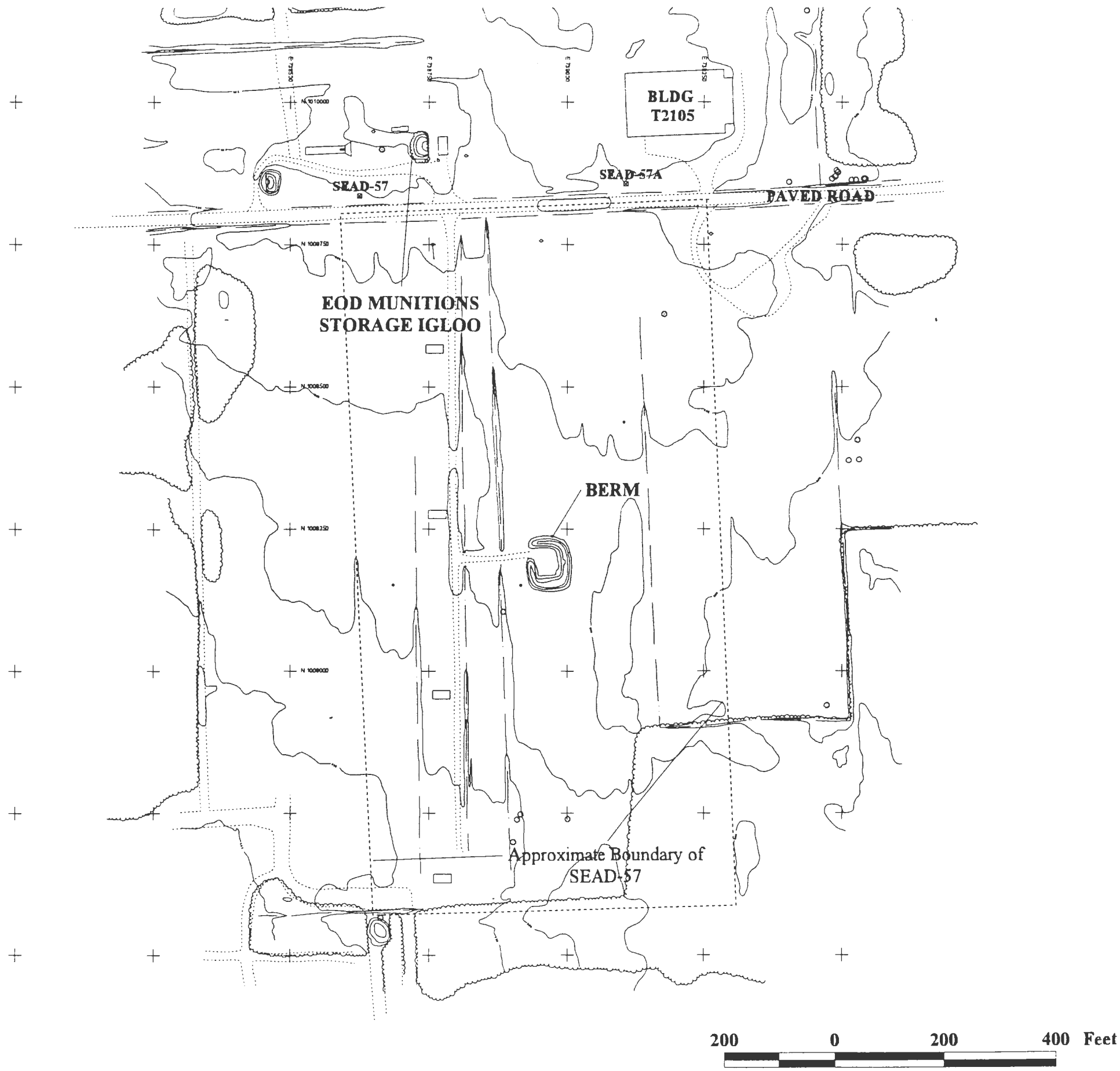
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 2-1
SEAD-46 SITE MAP



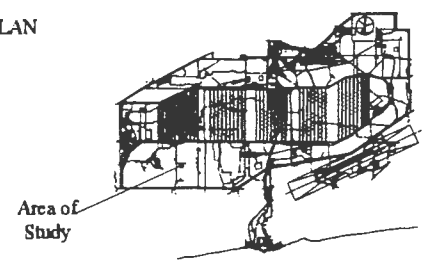
o:\seneca\sead5745\sead57\57base.apr



LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 2-2
SEAD-57 SITE MAP

3 DETAILED SITE INVESTIGATION

3.1 SEAD-46: SMALL ARMS RANGE INVESTIGATIONS

3.1.1 Previous Investigations

SWMU Classification Report

The Small Arms Range (SEAD-46) is discussed in the SWMU Classification Report for Seneca Army Depot Activity (Parsons ES, 1994). This report does not provide any detailed information about the site, but it does provide clues to its current and past uses. The report states that the range was used for testing firing tracers and 3.5-inch rockets. An unknown number of tracer rounds and 3.5-inch rockets were fired into an earthen berm at one end of the range. The SWMU Classification Report further states that the area was occasionally used for training troops; however, blank ammunition was used during training practices.

No historical analytical data exists for SEAD-46. Based on the SWMU Classification Report, historic land use and the nature of the materials used at the site, a threat to human health and the environment was determined to exist. The potential for impacts to surface soil exists due to the way in which materials were handled at the site, and the potential for impacts to surface water and sediment exists due to the direction of surface water run-off and the proximity of the Duck Pond.

3.1.2 Components of the RI at SEAD-46

The following field investigations were performed to complete the RI characterization of SEAD-46:

- Site Survey
- Soil Investigation
- Surface Water and Sediment Investigations
- Groundwater Investigation, and
- Ecological Assessment

3.1.3 Site Survey

All sampling locations established during the remedial investigation at SEAD-46 were surveyed. Monitoring well and survey monuments were surveyed by a New York State licensed surveyor. All

other sampling locations were surveyed using a 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 SEAD-46 are unknown, the soil investigation was designed to cover the entire site to identify areas of impacted soil. The most probable source area identified located in the SEAD is the berm which is located in the northwestern portion of the site. Therefore, most of the soil investigation was focused on this area, although a limited number of samples were collected outside of this area. As significant erosion of the berm is suspected to have occurred through the years, the pathways for runoff and erosion from the berm were also investigated.

In accordance with the workplan, a comprehensive soils investigation program was completed at SEAD-46. The objectives of this soil investigation program were to determine the nature and extent of contamination at SEAD-46, establish the extent of impacts to soils, and to collect soil samples for use in the risk assessment. 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 RI, 40 soil samples were collected. These samples consisted of 26 surface samples collected from 24 locations, six subsurface samples used for physical analyses (Shelby Tubes), and eight subsurface soils collected from locations on the berm. Samples locations are shown in **Figures 3-1** (all locations except surface soils) and **3-2** (surface soil locations). All sampling was conducted in accordance with the procedures outlined in **Section 2.2.3**, above. A listing of all soil samples collected and submitted for analyses is provided as **Table 3-2**.

3.1.4.1 Berm Sampling Program

Eight subsurface soil samples were collected from the designated locations on the berm. Samples were collected, approximately halfway up the berm at 30-foot intervals by UXO Avoidance personnel, at a depth of roughly two feet, using a hand auger to obtain the samples. The locations of the berm samples are shown in **Figure 3-1** and are indicated as BE46-1 to BE46-8. A listing of the sample analyses performed on soil samples collected from the berm is provided in **Table 3-2**.

3.1.4.2 Soil Borings

Two soil borings (i.e., MW46-4 and MW46-5) were advanced and sampled for physical characterizations only at SEAD-46. These sampling locations are shown on **Figure 3-1**. These soil

borings were subsequently completed as monitoring wells which were used for groundwater sampling. Both of these soil borings were located on the northwestern side of the bermed area and were advanced and sampled to provide information on the vertical extent of impacts to soil around the outside of the berm.

Three subsurface soil samples were collected from each of these borehole locations; one from zero to two feet below grade, another at two to four feet below grade, with the third at a depth of four to six feet below grade. The samples were collected in three-inch plastic liners (Shelby Tubes) for analysis. 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 monitoring well locations is provided in **Table 3-2**. The individual boring logs are included in **Appendix B**. Grain size analyses results are provided in **Appendix C**.

3.1.4.3 Surface Soils

The proposed surface soil sampling program was designed to evaluate if a wide distribution of chemical impacts to surface soil exists at SEAD-46. Sample locations were selected using a random-start equilateral triangular grid method (US EPA 1994f). This method provides uniform coverage of the area to be sampled.

Using this method, a rectangular area encompassing the site was established and a random starting point within this area was located using equations that utilize data from the size of the area to be sampled and random numbers. Once the starting point was established, other sampling points were placed on grid.

Using the prescribed method, a spacing of 150 feet between sampling points was determined. The distance between grid lines was determined to be 130 feet. The resulting grid contained 14 points. In addition to the 14 grid point sample locations, 10 surface soil samples were collected also placed around the perimeter of the berm. These samples were spaced approximately 50 feet apart (**Figure 3-2**).

As a result of this process, a total of 26 surface soil samples (24 samples and two duplicate samples) were collected from locations designated as SS46-1 to SS46-24. All sampling was conducted according to the procedures listed in **Section 2.2.4.3** and analyzed for the parameters listed in 2.2.9. A listing of the sample analyses performed on surface soil samples collected from SEAD-46 is provided in **Table 3-2**.

3.1.5 Surface Water and Sediment

Samples of surface water and sediment were collected in the area of SEAD-46. The data resulting from the analysis of recovered samples were used to determine the background surface water and sediment chemical concentrations present in the area of the SEAD, 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 and sediment sampling occurred during or immediately after rainstorms/snowstorms to maximize the probability that there would be surface water present for sampling.

Four surface water and sediment samples were collected at SEAD-46, from the drainage depression that flows from SEAD-46 toward the feeder creek for the Duck Pond. The approximate locations of these surface water and sediment samples are shown in **Figure 3-1**. All samples were collected according to the procedures described in **Section 2.2.5**. A listing of the analyses completed on surface water samples is provided in **Table 3-3**, while a comparable listing for sediment sample analyses is provided in **Table 3-4**. Data defining sediment sample characteristics is provided in **Table 3-5**.

3.1.6 Groundwater Investigation

The purpose of the groundwater monitoring program at SEAD-46 was to define the horizontal and vertical extent of impacted groundwater, determine the directions of groundwater flow at the site, determine the hydrogeologic properties of the aquifer to assess contaminant migration and potential remedial actions, and determine the background groundwater quality.

3.1.6.1 Monitoring Well Installation

Six monitoring wells were installed at SEAD-46 (MW46-1 to MW46-6), at the locations shown in **Figure 3-1**. Monitoring well MW46-1 was installed as a background well and it was located approximately 200 feet east of the bermed area. The remaining five wells were installed close to the earthen berm, with four being placed along its northern and western sides. These four wells were installed to investigate the possible migration of impacted groundwater away from the site with the presumed regional groundwater flow. The last well, MW46-6, was installed on the southern side of the berm where the rocket testing is believed to have occurred. It is suspected that this side of the berm exhibits the highest potential for impacted surface water run-off to infiltrate into the groundwater. All wells were screened in the saturated overburden overlying the shale bedrock as described in **Section 2.2.6**.

Monitoring well construction details for all wells at SEAD-46 are presented in **Table 3-6**, and monitoring well completion diagrams are included in **Appendix D**. All construction details were completed in accordance with the procedure outlined in **Section 2.2.6.1**.

3.1.6.2 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 RI are summarized in **Sections 2.2.6.1** and **2.2.6.2**. Monitoring well development data for SEAD-46 wells is summarized in **Table 3-7**.

3.1.6.3 Groundwater Sampling

Groundwater from all six monitoring wells (MW46-1 to MW46-6) at SEAD-46 was sampled and analyzed for the parameters listed in **Section 2.2.6.3** and **Section 2.2.9**. The first round of sampling was completed in January 2000. The second round of groundwater sampling was conducted in the April 2000. All sampling was completed in accordance with the latest version of the EPA groundwater sampling guidance as is discussed in **Section 2.2.6.3**. A summary of groundwater samples collected during the two rounds of sampling is provided in **Table 3-8**. A listing of groundwater quality indicator parameter data at the time of sample collection is provided in **Table 3-9**.

3.1.7 Aquifer Testing

3.1.7.1 Groundwater Flow Contours

Four rounds of water levels were performed at each of the monitoring wells at SEAD-46 to determine groundwater elevation and to define the groundwater flow direction at the site. The first round of measurements was taken before well development, after the wells had been allowed to equilibrate with the aquifer. The second set was collected on the day of well development. The third round of measurements was taken immediately before the first round of groundwater sampling in January 2000. The final round of elevation measurements was obtained in April 2000. Data collected before each scheduled sampling event were used to construct a groundwater elevation contour map and to evaluate seasonal changes in the groundwater flow direction. All of the collected groundwater elevation data is presented in **Table 3-10**. Data collected during the January and April 2000 sampling events is presented and contoured on **Figures 3-3** and **3-4**, respectively. The

available data from the two sampling events suggest that the groundwater flow in the upper aquifer in the area of SEAD-46 is predominantly towards the west, with a possible slight southerly bend immediately in the vicinity of the earthen berm.

3.1.7.2 Rising Head Slug Tests

Six Rising Head Slug Tests were performed at SEAD-46 to determine hydraulic conductivity. The slug test parameters and related information are shown in **Table 3-11**. The procedures for slug testing are described in **Section 2.2.7.2**. Hydraulic conductivities for all wells were calculated using the method described by Bouwer and Rice (1976). The slug test data and hydraulic conductivity results are presented **Appendix E** and summarized in **Table 3-12**.

Hydraulic conductivity values for the shallow till/weathered shale aquifer range from 2.22×10^{-4} cm/sec (MW46-1) to 7.68×10^{-3} cm/sec (MW46-6) and the geometric mean was 2.75×10^{-3} cm/sec. Published hydraulic conductivity values for till or representative materials are: 1) 0.49 m/day (5.67×10^{-4} cm/sec) for a repacked predominantly sandy till (Todd, 1980), and 2) from 10^{-2} to 10^{-3} m/day (10^{-5} to 10^{-6} cm/sec) for representative materials of silt, sand, and mixtures of sand, silt, and clay (Todd, 1980). No published hydraulic conductivity values for weathered shale were identified. While the measured values are greater than the values cited in literature above, they represent a combined effect of the till and weathered shale.

3.1.8 Ecological Assessment

3.1.8.1 Introduction

A qualitative assessment of SEAD-46 was conducted to determine the ecological character of the site. The assessment addresses the potentially significant risks to the following biological groups and special-interest resources associated with the site: vegetation, wildlife, aquatic life, endangered and threatened species, and wetlands. The assessment was conducted within the SEAD-46 site and the surrounding area within a radius of 0.5 mile. The study area includes intermittent and perennial drainage ditches, a man-made lake, forested wetlands, and terrestrial areas within the 0.5-mile radius.

The results of the ecological assessment will be used for the screening level Ecological Risk Assessment (ERA). The ERA will evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to chemicals associated with the site based on a weight-of-evidence approach.

3.1.8.2 Site Habitat Characterization

Site-specific data were compiled regarding the types of habitats and wildlife species found in the site vicinity. The data were compiled during a site visit conducted by Parsons ecologists in May 2000. In order to characterize the site and the habitats within the 0.5-mile radius, pedestrian surveys were conducted throughout the study area and a comprehensive list of all species observed was prepared. This list is included as **Table 3-13**. Observations included sightings, vocalizations, tracks, burrows, nests, and scat. Observations and assessments were concentrated on undeveloped areas, waterways, and wetlands within the study area. No biological sampling was conducted within the study area.

The vegetation communities within the study area were evaluated using the classification system developed by the NYSDEC Natural Heritage Program Ecological Communities of New York State (Reschke, 1990).

Information presented in this section was assembled through a combination of literature review, file searches, telephone interviews, office visits, and site inspection. Information was obtained from various departments of the NYSDEC, Cornell University, the U. S. Fish and Wildlife Service (USFWS), and from various publications. Site-specific resource information was obtained from previous ecological characterizations, the *Seneca Army Depot Natural Resources Management Plan* (SEDA, 1992c), the *Rare Species Survey Seneca Army Depot Activity* (USFWS 1996), the *Wetland Delineation Report for the New York State Department of Correctional Services* (NYSOGS, 1998), and the *Wetlands, Fish, and Wildlife Plan* (SEDA, 1995). Regional information was obtained from the USGS 7.5 minute Romulus, Ovid, Dreden, and Geneva South quadrangle maps, the USFWS National Wetland Inventory maps, and digital ortho quadrangle aerial photography.

3.1.8.3 Meteorology

The climate in the vicinity of the Seneca Army Depot is temperate, with moderately cold winters and warm, humid summers. Temperatures reach 90° Fahrenheit or higher for 8 to 15 days during the months of June, July, or August. Lake Ontario, Seneca, and Cayuga Lakes have a moderating effect on both daytime high and nighttime low temperatures. Rainfall is heaviest during the late spring and summer growing season with averages between 14.5 and 15.5 inches. Total annual precipitation ranges from 26.5 to 37.5 inches. At least one inch of snow covers the ground from early December to the middle of March, with an average annual snowfall of 60 to 65 inches.

3.1.8.4 Physical Site Description

The Seneca Army Depot is located west of Romulus, NY, and 12 miles south of Geneva and Seneca Falls, NY. The installation lies within the southern portion of the area described in the *Ecological Communities of New York State* (NYSDEC, 1990) as the Great Lakes Plain, on the northern edge of the Appalachian Plateau. The Seneca Army Depot is composed of approximately 10,600 acres of a high, broad plateau separating Cayuga Lake to the east, and Seneca Lake to the west. The topography across the installation slopes gently from 765 feet at the southeast corner to 585 feet at the northwest corner.

Four watersheds are present on the installation (USDA, 1989). Kendaia Creek drains the central portion of the installation into Seneca Lake. Reeder Creek drains the northwest and north-central portions of the installation. The northeast portion of the installation drains into Kendig Creek, which flows north into the Cayuga-Seneca Canal. Most of the southern portion of the installation is drained into Silver Creek or Indian Creek which merge and discharge as Indian Creek into Seneca Lake near Sampson Park. A small amount of the southeastern portion of the Depot discharges into an unnamed creek that eventually discharges through Hicks Gully into Cayuga Lake.

The SEAD-46 site is located in the northeastern portion of the installation, in the Kendig Creek watershed. The features on the site include railroad tracks; a utility corridor, networks of paved and gravel roads, an excavated pond, forested wetlands, shallow emergent marshes, and undeveloped upland areas. Off-base land use within the 0.5-mile radius study area is predominantly agricultural with the exception of a small lumber mill.

The site is the location of a former ordnance demolition and target area, as is evidenced by the numerous pieces of shrapnel found throughout the site, and the large bermed area that likely provided protection from exploding ordnance. Portions of the site are routinely maintained, such as the areas around the target and demolition sites. The area underneath the electrical transmission corridor is routinely mowed to facilitate maintenance, and the larger ditches are also mowed, cleared and snagged to promote drainage.

3.1.8.5 Land Use and Vegetative Cover

All areas of the installation have been altered to varying degrees by management practices, whether from mission-related maintenance activities within the last 40 years, or from historical farming practices. With the on-going closure of the installation, some management activities such as mowing and silviculture have been reduced or terminated due to lack of manpower, or due to the change in

mission. The attached **Figure 3-5** shows the existing conditions and land uses for the SEAD-46 site and the 0.5-mile radius study area. **Table 3-14** describes the composition of the study area with respect to the various vegetation communities.

Although the installation is in the closure process, access is still restricted by a high chain-link fence topped by barbed wire. A gate on the eastern side of the installation (the former main gate) is the only remaining official access point. A paved patrol road circles the entire facility, although regular patrols are no longer conducted. A network of paved and gravel roads totaling 141 miles traverses the installation. Many of the roads are in disrepair or have become overgrown due to the lack of traffic and regular maintenance.

The installation is divided into three categories, based on the pre-closure facility land use. The Main Post is 9,832 acres and consists of an exclusion area containing partially buried, reinforced concrete munitions storage igloos, general storage magazines, and warehouses. The cantonment area of the installation is 755 acres and consists of the North and South Posts. The North Post, at the north end of the Main Post, includes troop housing, troop support, and community services. The South Post is located in the southeast portion of the facility near Route 96 and is a developed area containing warehouses, administration buildings, quarters, and community services. A new maximum security correctional facility is under construction in the southeast portion of the installation. Only a few of the buildings on the installation are still in use by the staff remaining on the base.

3.1.8.6 Upland Communities

Successional Old Field. This habitat type occurs in areas in which the vegetation and/or soil have been altered by clear-cutting, grading, draining, mowing, or other activities commonly associated with land management practices. The vegetative cover in these areas is limited to herbaceous species common to recently or routinely disturbed areas and includes numerous nuisance exotic and opportunistic species. All uplands within the study area that do not support a shrub or tree stratum exceeding 50% cover fall into this classification. Much of the ordnance demolition area was routinely mowed for security and safety measures, as were the shoulders of the roadways. Depending upon the specific site conditions, species present include various graminoid species, Queen Anne's lace, ragweed, wild strawberry, and dandelion.

This vegetation classification provides excellent habitat for the white-tailed deer which were often observed foraging in the old field areas adjacent to forest and shrub communities. Other species commonly observed in this habitat include eastern cottontail rabbit and eastern gray squirrel.

Successional Shrub. This community type comprises the majority of the study area. This vegetation classification is characterized by a dominance of shrub species, and less than 50% cover of canopy trees. The species in this community include red-osier dogwood, staghorn sumac, European buckthorn, red raspberry, black cherry, tartarian honeysuckle, hawthorn, and saplings of early successional trees such as black locust, red maple, and tree-of-heaven. In drier areas, these shrubs can form dense thickets, while in depressions, the dominant species are more mesic varieties such as the red osier dogwood and red raspberry. The groundcover in the successional shrub community is usually dominated by various graminoid species, interspersed with opportunistic forb species. This vegetation community is very popular with songbirds, especially migrating species. Those observed in this area included American robin, northern oriole, yellow warbler, blue jay, mocking bird, European starling, gray catbird, and rufous-sided towhee. The common and white white-tailed deer, raccoon, and eastern cottontail rabbit are also found foraging in this habitat type.

Successional Southern Hardwoods. Successional southern hardwood communities develop on sites that have been cleared, graded, logged, or otherwise disturbed. The canopy, which may form within 7 years of disturbance, is usually composed of fast-growing species that require a significant amount of light. When the canopy in this community becomes fairly dense, the canopy species usually do not reproduce because of the reduced sunlight, and shade-tolerant trees gradually become established.

This vegetation community on the SEAD-46 site is characterized by the dominance of early and mid-successional native and introduced tree species. These communities did not appear to be more than 25 years old. Common canopy species include gray birch, black locust, American elm, silver maple, basswood, and eastern cottonwood. Shrubs are present along the edges of these communities and where tree-fall has occurred. Understory species include those found in the old field communities. The wildlife found in this habitat include common white-tailed deer, black-capped chickadee, tufted titmouse, northern cardinal, northern flicker, downy woodpecker, raccoon, opossum, eastern gray squirrel, and the white white-tailed deer.

3.1.8.7 Wetland Communities

All wetlands within the 0.5-mile radius have been altered significantly by land management practices. Natural creeks have been straightened and channelized, and former wetland areas have been drained and/or filled.

Artificial Pond. A large (87-acre) pond was excavated on the east side of the installation in the 1970s to attract ducks for hunting purposes. The grading for the pond did not provide a sloped area for the development of a significant amount of littoral shelf, although cattail has become established

in the shallower areas around the southern shoreline. The pond provides good habitat for ducks and wading birds, as well as for turtles, muskrats, ospreys, and Canada geese.

Another excavated pond is located east of the installation on agricultural land. It appears that this small (less than a half-acre) pond was excavated to provide a watering area for cattle and to provide fill for the adjacent row crop areas.

Ditch/Artificial Stream. Several excavated drainage ditches are found throughout the study area. Only the largest of the ditches had standing water present, and the flow was generally to the east, draining to the Seneca-Cayuga Canal. These ditches were vegetated with cattail and other herbaceous species. No wildlife was observed in the ditches within the study area, but muskrat and beaver were observed in ditches south of this portion of the installation, so it can be assumed that the ditches within the study area potentially provide habitat for these animals.

Red Maple-Hardwood Swamp Forest. A red maple - hardwood swamp forest is located south of and contiguous with the southeast corner of the excavated lake. The lake was formed by damming the natural drainage for the swamp, excavating the northern end, and creating a berm to impound the flow. This caused the existing forest to die off, as can be determined by the number of snags still standing in the lake. The deeper water in this area has resulted in the formation of a large wetland forested with red maple and other hardwoods. Other smaller areas of this vegetation community are present on the east side of the installation and off the base, adjacent to the Eastern Patrol Road and the Seneca-Cayuga Canal. This swamp forest has a dense, closed canopy of various deciduous hardwood trees such as red maple, gray birch, American hornbeam, cottonwood, and American elm. Portions of the swamp have a dense understory of saplings of the canopy trees, plus swamp azalea, dogwood, and willow. The groundcover is sparse in the area with a closed canopy and is vegetated with ferns, mayapple, trillium and other forb species. In open areas where the tree cover has been removed, such as in the electrical transmission corridor, the vegetation is dominated by cattail, willow, and other species. This vegetation community provides excellent wildlife habitat for breeding, foraging, and cover.

Shallow Emergent Marsh. The shallow emergent marsh areas are located along the shoreline of the large man-made pond, and in the southwest portion of the study area. The marsh along the lake shoreline consists of a narrow band of cattail. The second marsh is approximately 5 acres of cattail and reedgrass that has established in a depression along the railroad tracks on the east side of the munitions storage area. The emergent marsh along the lake shoreline provides excellent habitat for ducks and other waterfowl. The larger marsh likely provides habitat for some species of songbirds, small mammals, amphibians, and reptiles.

Two additional shallow emergent marshes are located off the installation within agricultural lands. The marshes are seasonal in nature and are plowed and planted with row crops during the summer.

3.1.8.8 Terrestrial Cultural Communities

Terrestrial cultural communities were combined on the vegetation community map included in this report. The features included in this category are roadways, buildings, agricultural areas, commercial areas, railroad tracks, and other areas of anthropogenic origin that provide marginal wildlife habitat.

Paved Roads. The Seneca Army Depot has a network of paved and gravel roads that total 141 miles. The roads do not offer forage opportunities for most species, but do provide basking areas for ectothermic species during cooler weather, and therefore offer prey opportunities for certain predators.

Prior to the closure of the installation, the road shoulders were routinely mowed. Since the closure mowing has been cut back significantly, and the shoulders have reverted to successional old field vegetation. This will have a beneficial effect on wildlife habitat as long as the traffic levels remain low.

Only a small segment of a paved public road is included within study area. This segment offers access to a small lumber mill on the east side of the installation.

Railroads. Railroad tracks in the vicinity of the site were observed as being hunting grounds of red-tailed hawk and great horned owl during the field visits. These birds occupied prominent perches adjacent to railroad corridors frequently during the site visits. Railroads apparently serve as trails for nocturnal creatures, as tracks and scat of skunk, raccoon, fox, and opossum were observed frequently. The poor rooting substrate of the granite railroad bed and routine herbicide application suppress vegetation along the tracks and shoulders. The tracks within the installation appear to be abandoned.

3.1.8.9 Wildlife Resources

Wildlife resources at the Seneca Army Depot are intensively managed under a cooperative conservation and development plan developed in conjunction with the NYSDEC (1992). The objectives of the fish and wildlife management plan are to:

- a) Protect and develop habitat for the production of game and non-game species;

- b) Control white-tailed deer (*Odocoileus virginianus*) harvest (with additional emphasis on white-tailed deer management);
- c) Enhance non-game species populations for their aesthetic, recreational, and educational values; and
- d) Establish long range goals for selected species including eastern bluebird (*Salia salis*), ring-necked pheasant (*Phasianus colchicus*), wood duck, white-tailed deer, and wild turkey (*Meleagris gallopavo*).

Commonly occurring small game mammals in the installation include eastern cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), snowshoe hare (*Lepus americanus*), muskrat (*Ondatra zibithecus*), beaver (*Castor canadensis*), eastern coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and gray fox (*Urocyon cinereoargenteus*). Ruffed grouse (*Bonasa umbellus*), ring-necked pheasant, and wild turkey also inhabit the depot. Waterfowl are attracted to wetlands on and around the depot, particularly the 87-acre "duck pond" created in the northeast corner of the property during the 1970s.

The wildlife within 0.5 mile of the site consists of upland species, particularly those favoring successional forests and shrublands, since these are abundant habitats in the study area. The mixture of these habitats with old field areas provides ideal habitat for white-tailed deer, which are common throughout the installation. Many non-game species also are present in the depot and potentially utilize habitats within the 0.5-mile study area. Tracks, presumed to be of eastern coyote, coy-dog, or feral dog, were observed along the railroad tracks throughout the site. (While their tracks are often indistinguishable, no domestic dogs remain on the installation since base closure.) Tracks of white-tailed deer, raccoon, and rabbit also were observed adjacent to the site. Wildlife evidence and direct observations made during site visits are presented in **Table 3-13**.

3.1.8.10 Endangered Species and Significant Habitats

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 site. No species of special concern are documented within the depot property. Field investigation of the site determined that the surrounding area is highly modified and has a disturbed ecology resulting from management consistent with mission activities. Highly disturbed sites are characteristically colonized by opportunistic species and do not typically support rare or endangered flora and fauna. No rare or endangered species were observed during the site assessment.

Although there are no recent sightings of endangered or threatened species on the installation, there is always the potential for the site to be utilized by an endangered or threatened species in the future. The following **Table 3-15** provides a list of the state- and federally listed species that may occur in the vicinity or on the installation. This table is based on the known preferred habitat of the species and its availability on the installation.

3.1.8.11 Resource Value to Humans

The Seneca Army Depot represents a unique opportunity for wildlife and pest control research in New York State due to its large size and continuous perimeter fencing. The depot property represents significant value to humans resulting from decades of wildlife management and scientific research. The NYSDEC has used the depot white-tailed deer population to develop population, growth, and reproduction models. Currently a Cornell University/NYSDEC white-tailed deer immuno-contraception study is being conducted with a captive herd in the Q area of the Main Post. NYSDEC biologists participate in annual harvests by inspecting field-dressed deer for disease and parasites, aging specimens, and measuring beam diameter (SEDA, 1992c). NYSDEC conducted studies in the 1960s on fox reproduction inhibition using diethyl stilbestrol (DES) to control the spread of rabies. Cornell University entomologists have conducted studies on the ability of northern corn rootworm to traverse areas of non-croplands at the depot (SEDA, 1992c).

Consumptive use of wildlife consists of hunting of upland birds, predators, waterfowl, and white-tailed deer. Harvest of deer is closely monitored to maintain the population below carrying capacity of the depot habitat (SEDA, 1995). Hunting on the property is presently limited to current and retired military personnel and a limited numbers of guests. Hunting is conducted during both the Southern Zone archery and firearms hunting seasons in accordance with New York State regulations. Discontinuation of the military mission of the depot may have significant impacts on the types and intensity of human utilization of wildlife resources in the future.

The consumptive wildlife resource value of the SEAD-46 property to humans is considered high. The site is relatively remote, game is plentiful, and the low vegetation in some areas facilitates the spotting of the larger game species. The white deer on the installation are highly desirable hunting trophies.

Evidence of non-consumptive wildlife resource utilization, such as bird watching, wildlife observation, photography, and amateur study was not observed during the site evaluation, but the potential for such activity would be high if the public was provided limited access to the installation. The white white-

tailed deer population is an unusual herd that has an important aesthetic value. The wetlands within and adjacent to the site do not provide exploitable fisheries resources, due to the limited access.

3.2 SEAD 57: EXPLOSIVE ORDNANCE DISPOSAL AREA

3.2.1 Results of Previous Investigations

3.2.1.1 SWMU Classification Report

The Explosive Ordnance Disposal Area (SEAD-57) is discussed in the SWMU Classification Report for Seneca Army Depot Activity (Parsons ES, 1995). This report identified SEAD-57 as a Moderate Priority Area of Concern.

The SWMU Classification Report does not provide any detailed information about the site, but it does provide clues to its current and past uses. It had been used since roughly 1941, and its use continued into the present time (i.e., 1995). The report also states that the area was used for open detonation and may have been used for the disposal of explosives.

No historical analytical data existed for SEAD-57 at the time the SWMU Classification Report was prepared. Based on the SWMU Classification Report, historic land use and the nature of the materials used at the site, a threat to human health and the environment was determined to exist. The potential for impacts to surface soil exists due to the way in which materials were handled at the site, and the potential for impacts to groundwater due to infiltration.

3.2.1.2 SEAD-57 ESI

Results obtained during the ESI at SEAD-57 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 ESI and RI at SEAD-57

The following field investigations were performed to complete the ESI and RI characterization of SEAD-57:

- Surveying
- Geophysical Investigations

- Soil Investigation
- Surface Water and Sediment Investigations
- Groundwater Investigation
- Building Investigation and
- Ecological Assessment

3.2.3 Site Survey

All sampling locations established during the remedial investigation of SEAD-57 were surveyed. Monitoring well were surveyed by a New York State licensed surveyor. All other sampling locations were surveyed using a GPS system. Coordinates for all sampling locations are summarized in **Table 3-16**.

3.2.4 Geophysical Investigations

Four 115-foot seismic refraction surveys were performed along two lines laid out perpendicular to each other (**Figure 3-6**). Data from the surveys were used to determine the direction of groundwater flow and adjust the location of the monitoring wells to locate a well upgradient and a well downgradient of the detonation area and shallow depression.

To evaluate the potential of buried unexploded ordnance at the site, GPR and EM-31 surveys were performed within the inner area of the circular 50-foot diameter bermed detonation area and shallow depression. The EM-31 data was collected on a 5-foot by 5-foot grid within the berm and on a 10-foot by 5-foot grid within the shallow depression. Where the EM-31 data indicated anomalies possibly associated with buried metallic objects, a subsequent GPR survey was performed to characterize the anomaly source. A total of 1,930 linear feet of EM and 1,815 linear feet of GPR surveys were conducted within SEAD-57.

Figure 3-7 shows the apparent conductivity measured in the two grids surveyed at SEAD-57. The grid within the bermed area revealed two anomalies in the southern portion of the grid. The broad conductivity low along the northeast corner of the grid is likely caused by natural variations in the apparent ground conductivities of the soil comprising the berm. The area surveyed in the shallow depression west of the access road also revealed two anomalies: one located in the west central portion of the grid and the other located along the southwestern edge. In general, the bermed area yielded higher apparent conductivities than the shallow depression.

The in-phase response of the EM-31 survey is shown in **Figure 3-8**. The four anomalies identified by the apparent conductivity are also evident in the in-phase component. The in-phase response suggests that the sources of these anomalies are metallic objects.

The GPR survey was conducted along the same transects as the EM-31 survey. The deepest reflectors noted on the GPR records were located at a two-way travel time of about 20 nano-seconds (ns) that corresponds to a depth of about 4 feet. Abundant GPR anomalies were identified within both grids surveyed. Most of the GPR anomalies were localized hyperbolic reflectors. **Figure 3-9** shows a typical hyperbolic anomaly located at a profile distance of about 132 feet along transect A-A'. **Figure 3-10** shows a shallow horizontal reflector located from 75N to 100N along transect B-B'.

3.2.5 Soil Investigation

3.2.5.1 Introduction

The objectives of the soil investigation program conducted at SEAD-57 were to determine the nature and extent of contamination present at the site, establish the extent of impacts to soils, and to collect soil samples for use in the risk assessment. 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 2.2.4**. Grain size analyses results are provided in **Appendix C**.

3.2.5.2 Subsurface Soils

ESI Program

Subsurface soil samples were collected from 11 test pits at SEAD-57. Three of the test pits were located on the berm (TP57-1, 3, and 4), two were within the detonation area (TP57-2 and TP57-5), five were located in the depressed area (TP57-6 to TP57-10), and one was located at a background location (TP57-11). The test pit locations are shown in **Figure 3-11**. Seven of the eleven test pits were sited at anomalies detected during the geophysical surveys.

Four soil samples were collected from each pit and composited to yield one sample per test pit.

Five surface soil samples were obtained from zero to two inches below grade from locations east and west of the disposal area, which are the dominant wind directions. Four other surface soil samples were obtained from around Building T2105. The impacts to these media are summarized in

the SEAD-45 and SEAD-57 Scoping Plan (Parsons ES, February 1996). These locations are shown on **Figure 3-11**.

RI Program

During the RI, seven soil borings were advanced at SEAD-57. These soil borings were advanced at specific locations described in the SEAD-57 Project Scoping Plan (Parsons ES, February 1996) and are shown in **Figure 3-11**. The soil-boring program performed for the SEAD-57 RI mainly focused on the outside area of the rectangular berm. Soil borings SB57-1, SB57-2, SB57-3, SB57-4, and SB57-5 were advanced at locations directly within the outside perimeter of the berm. Soil borings SB57-6 and SB57-7 were advanced within the inside of the berm. These borings were advanced to evaluate the vertical extent of impacts to soil around the outside of the rectangular berm and inside the actual bermed enclosure.

Three soil samples were collected from each soil boring for chemical analysis, a surface soil sample (zero to two inches below the surface vegetative matter) and two subsurface samples. Each soil boring was continuously sampled to the top of the water table. Two subsurface samples were collected from each soil boring. In total, 21 soil boring samples were collected. All sampling was conducted in accordance with the procedure outlined in Section 2.2.4.2. The sample program is summarized in **Table 3-17**.

3.2.5.3 Surface Soils

ESI Program

During the ESI, nine surface soil samples were collected at SEAD-57. The locations of the samples are shown in **Figure 3-11**. Four samples, SS57-6 to SS57-9, were obtained at the perimeter of building T2105. Samples SS57-1 to SS57-3 were obtained 50 to 100 feet east of the berm in a triangular pattern. Sample SS57-5 was taken 25 feet northwest of MW57-3 and SS57-4 was collected 70 feet northeast of MW57-3.

RI Program

During the RI, the surface soil program was designed to determine the lateral extent of impacted soil in the area surrounding the existing rectangular berm and the four former pits where ordnance disposal may have been performed.

A grid of 32 surface soil samples was established using a random-start equilateral triangular grid method ("Statistical Methods for evaluating the Attainment of Cleanup Standards, Volume 3: Referenced-Based Standards for Soil and Soil Media," EPA Policy, Planning and Evaluation, EPA 230-R-94-004). This method provided a uniform coverage to the area being sampled. Using this method, a rectangular area encompassing the site was established and a random point within this area was located.

Using equations based on the size of the area to be sampled and random numbers, 32 sample points were derived. To determine if surface soil had been impacted in the areas of the former pits, an additional 12 surface soil samples were collected. A total of 44 surface soil samples were collected at SEAD-57 and are shown in **Figure 3-11**.

Surface soil samples (zero to two inches below the vegetative matter) were collected at all 44 sample locations (SS57-10 to SS57-53), as presented in **Table 3-17**. All sampling was conducted in accordance with the procedure outlined in **Section 2.2.4.3**.

3.2.6 Surface Water and Sediment

The objectives of the surface water and sediment sampling conducted at SEAD-57 were to delineate the extent of contamination on site, establish the potential exposure pathways for offsite transport in the drainage swales, and to determine the potential exposure levels for the risk assessment.

ESI Program

No surface water and sediment study was conducted during the ESI.

RI Program

During the RI, 32 surface water and sediment samples were collected at locations in SEAD-57. These sampling locations were spaced at 200-foot intervals (approximate) within the present drainage swales that surround the site. The sampled locations included surface water and sediment sites that represent background quality and locations adjacent and downstream of the site where site impacts may exist. The locations of surface water and sediment samples are shown on **Figure 3-11**. All sampling was conducted in accordance with the procedure outlined in **Section 2.0**. **Tables 3-18** and **3-19** summarize the sampling program for SEAD-57.

Field sampling data is presented in **Table 3-20** and **3-21**.

3.2.7 Groundwater Investigation

The purpose of the groundwater monitoring program at SEAD-57 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.

3.2.7.1 Monitoring Well Installation

ESI Program

Three monitoring wells were installed at SEAD-57 during the ESI. Using results of the geophysical survey which indicated that the direction of groundwater flow was towards the southwest, one well (i.e., MW57-1) was sited upgradient of the bermed enclosure to provide a measure of background water quality data present; one (i.e., MW57-2) was placed adjacent to and downgradient of the bermed enclosure; while the third (i.e., MW57-3) was placed downgradient of the shallow depression. One monitoring well was constructed at each location and each was screened over the entire thickness of the till/weathered shall aquifer above competent bedrock. The locations of the wells installed during the ESI are shown in **Figure 3-11**. Construction details for the ESI groundwater wells are provided in **Table 3-22**. Following installation and development, one groundwater sample was collected from each monitoring well.

RI Program

Four additional monitoring wells (MW57-4 to MW57-7) were installed at SEAD-57 during the RI. MW57-4 was installed downgradient of Pit #1. MW57-5 was installed downgradient of Pit #3. MW57-6 was installed downgradient of Pit #4. MW57-7 was installed on the east side of the rectangular berm to determine whether a groundwater divide exists in this area. The location of each monitoring well is shown in **Figure 3-11**.

All monitoring wells were screened in the saturated overburden overlying the competent shale bedrock. Monitoring well construction details for all wells at SEAD-57 is presented in **Table 3-22** and monitoring well completion diagrams are included in **Appendix D**. All sampling was conducted in accordance with the procedure outlined in **Section 2.2.6.1**.

3.2.7.2 Monitoring Well Development

Following the well installation, each monitoring well was developed to insure that a proper hydraulic connection existed between the borehole and the surrounding aquifer. The well development details for the ESI and RI are summarized in **Sections 2.2.6.1 and 2.2.6.2**. All monitoring well development data is summarized in **Table 3-23**.

3.2.7.3 Groundwater Sampling

ESI Program

During the ESI, one round of groundwater sampling was collected on February 3, 1994. This sampling event only included collection of groundwater samples from three wells (i.e., MW57-1 through MW57-3). Data collected is presented in **Table 3-24**.

RI Program

Two rounds of groundwater sampling were conducted as part of the RI at SEAD-57 (see **Table 3-24**). The first round was conducted in January of 2000, while the second round was conducted during April of 2000. Groundwater samples were collected from all seven monitoring wells (MW57-1 through MW57-7) during each sampling event. All sampling was conducted in conjunction with the latest version of the EPA groundwater sampling outlined in **Section 2.2.6.3**. Field sampling information collected during groundwater sampling is summarized in **Tables 3-25 and 3-26**.

3.2.8 Aquifer Testing

3.2.8.1 Groundwater Flow

ESI Program

Groundwater elevations were determined once at the three monitoring wells (MW57-1 through MW57-3) on February 3, 1994.

RI Program

Three rounds of water level determinations were collected at each of the monitoring wells in SEAD-57 during the RI. The first round was collected prior to well development and used for well development calculations. The second round of measurements was collected before the first round of groundwater sampling in January 2000. The last round of measurements was taken in the spring of 2000. Both rounds of measurements have been used to construct a groundwater elevation contour map and to evaluate seasonal changes in the groundwater flow direction. Data collected during the January and April 2000 sampling events are presented and contoured on **Figures 3-12** and **3-13**, respectively. The available data from the two sampling events suggest that the groundwater flow in the upper aquifer in the area of SEAD-57 is predominantly towards the southwest.

3.2.8.2 Rising Head Slug Tests

Seven Rising Head Slug Tests were performed at SEAD-57 to determine hydraulic conductivity. The slug test parameters and related information are shown in **Table 3-27**. The procedure for slug testing is provided in **Section 2.2.7.2**. Hydraulic conductivities for all seven wells were calculated using the method described by Bouwer and Rice (1976). The slug test data and hydraulic conductivity results are presented **Appendix E** and summarized in **Table 3-28**.

Hydraulic conductivity values for the shallow till/weathered shale aquifer range from 1.03×10^{-4} cm/sec (MW57-4) to 4.24×10^{-3} cm/sec (MW57-6) and the geometric mean was 3.98×10^{-4} cm/sec. Published hydraulic conductivity values for till or representative materials are: 1) 0.49 m/day (5.67×10^{-4} cm/sec) for a repacked predominantly sandy till (Todd, 1980), and 2) from 10^{-2} to 10^{-3} m/day (10^{-5} to 10^{-6} cm/sec) for representative materials of silt, sand, and mixtures of sand, silt, and clay (Todd, 1980). No published hydraulic conductivity values for weathered shale were identified.

3.2.9 Building Investigation

Three grab samples of the surface debris were obtained from the floor of the munitions storage igloo located to the northwest of the berm in SEAD-57 (the Explosive Ordnance Disposal Area). Sample information is shown in **Tables 3-29** and **3-30**. All sampling was conducted in accordance with the procedure outlined in **Sections 2.2.8** and **2.2.9**.

3.2.10 Ecological Assessment

3.2.10.1 Introduction

A qualitative assessment of SEAD-57 was conducted to determine the ecological character of the site. The assessment addresses the potentially significant risks to the following biological groups and special-interest resources associated with the site: vegetation, wildlife, aquatic life, endangered and threatened species, and wetlands. The assessment was conducted within the SEAD-57 site and the surrounding area within a radius of 0.5 mile. The study area includes intermittent and perennial drainage ditches, a small, man-made pond, and terrestrial areas within the 0.5-mile radius.

The results of the ecological assessment will be used in the screening level Ecological Risk Assessment (ERA). The ERA will evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to chemicals associated with the site based on a weight-of-evidence approach.

3.2.10.2 Site Habitat Characterization

Site-specific data were compiled regarding the types of habitats and wildlife species found in the site vicinity. The data were compiled during a site visit conducted by Parsons ES ecologists in May 2000. In order to characterize the site and the habitats within the 0.5-mile radius, pedestrian surveys were conducted throughout the study area and a comprehensive list of all species observed was prepared. This list is included in this report as **Table 3-31**. Observations included sightings, vocalizations, tracks, burrows, nests, and scat. Observations and assessments were concentrated on undeveloped upland areas, waterways, and wetlands within the study area. No biological sampling was conducted within the study area.

The vegetation communities within the study area were evaluated using the classification system developed by the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program Ecological Communities of New York State (Reschke, 1990).

Information presented in this section was assembled through a combination of literature review, file searches, telephone interviews, office visits, and site inspection. Information was obtained from various departments of the NYSDEC, Cornell University, the U. S. Fish and Wildlife Service (USFWS), and from various publications. Site-specific resource information was obtained from previous ecological characterizations, the *Seneca Army Depot Natural Resources Management Plan* (SEDA, 1992c), the *Rare Species Survey Seneca Army Depot Activity* (USFWS 1996), the *Wetland*

Delineation Report for the New York State Department of Correctional Services (NYSOGS, 1998), and the *Wetlands, Fish, and Wildlife Plan* (SEDA, 1995). Regional information was obtained from the USGS 7.5 minute Romulus, Ovid, Dreden, and Geneva South quadrangle maps, the USFWS National Wetland Inventory maps, and digital ortho quadrangle aerial photography.

3.2.10.3 Meteorology

The climate in the vicinity of the Seneca Army Depot is temperate, with moderately cold winters and warm, humid summers. Temperatures reach 90° Fahrenheit or higher for 8 to 15 days during the months of June, July, or August. Lake Ontario, Seneca, and Cayuga Lakes have a moderating effect on both daytime highs and nighttime low temperatures. Rainfall is heaviest during the late spring and summer growing season with averages between 14.5 and 15.5 inches. Total annual precipitation ranges from 26.5 to 37.5 inches. At least one inch of snow covers the ground from early December to the middle of March, with an average annual snowfall of 60 to 65 inches.

3.2.10.4 Physical Site Description

The Seneca Army Depot is located west of Romulus, NY, and 12 miles south of Geneva and Seneca Falls, NY. The installation lies within the southern portion of the area described in the *Ecological Communities of New York State* (NYSDEC, 1990) as the Great Lakes Plain, on the northern edge of the Appalachian Plateau. The Seneca Army Depot is composed of approximately 10,600 acres of a high, broad plateau separating Cayuga Lake to the east, and Seneca Lake to the west. The topography across the installation slopes gently from 765 feet at the southeast corner to 585 feet at the northwest corner.

Four watersheds are present on the installation (USDA, 1989). Kendaia Creek drains the central portion of the installation into Seneca Lake. Reeder Creek drains the northwest and north-central portions of the installation. The northeast portion of the installation drains into Kendig Creek, which flows north into the Cayuga-Seneca Canal. Most of the southern portion of the installation is drained into Silver Creek or Indian Creek which merge and discharge as Indian Creek into Seneca Lake near Sampson Park. A small amount of the southeastern portion of the Depot discharges into an unnamed creek that eventually discharges through Hicks Gully into Cayuga Lake.

The SEAD-57 area is located in the northwest portion of the installation, in the Reeder Creek watershed. The features on the site include one abandoned wooden building, a landfill operated by Weston, Inc., railroad tracks; networks of paved and gravel roads, numerous abandoned building

pads, a small, excavated pond, and undeveloped areas. Off-base land use within the 0.5-mile radius study area is predominantly agricultural and residential.

SEAD-57 is located in an open area that has been cleared and graded. A gravel access road leads to a circular berm in the center of the cleared area. This bermed area is the former ordnance demolition site, as is evidenced by the pieces of metal debris around the site. Several shallow swales running north-south in the cleared area effectively drained the site, but did not appear to discharge out of the cleared area. There was standing water in the swales during the site visit, especially after one significant rainfall event, but no obvious discharge from the cleared area was observed. Several depressions were present in the cleared area shown on the vegetation map (**Figure 3-14**).

3.2.10.5 Land Use and Vegetative Cover

All areas of the installation have been altered to varying degrees by management practices, whether from mission-related maintenance activities within the last 40 years, or from historical farming practices. With the on-going closure of the installation, some management activities such as mowing and silviculture have been reduced or terminated due to lack of manpower, or due to the change in mission. The attached **Figure 3-14** shows the different vegetation communities in the 0.5-mile radius around the study area. **Table 3-32** below shows the composition of the study area with respect to the vegetative communities.

3.2.10.6 Upland Communities

Successional Old Field. This habitat type occurs in areas in which the vegetation and/or soil have been altered by clear-cutting, grading, draining, mowing, or other activities commonly associated with land management practices. The vegetative cover in these areas is predominantly herbaceous species common to recently or routinely disturbed areas and includes numerous nuisance exotic and opportunistic species. All uplands within the study area that do not support a shrub or tree stratum exceeding 50% cover fall into this classification. Much of the shoulders of the roadways and the areas around facilities was routinely mowed for security measures. Now that the base is officially closed, mowing has become less frequent or has been terminated altogether, and the opportunistic species are successfully competing with the introduced turf and native grass species. Depending upon the specific site conditions, species present include white clover, wild mustard, Queen Anne's lace, ragweed, wild strawberry, numerous unidentified grasses, and dandelion. Many areas are rapidly succeeding into shrubland, as can be determined by the presence of red-osier, sumac, hawthorn, and red raspberry. Obviously, the composition of the herbaceous layer changes with the season and would include more species from the composite family in the late summer and fall.

This vegetation classification provides excellent habitat for the white-tailed deer which were often observed foraging in the old field areas adjacent to forest and shrub communities. Other species commonly observed in this habitat include eastern cottontail rabbit, numerous songbirds, woodchuck, and raccoon.

Successional Shrub. This vegetation classification is characterized by a dominance of shrub species, and less than 50% cover of canopy trees. The species in this community include red-osier dogwood, staghorn sumac, European buckthorn, red raspberry, hawthorn, black cherry, and saplings of early successional trees such as black locust, red maple, and tree-of-heaven. In drier areas, these shrubs can form dense thickets, while in depressions, the dominant species are more mesic varieties such as the red osier dogwood and red raspberry. The groundcover in the successional shrub community is usually dominated by various graminoid species, interspersed with opportunistic forb species. This vegetation community is very popular with songbirds, especially migrating species. Those observed in this area included eastern kingbird, American robin, blue jay, mocking bird, European starling, gray catbird, and rufous-sided towhee. Also common in this habitat are the white-tailed deer, raccoon, woodchuck, and eastern cottontail rabbit.

Successional Southern Hardwoods. Successional southern hardwood communities develop on sites that have been cleared, graded, logged, or otherwise disturbed. The canopy, which may form within 7 years of disturbance, is usually composed of fast-growing species that require a significant amount of light. When the canopy in this community becomes fairly dense, the canopy species usually do not reproduce because of the reduced sunlight, and shade-tolerant trees become established.

This vegetation community is characterized by the dominance of early and mid-successional native and introduced tree species. Common canopy species include gray birch, black locust, American elm, silver maple, and eastern cottonwood. Understory species include those found in the successional shrub and old field communities. The wildlife found in this habitat included common white-tailed deer, black-capped chickadee, tufted titmouse, northern cardinal, northern flicker, raccoon, opossum, and eastern gray squirrel.

3.2.10.7 Wetland Communities

All wetlands within the 0.5-mile radius have been altered significantly by land management practices. Natural creeks have been straightened and channelized, and former wetland areas have been drained and filled.

Artificial Pond. A small (0.25-acre) pond was excavated in a cleared area approximately 1500 feet southwest of the SEAD-57 site. The former use or origin of the pond was not discernable during the site visit. The pond appears to rely on surface water runoff for hydration, but discharges into a ditch through a culvert in the southwest corner. The north and south sides of the pond are stabilized with railroad ties, while the east and west sides of the pond are sloped. Little vegetation was present in the pond, with the exception of cattail. The land around the perimeter of the pond was vegetated with common old field species. No evidence of wildlife usage was observed, nor does the pond provide potentially significant wildlife habitat.

Ditch/Artificial Stream. Only one channelized stream and several excavated drainage ditches and swales were located in the study area. The channelized stream is an unnamed creek that drains the western half of the study area to the west to discharge into Seneca Lake. There was significant flow in the creek during the site evaluation. No vegetation was present in the creek, but the banks were densely vegetated with opportunistic and riparian species such as sumac, raspberry, poison ivy, and American elm.

The ditches and shallow swales throughout the demolition area and along the roadsides were vegetated with a variety of forb and grass species tolerant of inundation and frequent mowing. The northern leopard frog and the common garter snake were observed in the swales near the demolition area.

Shallow Emergent Marsh. Several shallow emergent marshes are located within the demolition area. These marshes are depressions in the graded field surrounding the bermed ordnance detonation area. There was no standing water in any of the marshes at the time of the site assessment, but the soil was moist. Vegetation in the marshes included cattail, and swamp milkweed. These ephemeral marshes are especially important to piscivorous avifauna species for foraging habitat.

3.2.10.8 Terrestrial Cultural Communities

Terrestrial cultural communities were combined on the vegetation community map included in this report (**Figure 3-14**). The features included in this category are roadways, buildings, residential areas, agricultural areas, railroad tracks, and other areas of anthropogenic origin that provide marginal wildlife habitat.

Paved Roads. The Seneca Army Depot has a network of paved and gravel roads that total 141 miles. The roads do not offer forage opportunities for most species, but do provide basking areas for ectothermic species during cooler weather, and therefore offer prey opportunities for certain predators. During a previous site investigation, a red-tailed hawk was observed taking a small snake

from one of the perimeter roads. The hawks were frequently observed on poles and in trees adjacent to the roads waiting for prey.

Prior to the closure of the installation, the road shoulders were routinely mowed. Since the closure mowing has been cut back significantly, and the shoulders have reverted to successional old field vegetation. This will have a beneficial effect on wildlife habitat as long as the traffic levels remain low.

Structures. One abandoned building was present within the 0.5 mile radius study area. The building is a large, very decrepit, barn-like wooden structure located south of the demolition area. No habitat utilization of the abandoned building was observed, although the presence of bats and small rodents is likely. A block building that is in active use is located roughly 2000 feet northeast of SEAD-57, along with two office trailers.

Railroads. Railroad tracks in the vicinity of the site were observed as being hunting grounds of red-tailed hawk and great horned owl during the field visits. These birds occupied prominent perches adjacent to railroad corridors frequently during the site visits. Railroads apparently serve as trails for nocturnal creatures, as tracks and scat of skunk, raccoon, fox, and opossum were observed frequently. The poor rooting substrate of the granite railroad bed and routine herbicide application suppress vegetation along the tracks and shoulders.

Landfill. Wolpert, Inc., is currently conducting remediation activity north of the SEAD-57 study site. The soil from that remediation activity is being stockpiled in a lined landfill facility on the east side of the study site.

3.2.10.9 Wildlife Resources

Wildlife resources at the Seneca Army Depot are intensively managed under a cooperative conservation and development plan developed in conjunction with the NYSDEC (1992). The objectives of the fish and wildlife management plan are to:

- a. Protect and develop habitat for the production of game and non-game species;
- b. Control white-tailed deer (*Odocoileus virginianus*) harvest (with additional emphasis on white-tailed deer management);
- c. Enhance non-game species populations for their aesthetic, recreational, and educational values; and

- d. Establish long range goals for selected species including eastern bluebird (*Salia salis*), ring-necked pheasant (*Phasianus colchicus*), wood duck, white-tailed deer, and wild turkey (*Meleagris gallopavo*).

Commonly occurring small game mammals in the installation include eastern cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), snowshoe hare (*Lepus americanus*), muskrat (*Ondatra zibithecus*), beaver (*Castor canadensis*), eastern coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and gray fox (*Urocyon cinereoargenteus*). Ruffed grouse (*Bonasa umbellus*), ring-necked pheasant, and wild turkey also inhabit the depot. Waterfowl are attracted to wetlands on and around the depot, particularly the 87-acre "duck ponds" created in the northeast corner of the property during the 1970s.

The wildlife within 0.5 mile of the site consists of upland species, particularly those favoring old fields and shrublands, since these are abundant habitats in the study area. The mixture of these habitats with small woodlots and tree rows provides ideal habitat for white-tailed deer, which are common throughout the installation. Many non-game species also are present in the depot and potentially utilize habitats within the 0.5-mile study area. Tracks of white-tailed deer, raccoon, opossum, woodchuck and rabbit also were observed within the site. Wildlife evidence and direct observations made during site visits are presented in **Table 3-31**.

3.2.10.10 Endangered Species and Significant Habitats

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 site. No species of special concern are documented within the depot property. Field investigation of the site determined that the surrounding area is highly modified and has a disturbed ecology resulting from management consistent with mission activities. Highly disturbed sites are characteristically colonized by opportunistic species and do not typically support rare or endangered flora and fauna. No rare or endangered species were observed during the site assessment.

Although there are no recent sightings of endangered or threatened species on the installation, there is always the potential for the site to be utilized by an endangered or threatened species in the future. **Table 3-15** provides a list of the state- and federally- listed species that may occur in the vicinity or on the installation. This table is based on the known preferred habitat of the species and their availability on the installation. The installation is the focus of wildlife and forestry management practices being

conducted at the depot. Wildlife management efforts focusing on waterfowl, songbirds, and game populations have been conducted for many years.

The habitat value of the SEAD-57 site itself is considered moderate to fair, despite the historical impacts of farming and the land management practices associated with the military activities. The site is currently protected from human disturbance and although the vegetation is predominantly early successional, it provides cover, forage, and breeding habitat not often found outside of wildlife reserves and public parks.

3.2.10.11 Resource Value to Humans

The Seneca Army Depot represents a unique opportunity for wildlife and pest control research in New York State due to its large size and continuous perimeter fencing. The depot property represents significant value to humans resulting from decades of wildlife management and scientific research. The NYSDEC has used the depot white-tailed deer population to develop population, growth, and reproduction models. Currently a Cornell University/NYSDEC white-tailed deer immuno-contraception study is being conducted with a captive herd in the Q area of the Main Post. NYSDEC biologists participate in annual harvests by inspecting field-dressed deer for disease and parasites, aging specimens, and measuring beam diameter (SEDA, 1992c). NYSDEC conducted studies in the 1960s on fox reproduction inhibition using diethyl stilbestrol (DES) to control the spread of rabies. Cornell University entomologists have conducted studies on the ability of northern corn rootworm to traverse areas of non-croplands at the depot (SEDA, 1992c).

Consumptive use of wildlife consists of hunting of upland birds, predators, waterfowl, and white-tailed deer. Harvest of deer is closely monitored to maintain the population below carrying capacity of the depot habitat (SEDA, 1995). Hunting on the property is presently limited to current and retired military personnel and a limited numbers of guests. Hunting is conducted during both the Southern Zone archery and firearms hunting seasons in accordance with New York State regulations. Discontinuation of the military mission of the depot may have significant impacts on the types and intensity of human utilization of wildlife resources in the future.

The consumptive wildlife resource value of the SEAD-57 property to humans is considered high. The site is relatively remote, game is plentiful, and the low vegetation in some areas facilitates the spotting of the larger game species. The white deer on the installation are highly desirable hunting trophies.

Evidence of non-consumptive wildlife resource utilization, such as bird watching, wildlife observation, photography, and amateur study was not observed during the site evaluation, but the potential for such activity would be high if the public was provided limited access to the installation. The white, white-tailed deer population is an unusual herd that has an important aesthetic value. The wetlands and water bodies within and adjacent to the site do not provide exploitable fisheries resources, due to the limited access.

**TABLE 3-1
SUMMARY OF SURVEY DATA: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Survey Monuments					
SEAD-461999	1,006,703.63	749,781.97	679.94		
SEAD-461999A	1,007,082.81	749,379.36	672.51		
Berm Sample Locations					
BE46-1	1,007,221.77	749,409.90			
BE46-2	1,007,226.32	749,427.70			
BE46-3	1,007,177.43	749,460.22			
BE46-4	1,007,214.08	749,458.85			
BE46-5	1,007,198.19	749,470.47			
BE46-6	1,007,173.98	749,445.83			
BE46-7	1,007,162.75	749,413.89			
BE46-8	1,007,182.15	749,402.61			
Surface Soil Locations					
SS46-1	1,006,841.95	749,752.35			
SS46-2	1,007,271.86	749,635.30			
SS46-3	1,007,248.85	749,536.67			
SS46-4	1,007,240.48	749,494.66			
SS46-5	1,007,269.69	749,420.08			
SS46-6	1,007,252.26	749,369.62			
SS46-7	1,007,251.78	749,369.21	673		
SS46-8	1,007,163.15	749,497.21			
SS46-9	1,007,158.47	749,543.11			
SS46-10	1,007,183.08	749,581.11			
SS46-11	1,007,161.85	749,662.26			
SS46-12	1,007,109.49	749,403.27			
SS46-13	1,007,068.45	749,394.65			
SS46-14	1,007,116.71	749,448.65			
SS46-15	1,007,092.27	749,500.92			
SS46-16	1,007,059.16	749,691.41			
SS46-17	1,007,203.63	749,315.62			
SS46-18	1,006,936.06	749,454.14			
SS46-19	1,006,967.66	749,537.40			
SS46-20	1,006,955.56	749,719.29			
SS46-21	1,006,839.35	749,611.99			
SS46-22	1,006,822.73	749,497.03			
SS46-23	1,006,765.17	749,587.65			
SS46-24	1,006,720.30	749,678.93			

TABLE 3-1
SUMMARY OF SURVEY DATA: SEAD-46

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Monitoring Well Locations					
MW46-1	1,007,209.59	749,701.71	679.76	682.07	682.31
MW46-2	1,007,305.92	749,490.11	672.96	675.23	675.44
MW46-3	1,007,284.43	749,368.49	671.94	674.67	674.94
MW46-4	1,007,148.31	749,334.93	671.87	674.37	674.65
MW46-5	1,007,089.51	749,380.07	671.88	674.32	674.54
MW46-6	1,007,147.06	749,467.73	673.67	676	676.28
Surface Water and Sediment Locations					
SW/SD46-1	1,007,057.76	749,413.74			
SW/SD46-2	1,007,223.69	749,352.89			
SW/SD46-3	1,006,998.95	749,467.63			
SW/SD46-4	1,007,295.69	749,318.72			

**TABLE 3-2
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	QC-Code (Sample/Duplicate)	Sample Date	NYSDEC-CLP- Volatile Organic Compounds	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Nitrate-Nitrite Nitrogen	Percent Solids	Grain Size	Density
Berm Samples												
BE46-1	464001	SA	12/13/99	X	X	X	X	X	X	X		
BE46-2	464002	SA	12/13/99	X	X	X	X	X	X	X		
BE46-3	464003	SA	12/13/99	X	X	X	X	X	X	X		
BE46-4	464004	SA	12/13/99	X	X	X	X	X	X	X		
BE46-5	464005	SA	12/13/99	X	X	X	X	X	X	X		
BE46-6	464006	SA	12/14/99	X	X	X	X	X		X		
BE46-7	464007	SA	12/14/99	X	X	X	X	X	X	X		
BE46-8	464000	SA	12/14/99	X	X	X	X	X	X	X		
Surface Soils												
SS46-1	464023	SA	12/15/99	X	X	X	X	X	X	X		
SS46-2	464013	SA	12/14/99	X	X	X	X	X		X		
SS46-3	464010	SA	12/14/99	X	X	X	X	X		X		
SS46-4	464009	SA	12/14/99	X	X	X	X	X	X	X		
SS46-5	464008	SA	12/14/99	X	X	X	X	X	X	X		
SS46-6	464021	SA	12/15/99	X	X	X	X	X	X	X		
SS46-7	464020	SA	12/15/99	X	X	X	X	X	X	X		
SS46-8	464016	SA	12/15/99	X	X	X	X	X		X		
SS46-8	464017	DU	12/15/99	X	X	X	X	X	X	X		
SS46-9	464012	SA	12/14/99	X	X	X	X	X	X	X		
SS46-10	464011	SA	12/14/99	X	X	X	X	X		X		
SS46-11	464014	SA	12/14/99	X	X	X	X	X		X		
SS46-12	464018	SA	12/15/99	X	X	X	X	X	X	X		

Note:

X = Sample collected and submitted for analysis.

**TABLE 3-2
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	QC-Code (Sample/Duplicate)	Sample Date	NYSDEC-CLP- Volatile Organic Compounds	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Nitrate-Nitrite Nitrogen	Percent Solids	Grain Size	Density
Surface Soils												
SS46-13	464027	SA	12/16/99	X	X	X	X	X	X	X		
SS46-13	464028	DU	12/16/99	X	X	X	X	X	X	X		
SS46-14	464019	SA	12/15/99	X	X	X	X	X	X	X		
SS46-15	464024	SA	12/15/99	X	X	X	X	X	X	X		
SS46-16	464015	SA	12/14/99	X	X	X	X	X		X		
SS46-17	464029	SA	12/16/99	X	X	X	X	X	X	X		
SS46-18	464030	SA	12/16/99	X	X	X	X	X	X	X		
SS46-19	464025	SA	12/15/99	X	X	X	X	X	X	X		
SS46-20	464022	SA	12/15/99	X	X	X	X	X	X	X		
SS46-21	464026	SA	12/15/99	X	X	X	X	X	X	X		
SS46-22	464031	SA	12/16/99	X	X	X	X	X	X	X		
SS46-23	464032	SA	12/16/99	X	X	X	X	X	X	X		
SS46-24	464033	SA	12/16/99	X	X	X	X	X	X	X		
Subsurface Soils												
MW46-4	469000	SA	12/18/99							X	X	X
MW46-4	469001	SA	12/18/99							X	X	X
MW46-4	469002	SA	12/18/99							X	X	X
MW46-5	469003	SA	12/17/99							X	X	X
MW46-5	469004	SA	12/17/99							X	X	X
MW46-5	469005	SA	12/17/99							X	X	X

Note:
X = Sample collected and submitted for analysis.

**TABLE 3-3
SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	Date Sampled	Top Sample Depth (ft)	Bottom Sample Depth (ft)	QC-Code (SAmple/Duplicate)	Volatile Organic Compounds - Purge and Trap	NYSDEC-CLP-Semivolatiles Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Hardness	Nitrate-Nitrite Nitrogen	pH	Total Organic Carbon
SW/SD46-1	461000	12/17/99	0	0.166	SA	X	X	X	X	X	X	X	X	X
SW/SD46-2	461001	12/17/99	0	0.166	SA	X	X	X	X	X	X	X	X	X
SW/SD46-3	461002	12/17/99	0	0.166	SA	X	X	X	X	X	X	X	X	X
SW/SD46-4	461003	12/16/99	0	0.166	SA	X	X	X	X	X	X	X	X	X

Note:

X - Sample collected and submitted for analysis.

**TABLE 3-4
SUMMARY OF SEDIMENT SAMPLE ANALYSES: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Identification	Date Sampled	Top Sample Depth (ft)	Bottom Sample Depth (ft)	QC_Code (Sample/Duplicate)	NYSDEC-CLP-Volatile Organic Compounds	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Cation Exchange Capacity	Nitrate-Nitrite Nitrogen	Percent Solids	pH	Total Organic Carbon
SW/SD46-1	463000	12/17/99	0	1	SA	X	X	X	X	X	X	X	X	X	X
SW/SD46-2	463001	12/17/99	0	1	SA	X	X	X	X	X	X	X	X	X	X
SW/SD46-3	463002	12/17/99	0	1	SA	X	X	X	X	X	X	X	X	X	X
SW/SD46-4	463003	12/16/99	0	1	SA	X	X	X	X	X	X	X	X	X	X

Note:
X = Sample collected and submitted for analysis.

**TABLE 3-5
SUMMARY OF SEDIMENT SAMPLE CHARACTERISTICS: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Sediment Sampling Location	Sediment Sample ID	Date Sampled	Sample Depth (in)	Field Description	USCS Classification
SD46-1	463001	12/17/99	0-12"	Light Brown Clayey-Silt, trace C Sand, Imm-2mm Iron Oxide Stains	CL
SD46-2	463000	12/17/99	0-12"	Light Brown Shale	ML
SD46-3	463002	12/17/99	0-12"	Light Brown Clayey-Silt, trace C Sand, Imm-2mm Iron Oxide Stains	CL
SD46-4	463003	12/16/99	0-12"	Light Brown Shale	ML

**Table 3-6
SEAD-46 - Monitoring Well Construction Details**

**SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, New York**

Well ID	Well Type	Point of Well Relative to Ground Surface (ft)	Point of Well Relative to Top of PVC (ft)	Diameter of Boring (in)	Diameter of Well (in)	Well Screen Length (ft)	Screened Interval Relative to TOC (ft)			Well Screen Slot Size (in)	Ground Surface Elevation	Elevation of Top of PVC Well (MSL)	Elevation of Top of Casing	Height of PVC Well Stickup (ft)	Well Casing Material	Well Screen Material
								to								
MW46-1	T/WS	23.96	26.23	8	2	20	6.27	to	25.77	0.010	679.80	682.07	682.31	2.27	PVC	PVC
MW46-2	T/WS	14.13	16.36	8	2	10	6.63	to	16.13	0.010	673.00	675.23	675.44	2.23	PVC	PVC
MW46-3	T/WS	13.80	16.84	8	2	10	7.27	to	16.77	0.010	671.90	674.67	674.94	3.04	PVC	PVC
MW46-4	T/WS	12.33	15.08	8	2	7	8.27	to	14.97	0.010	671.90	674.37	674.65	2.75	PVC	PVC
MW46-5	T/WS	10.02	12.66	8	2	5	7.72	to	12.22	0.010	671.90	674.32	674.54	2.64	PVC	PVC
MW46-6	T/WS	14.40	16.98	8	2	10	7.30	to	16.80	0.010	673.70	676.00	676.28	2.58	PVC	PVC

Notes:

T/WS Till Weathered Shale Aquifer

Table 3-7
SEAD-46 - Monitoring Well Development Information

SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, New York

Well ID	Date Purged	Installation Date	Development Method	Field-Measured Parameters				Gallons of Purge Water Removed
				Temperature (°F)	Specific Conductivity (umhos)	pH	Turbidity (NTU)	
MW46-1	01/07/00	12/13/99	Teflon Bailer & Pump	50.6	9	6.17	25.4	17.90
MW46-2	01/07/00	12/16/99	Teflon Bailer & Pump	45.3	831	7.34	39.0	14.40
MW46-3	01/08/00	12/16/99	Teflon Bailer & Pump	44.8	1017	7.49	29.1	11.50
MW46-4	01/09/00	12/18/99	Teflon Bailer & Pump	46.2	950	7.21	24.4	14.20
MW46-5	01/09/00	12/17/99	Teflon Bailer & Pump	48.8	940	7.54	40.0	8.50
MW46-6	01/10/00	12/17/99	Teflon Bailer & Pump	49.9	1330	6.80	35.4	14.90

Measurements taken after well development completed.

**TABLE 3-8
SUMMARY OF GROUNDWATER SAMPLE ANALYSES: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	QC_Code (Sample/Duplicate)	Sample Date	Volatile Organic Compounds - Purge and Trap	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Chemical Oxygen Demand	Nitrate-Nitrite Nitrogen	Total Hardness	Total Suspended Solids
Round 1 Sampling Event												
MW46-1	462000	SA	1/22/00	X	X	X	X	X		X		
MW46-2	462004	SA	1/22/00	X	X	X	X	X		X		
MW46-3	462005	SA	1/23/00	X	X	X	X	X		X		
MW46-4	462003	SA	1/22/00	X	X	X	X	X		X		
MW46-5	462002	SA	1/22/00	X	X	X	X	X		X		
MW46-6	462001	SA	1/22/00	X	X	X	X	X		X		
Round 2 Sampling Event												
MW46-1	462100	SA	4/25/00	X	X	X	X	X	X	X	X	X
MW46-2	462101	SA	4/25/00	X	X	X	X	X	X	X	X	X
MW46-3	462102	SA	4/25/00	X	X	X	X	X	X	X	X	X
MW46-4	462103	SA	4/25/00	X	X	X	X	X	X	X	X	X
MW46-5	462104	SA	4/25/00	X	X	X	X	X	X	X	X	X
MW46-6	462105	SA	4/26/00	X	X	X	X	X	X	X	X	X

Note:
X = Sample collected and submitted for analysis.
S46gwan

**Table 3-9
Monitoring Well Field Sampling Information**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Well ID	Sample ID	Date Sampled	Field-Measured Parameters						Gallons of Purge Water Removed
			Temperature (°C)	Specific Conductivity (umhos)	pH	ORP (mv)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	
MW46-1	462000	01/22/00	6.35	544	7.34	136	4.33	5.01	4.33
MW46-2	462004	01/22/00	6.62	479	7.15	113.5	8.57	19.60	3.75
MW46-3	462005	01/23/00	6.14	524	7.00	141	5.77	28.00	5.77
MW46-4	462003	01/22/00	6.17	524	6.95	114.2	5.84	10.00	2.80
MW46-5	462002	01/22/00	6.62	548	7.21	106	6.18	18.20	3.80
MW46-6	462001	01/22/00	6.92	470	7.18	122	7.18	9.74	4.50

Well ID	Sample ID	Date Sampled	Field-Measured Parameters						Gallons of Purge Water Removed
			Temperature (°C)	Specific Conductivity (umhos)	pH	ORP (mv)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	
MW46-1	462100	04/25/00	9.13	549	6.79	165	4.81	4.1	1.45
MW46-2	462101	04/25/00	8.59	503	6.77	172	4.8	5.01	2.50
MW46-3	462102	04/25/00	7.76	452	6.71	169	3.24	5.77	2.75
MW46-4	462103	04/25/00	8.81	487	6.68	170	4.54	8.50	2.40
MW46-5	462104	04/25/00	8.34	546	4.82	168	4.14	4.18	1.75
MW46-6	462105	04/26/00	8.23	477	6.73	154	4.51	3.34	2.60

TABLE 3-10
SUMMARY OF GROUNDWATER ELEVATION DATA: SEAD-46

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Identification	PVC Elevation (NAVD 88 - ft)	Prior to Development		During Development		Round 1		Round 2	
		Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)
MW46-1	682.07	6.47	675.6	4.87	677.2	5.97	676.1	4.58	677.49
MW46-2	675.23	4.12	671.11	3.12	672.11	3.8	671.43	2.78	672.45
MW46-3	674.67	3.97	670.7	3.59	671.08	3.82	670.85	3.1	671.57
MW46-4	674.37	3.83	670.54	3.64	670.73	3.7	670.67	3.1	671.27
MW46-5	674.32	3.62	670.7	3.16	671.16	3.48	670.84	2.65	671.67
MW46-6	676	5.16	670.84	4.32	671.68	4.88	671.12	3.8	672.2

**TABLE 3-11
SUMMARY OF HYDRAULIC CONDUCTIVITY DATA: SEAD-46**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Well I.D.	Test Number	Date Tested	Aquifer	Slug Dimensions (ft)	Well Type	Static Water Level (TOC)		Time Sampled		Transducer Depth (TOC)	Depth of Well Relative to Top of PVC (ft)	Diameter of Well (in)	Well Screen Length (ft)	Screened Interval Relative to Top of PVC (ft)		Well Screen Slot Size (in)	
						Start	Finish	Start	Finish					to	to		
MW46-1	5 (Repeat)	01/26/00	T/WS	0.11' X 5'	PVC	5.66/10.87	6.0/10.54	1235	1329	10.87	26.23	2.00	19.50	6.27	to	25.77	0.010
MW46-2	1	01/25/00	T/WS	0.11' X 5'	PVC	3.85/10.37	3.53/10.05	1003	1048	14.0	16.36	2.00	9.50	6.63	to	16.13	0.010
MW46-3	2	01/25/00	T/WS	0.11' X 5'	PVC	3.85/10.73	3.22/10.10	1103	1148	14.0	16.84	2.00	9.50	7.27	to	16.77	0.010
MW46-4	4	01/25/00	T/WS	0.11' X 5'	PVC	3.66/9.55	3.66/9.55	1423	1513	13.0	15.08	2.00	6.70	8.27	to	14.97	0.010
MW46-5	3	01/25/00	T/WS	0.11' X 5'	PVC	3.46/7.86	2.85/7.25	1325	1410	10.0	13	2.00	5	7.72	to	12.22	0.010
MW46-6	5	01/25/00	T/WS	0.11' X 5'	PVC	4.86/10.28	4.82/10.24	1530	1615	15.0	17	2.00	10	7.3	to	16.8	0.010

Notes:

T/WS = Till Weathered Shale Aquifer

Data logger used was a In-Situ Hermit 1000C (SNKC1532)

The transducer used was a PXD 260 rated at 10psi

TABLE 3-12
SUMMARY OF HYDRAULIC CONDUCTIVITY FIELD RESULTS: SEAD-46

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Well ID	Stratigraphic Unit	Hydraulic Conductivity		
		(cm/sec)	(ft/min)	(ft/day)
MW46-1	Till/Weathered Shale	2.22E-04	4.37E-04	0.63
MW46-2	Till/Weathered Shale	5.53E-03	1.09E-02	15.68
MW46-3	Till/Weathered Shale	4.81E-03	9.47E-03	13.63
MW46-4	Till/Weathered Shale	5.80E-03	1.14E-02	16.44
MW46-5	Till/Weathered Shale	1.64E-03	3.23E-03	4.65
MW46-6	Till/Weathered Shale	7.68E-03	1.51E-02	21.77
Geometric Mean	Till/Weathered Shale	2.75E-03	5.41E-03	7.79

**Table 3-13
SPECIES OBSERVED AT THE SEAD-46 SITE**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York**

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine	
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Forested Wetlands	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Red Maple Hardwood Swamp	Shallow Emergent Marsh
Canopy Trees								
Red maple	<i>Acer rubrum</i>			X			X	
Silver maple	<i>Acer saccharum</i>			X				
Tree-of-heaven	<i>Ailanthes altissima</i>			X				
Gray birch	<i>Betula populifolia</i>			X			X	
Pignut hickory	<i>Carya glabra</i>			X				
Shagbark hickory	<i>Carya ovata</i>			X				
White ash	<i>Fraxinus americana</i>			X			X	
Black walnut	<i>Juglans nigra</i>			X				
Eastern cottonwood	<i>Populus deltoides</i>			X			X	
White oak	<i>Quercus alba</i>							
Chestnut oak	<i>Quercus prinus</i>							
Northern red oak	<i>Quercus rubra</i>							
Black locust	<i>Robinia pseudo-acacia</i>			X				
Horse chestnut	<i>Aesculus hippocastanum</i>							
Basswood	<i>Tilia americana</i>			X			X	
American elm	<i>Ulmus americana</i>			X			X	
Understory Trees and Shrubs								
Box elder	<i>Acer negundo</i>						X	
Gray birch	<i>Betula populifolia</i>			X			X	
American hornbeam	<i>Carpinus caroliniana</i>						X	
Red-osier dogwood	<i>Cornus stolonifera</i>		X	X			X	
Hawthorne	<i>Craetegus sp.</i>		X	X			X	
White mulberry	<i>Morus alba</i>		X	X				
Black cherry	<i>Prunus serotina</i>	X	X	X				
Black willow	<i>Salix nigra</i>						X	

**Table 3-13 (continued)
SPECIES OBSERVED AT THE SEAD-46 SITE**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York**

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine	
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Forested Wetland	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Red Maple Hardwood Swamp	Shallow Emergent Marsh
Understory Trees and Shrubs (cont.)								
European buckthorn	<i>Rhamnus cathartica</i>	X	X	X			X	
Staghorn Sumac	<i>Rhus typhina</i>	X	X	X				
Red raspberry	<i>Rubus idacus</i>	X	X	X			X	
Herbaceous Plants								
Common ragweed	<i>Ambrosia artimisiifolia</i>	X	X	X	X			
Beggar's tick	<i>Bidens pilosa</i>	X	X					
Wild mustard	<i>Brassica nigra</i>	X	X					
Sedge	<i>Cyperus sp.</i>	X	X		X			X
Orchard grass	<i>Dactylis glomerata</i>	X	X					
Queen Anne's lace	<i>Daucus carota</i>	X	X		X			
Teasel	<i>Dipsacus sylvestris</i>	X	X					
Common strawberry	<i>Fragaria virginiana</i>	X						
Manna grass	<i>Glyceria borealis</i>	X						
Hawkweed	<i>Hieracium sp.</i>	X						
Purple loosestrife	<i>Lythrum salicaria</i>				X			X
White sweet clover	<i>Melilotus alba</i>	X						
Sensitive fern	<i>Onoclea sensibilis</i>						X	
Panic grass	<i>Panicum spp.</i>	X			X			
Virginia creeper	<i>Parthenocissus quinquefolia</i>	X	X	X			X	
Common reed	<i>Phragmites australis</i>	X			X			X
Bluegrass	<i>Poa palustris</i>	X						
May apple	<i>Podophyllum peltatum</i>	X		X			X	

**Table 3-13 (continued)
SPECIES OBSERVED AT THE SEAD-46 SITE**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York**

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine	
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Forested Wetlands	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Red Maple Hardwood Swamp	Shallow Emergent Marsh
Herbaceous Plants (cont.)								
Golden rod	<i>Solidago sp.</i>	X	X					
Dandelion	<i>Taraxacum officinale</i>	X						
Poison ivy	<i>Toxicodendron radicans</i>	X	X	X	X		X	
No common name	<i>Tragopogon officinale</i>	X						
White clover	<i>Trifolium repens</i>	X						
Cattail	<i>Typha latifolia</i>				X			X
Wild grape	<i>Vitis sp.</i>	X	X	X	X		X	
Birds								
Red-winged blackbird	<i>Agelaius phoeniceus</i>							X
Wood duck	<i>Aix sponsa</i>					X		
Great blue heron	<i>Ardea herodias</i>				X	X		
Ring-necked duck	<i>Aythya collaris</i>					X		
Red-tailed hawk	<i>Buteo jamaicensis</i>	X	X					
Northern cardinal	<i>Cardinalis cardinalis</i>	X	X	X			X	
American goldfinch	<i>Carduelis tristis</i>		X	X			X	
Turkey vulture	<i>Cathartes aura</i>	X						
Killdeer	<i>Charadrius vociferus</i>	X						X
Northern flicker	<i>Colaptes auratus</i>			X			X	
American crow	<i>Corvus brachyrhynchos</i>	X	X	X				
Blue jay	<i>Cyanocitta cristata</i>	X	X	X			X	
Yellow warbler	<i>Dendroica petechia</i>		X	X			X	X
Blackpoll warbler	<i>Dendroica striata</i>	X	X	X				
Gray catbird	<i>Dumetella carolinensis</i>	X	X					
American kestrel	<i>Falco sparverius</i>	X						
Northern oriole	<i>Icterus galbula</i>		X					X

**Table 3-13 (continued)
SPECIES OBSERVED AT THE SEAD-46 SITE**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York**

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine	
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Forested Wetlands	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/Artificial Stream	Artificial Pond	Red Maple Hardwood Swamp	Shallow Emergent Marsh
Birds (cont.)								
Mocking bird	<i>Mimus polyglottos</i>	X	X	X			X	
Great crested flycatcher	<i>Myiarchus crinitus</i>			X			X	
Black-capped chickadee	<i>Parus atricapillus</i>		X	X			X	
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>		X					
Ring-necked pheasant	<i>Phasianus colchicus</i>	X	X					
European starling	<i>Sturnus vulgaris</i>	X	X	X				
Tree swallow	<i>Tachycineta bicolor</i>							
American robin	<i>Turdus migratorius</i>	X	X	X			X	
Mourning dove	<i>Zenaidura macroura</i>	X	X	X				
Mammals								
Opossum	<i>Didelphis virginiana</i>	X	X	X	X		X	
Bobcat	<i>Felis rufus</i>	X	X	X			X	
Mouse	<i>Peromyscus</i> sp.	X	X	X				
Woodchuck	<i>Marmota monax</i>	X	X					
White-tailed deer	<i>Odocoileus virginianus</i>	X	X				X	
Muskrat	<i>Ondatra zibethica</i>				X			
Raccoon	<i>Procyon lotor</i>	X	X	X	X	X	X	X
Eastern gray squirrel	<i>Sciurus carolinensis</i>			X			X	
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>	X	X	X			X	
Reptiles and Amphibians								
Snapping turtle	<i>Chelydra serpentina</i>					X		
Northern leopard frog	<i>Rana pipiens</i>				X	X		X
American toad	<i>Bufo maericana</i>	X						
Fish								
Carp	<i>Cyprinus carpio</i>				X	X		
Largemouth bass	<i>Micropterus salmoides</i>					X		

Table 3-14
VEGETATION MAP – PERCENT COVERAGE
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York

Description	Number of Individual Areas	Total Area (acres)	Percent Area
Artificial Pond	2	39.115	7.82
Ditch/Altered Stream	7	5.718	1.14
Successional Old Field	18	21.945	4.39
Red Maple-Hardwood Swamp	11	68.350	13.67
Shallow Emergent Marsh	8	14.374	2.88
Successional Shrubland	19	147.327	29.47
Successional Southern Hardwoods	18	108.890	21.78
Terrestrial Cultural (Various Types)	11	94.200	18.84

Table 3-15
FLORA AND FAUNA LISTED BY THE STATE OF NEW YORK OR THE USFWS
AS ENDANGERED, THREATENED, OR OF SPECIAL CONCERN

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York

Common Name	Scientific Name	Federal	State
Plants			
Small whorled pogonia	<i>Isotria medeoloides</i>	T	T
Birds			
Sharp-shinned hawk	<i>Accipiter striatus</i>		SSC
Cooper's hawk	<i>Accipiter cooperii</i>		SSC
Northern goshawk	<i>Accipiter gentilis</i>		SSC
Short-eared owl	<i>Asio flammeus</i>		E
American bittern	<i>Botaurus lentiginosus</i>		SSC
Red-shouldered hawk	<i>Buteo lineatus</i>		SSC
Whip-poor-will	<i>Caprimulgus minor</i>		SSC
Common night-hawk	<i>Chordeiles minor</i>		SSC
Northern harrier	<i>Circus cyaneus</i>		T
Peregrine falcon	<i>Falco peregrinus</i>		E
Common loon	<i>Gavia immer</i>		SSC
Bald eagle	<i>Haliaeetus leucocephalus</i>		T
Least bittern	<i>Ixobrychus exilis</i>		T
Loggerhead shrike	<i>Lanius ludovicianus</i>		E
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>		SSC
Pied-billed grebe	<i>Podilymbus podiceps</i>		T
Osprey	<i>Pandion haliaetus</i>		SSC
Reptiles and Amphibians			
Western spiny soft shell	<i>Abalone spiffier</i>		SSC
Worm snake	<i>Carphophis amoenum</i>		SSC
Spotted turtle	<i>Clemmys guttata</i>		SSC
Southern leopard frog	<i>Rana sphenoccephala utricularius</i>		SSC
Eastern spadefoot toad	<i>Scaphiopus holbrookii</i>		SSC
Eastern box turtle	<i>Terrapene carolina</i>		SSC
Mammals			
Indiana bat	<i>Myotis sodalis</i>		SSC
Small-footed bat	<i>Myotis leibii</i>		SSC
New England cottontail	<i>Sylvilagus transitionalis</i>		SSC

E = Endangered

T = Threatened

SSC = Species of Special Concern

**TABLE 3-16
SUMMARY OF SURVEY DATA: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Survey Monuments					
57-1993	1,009,835.62	738,625.80	634.24		
57-1993A	1,009,857.06	739,110.08	634.63		
Surface Soils					
SS57-1	1,009,198.50	739,185.98			
SS57-2	1,009,238.30	739,096.21			
SS57-3	1,009,144.50	739,095.51			
SS57-4	1,009,168.40	738,771.21			
SS57-5	1,009,180.90	738,641.40			
SS57-6	1,010,002.30	739,093.96			
SS57-7	1,010,076.70	739,203.20			
SS57-8	1,010,012.30	739,320.79			
SS57-9	1,009,924.40	739,209.41			
SS57-10	1,009,650.07	739,265.94	630.77		
SS57-11	1,009,445.41	739,274.03	630.13		
SS57-12	1,009,275.39	739,291.53	628.4		
SS57-13	1,009,094.47	739,301.83	627.08		
SS57-14	1,008,883.17	739,312.87	632.9		
SS57-15	1,008,676.86	739,325.37	630		
SS57-16	1,009,753.68	739,097.05	631		
SS57-17	1,009,545.36	739,104.17	628.75		
SS57-18	1,009,332.87	739,109.56	627.73		
SS57-19	1,009,133.11	739,121.20	630.59		
SS57-20	1,008,925.89	739,129.01	630.72		
SS57-21	1,008,722.71	739,131.23	630.28		
SS57-22	1,008,532.17	739,133.37	630.18		
SS57-23	1,009,594.28	738,893.68	628.98		
SS57-24	1,009,387.28	738,890.58	626.48		
SS57-25	1,009,244.06	738,908.43	625.82		
SS57-26	1,009,030.60	738,914.75	625.39		
SS57-27	1,008,843.99	738,924.65	623.51		
SS57-28	1,008,608.16	738,916.29	624.61		
SS57-29	1,009,742.32	738,744.25	625.22		
SS57-30	1,009,530.90	738,735.40	622.43		
SS57-31	1,009,357.25	738,737.83	620.18		

**TABLE 3-16
SUMMARY OF SURVEY DATA: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Surface Soils (continued)					
SS57-32	1,009,145.88	738,735.83	620.16		
SS57-33	1,008,948.27	738,724.04	619.64		
SS57-34	1,008,751.22	738,729.59	621.09		
SS57-35	1,008,552.17	738,731.04	618.27		
SS57-36	1,009,588.03	738,528.79	624.48		
SS57-37	1,009,384.25	738,527.99	621.44		
SS57-38	1,009,180.92	738,526.58	620.14		
SS57-39	1,008,973.19	738,525.63	619.38		
SS57-40	1,008,799.66	738,533.31	616.32		
SS57-41	1,008,602.46	738,522.42	626.15		
SS57-42	1,009,544.50	738,742.68	621.73		
SS57-43	1,009,537.38	738,741.66	622.1		
SS57-44	1,009,530.94	738,742.08	622.48		
SS57-45	1,009,350.28	738,743.52	619.78		
SS57-46	1,009,341.21	738,743.08	619.56		
SS57-47	1,009,332.31	738,743.69	619.65		
SS57-48	1,008,957.65	738,738.74	620.41		
SS57-49	1,008,950.78	738,737.89	620.21		
SS57-50	1,008,945.88	738,736.81	622.24		
SS57-51	1,008,597.29	738,736.34	621.9		
SS57-52	1,008,590.74	738,738.63	621.93		
SS57-53	1,008,583.76	738,737.54	620.33		
Soil Borings					
SB57-1	1,009,173.10	738,919.13	624.05		
SB57-2	1,009,134.93	738,953.13	625.36		
SB57-3	1,009,173.77	739,013.07	626.23		
SB57-4	1,009,242.99	738,990.24	625.73		
SB57-5	1,009,237.52	738,927.13	624.27		
SB57-6	1,009,188.86	738,972.31	624.79		
SB57-7	1,009,169.53	738,956.80	624.44		

TABLE 3-16
SUMMARY OF SURVEY DATA: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Test Pits					
TP57-1	1,009,192.60	738,998.85			
TP57-2	1,009,170.50	738,973.19			
TP57-3	1,009,226.60	738,964.97			
TP57-4	1,009,152.80	738,975.94			
TP57-5	1,009,205.20	738,956.25			
TP57-6	1,009,277.50	738,765.00			
TP57-7	1,009,225.50	738,701.84			
TP57-8	1,009,224.90	738,766.90			
TP57-9	1,009,190.60	738,787.67			
TP57-10	1,009,316.50	738,746.46			
TP57-11	1,008,887.20	738,787.68			
Monitoring Wells					
MW57-1	1,009,440.50	739,101.73	631.64	634.05	634.27
MW57-2	1,009,141.18	738,918.75	628.96	631.35	631.45
MW57-3	1,009,157.31	738,686.46	627.67	629.74	630.14
MW57-4	1,009,471.00	738,710.72	629.31	631.29	631.67
MW57-5	1,008,592.20	738,731.78	623.31	625.6	625.88
MW57-6	1,008,892.47	738,679.09	625.17	627.49	627.83
MW57-7	1,009,621.61	739,359.27	631.1	633.56	633.89
Surface Water and Sediment					
SW/SD57-1	1,008,578.38	738,720.04	618.34		
SW/SD57-2	1,008,805.88	738,733.11	621.12		
SW/SD57-3	1,008,951.65	738,727.55	618.19		
SW/SD57-4	1,009,192.73	738,728.90	621.26		
SW/SD57-5	1,009,363.83	738,660.67	619		
SW/SD57-6	1,008,581.95	738,834.40	622.3		
SW/SD57-7	1,008,798.34	738,819.11	619.81		
SW/SD57-8	1,008,987.79	738,817.39	619.8		
SW/SD57-9	1,009,176.49	738,814.53	623.14		
SW/SD57-10	1,009,214.98	738,814.53	623.63		
SW/SD57-11	1,009,416.01	738,809.67	623.54		
SW/SD57-12	1,009,624.86	738,808.50	625.49		
SW/SD57-13	1,009,794.13	738,811.88	628.72		

**TABLE 3-16
SUMMARY OF SURVEY DATA: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)	PVC Elevation (NAVD 88 - ft)	Top of Protective Casing Elevation (NAVD 88 - ft)
Surface Water and Sediment (continued)					
SW/SD57-14	1,009,788.61	738,763.98	625.91		
SW/SD57-15	1,009,785.19	738,603.62	626.67		
SW/SD57-16	1,009,795.51	738,854.03	629.85		
SW/SD57-17	1,009,598.73	738,864.59	627.71		
SW/SD57-18	1,009,396.36	738,872.78	624.76		
SW/SD57-19	1,009,218.94	738,880.12	624.54		
SW/SD57-20	1,009,178.34	738,880.95	624.62		
SW/SD57-21	1,008,983.62	738,886.71	623.77		
SW/SD57-22	1,008,790.99	738,892.71	623.21		
SW/SD57-23	1,008,596.56	738,896.77	622.25		
SW/SD57-24	1,009,805.15	739,091.47	629.55		
SW/SD57-25	1,009,808.82	739,261.91	631.88		
SW/SD57-26	1,009,820.35	739,456.42	628.98		
SW/SD57-27	1,009,591.60	739,135.81	629.29		
SW/SD57-28	1,009,406.30	739,146.42	628.96		
SW/SD57-29	1,009,204.88	739,157.32	629.2		
SW/SD57-30	1,008,997.07	739,168.04	631.99		
SW/SD57-31	1,008,905.99	739,172.61	630		
SW/SD57-32	1,008,932.25	739,372.98	628		
Debris Samples					
BLDG128-1	1,009,930.20	738,743.18	636		
BLDG128-2	1,009,916.92	738,743.18	636		
BLDG128-3	1,009,923.20	738,725.76	636		

**TABLE 3-17
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	Sample Date	Top Sample Depth (ft)	Bottom Sample Depth (ft)	QC_Code (Sample/Duplicate)	NYSDEC-CLP-Volatile Organic Compounds	NYSDEC-CLP-Semivolatile Organic Compounds	Historic Semivolatile Organic Compounds	NYSDEC-CLP-Pesticides/PCBs	Chlorinated Herbicide Compounds	Nitroaromatic and Nitroamine Organic Compounds	Historic Explosives	NYSDEC-CLP-Metals	Nitrate-Nitrite Nitrogen	Percent Solids
SS57-1	SS57-1-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-1	SS57-1-2	12/8/93	0	0.2	SA	X									
SS57-2	SS57-2-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-2	SS57-2-2	12/8/93	0	0.2	SA	X									
SS57-3	SS57-3-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-3	SS57-3-2	12/8/93	0	0.2	SA	X									
SS57-4	SS57-4-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-4	SS57-4-2	12/8/93	0	0.2	SA	X									
SS57-5	SS57-5-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-5	SS57-5-2	12/8/93	0	0.2	SA	X									
SS57-6	SS57-6-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-6	SS57-6-2	12/8/93	0	0.2	SA	X									
SS57-7	SS57-7-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-7	SS57-7-2	12/8/93	0	0.2	SA	X									
SS57-8	SS57-8-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-8	SS57-8-2	12/8/93	0	0.2	SA	X									
SS57-9	SS57-9-1	10/26/93	0	0.2	SA	X	X	X	X	X	X	X	X		
SS57-9	SS57-9-2	12/8/93	0	0.2	SA	X									
SS57-10	574023	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-11	574024	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-12	574025	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-13	574026	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-14	574027	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-15	574028	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-16	574029	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-17	574030	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-18	574031	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-19	574032	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-20	574033	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-21	574034	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-22	574035	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-23	574036	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-24	574037	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-25	574038	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-26	574039	12/19/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-27	574040	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-27	574041	12/20/99	0	0.2	DU	X	X		X		X		X	X	X
SS57-28	574042	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-29	574043	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-30	574000	11/30/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-30	574001	11/30/99	0	0.2	DU	X	X		X		X		X	X	X
SS57-31	574044	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-32	574045	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-33	574046	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-34	574047	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-35	574048	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-36	574049	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-37	574050	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-38	574051	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-39	574052	12/20/99	0	0.2	SA	X	X		X		X		X	X	X

Note:
X = Sample collected and submitted for analysis.

TABLE 3-17
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Designation	Sample Designation	Sample Date	Top Sample Depth (ft)	Bottom Sample Depth (ft)	QC Code (Sample/Duplicate)	NYSDEC-CLP-Volatile Organic Compounds	NYSDEC-CLP-Semivolatile Organic Compounds	Historic Semivolatile Organic Compounds	NYSDEC-CLP-Pesticides/PCBs	Chlorinated Herbicide Compounds	Nitroaromatic and Nitroamine Organic Compounds	Historic Explosives	NYSDEC-CLP-Metals	Nitrate-Nitrite Nitrogen	Percent Solids
SS57-40	574053	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-41	574054	12/20/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-42	574055	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-43	574056	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-44	574057	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-45	574058	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-45	574059	12/21/99	0	0.2	DU	X	X		X		X		X	X	X
SS57-46	574060	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-47	574061	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-48	574062	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-49	574063	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-50	574064	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-51	574065	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-52	574066	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SS57-53	574067	12/21/99	0	0.2	SA	X	X		X		X		X	X	X
SB57-1	574013	12/3/99	0	2	SA	X	X		X		X		X	X	X
SB57-1	574014	12/3/99	2	4	SA	X	X		X		X		X	X	X
SB57-1	574015	12/3/99	4	6	SA	X	X		X		X		X	X	X
SB57-2	574010	12/3/99	0	2	SA	X	X		X		X		X	X	X
SB57-2	574011	12/3/99	2	4	SA	X	X		X		X		X	X	X
SB57-2	574012	12/3/99	4	6	SA	X	X		X		X		X	X	X
SB57-3	574007	12/2/99	0	2	SA	X	X		X		X		X	X	X
SB57-3	574008	12/2/99	2	4	SA	X	X		X		X		X	X	X
SB57-3	574009	12/2/99	4	6	SA	X	X		X		X		X	X	X
SB57-4	574004	12/3/99	0	2	SA	X	X		X		X		X	X	X
SB57-4	574005	12/3/99	2	4	SA	X	X		X		X		X	X	X
SB57-4	574006	12/3/99	4	6	SA	X	X		X		X		X	X	X
SB57-5	574002	12/1/99	0	2	SA	X	X		X		X		X	X	X
SB57-5	574003	12/1/99	4	5.2	SA	X	X		X		X		X	X	X
SB57-5	574022	12/7/99	2	4	SA	X	X		X		X		X	X	X
SB57-6	574019	12/5/99	0	2	SA	X	X		X		X		X	X	X
SB57-6	574020	12/5/99	2	4	SA	X	X		X		X		X	X	X
SB57-6	574021	12/5/99	4	6	SA	X	X		X		X		X	X	X
SB57-7	574016	12/3/99	0	2	SA	X	X		X		X		X	X	X
SB57-7	574017	12/3/99	2	4	SA	X	X		X		X		X	X	X
SB57-7	574018	12/3/99	4	6	SA	X	X		X		X		X	X	X
TP57-1	TP57-1	11/8/93	3	3	SA	X	X		X	X	X		X		
TP57-2	TP57-2	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-3	TP57-3	11/9/93	3	3	SA	X	X		X	X	X		X		
TP57-4	TP57-4	11/9/93	3	3	SA	X	X		X	X	X		X		
TP57-5	TP57-5	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-6	TP57-6	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-7	TP57-7	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-8	TP57-8	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-9	TP57-9	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-10	TP57-10	12/2/93	3	3	SA	X	X		X	X	X		X		
TP57-11	TP57-11	11/8/93	3	3	SA	X	X		X	X	X		X		

Note
X = Sample collected and submitted for analysis

TABLE 3-18
SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Designation	Sample Designation	QC_Code (Sample/Duplicate)	Volatile Organic Compounds - Purge and Trap	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Alkalinity	Ammonia Nitrogen	Hardness	Nitrate-Nitrite Nitrogen	pH	Total Phosphorous	Total Organic Carbon	Total Solids	Total Suspended Solids
SW/SD57-1	571035	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-2	571013	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-3	571012	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-4	571011	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-5	571016	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-7	571010	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-8	571009	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-9	571032	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-10	571030	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-10	571031	DU	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-11	571007	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-11	571008	DU	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-13	571001	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-14	571003	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-16	571000	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-17	571004	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-18	571005	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-19	571033	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-20	571034	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-21	571014	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-22	571015	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-24	571002	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-25	571036	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-26	571006	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-27	571023	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-28	571024	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW/SD57-29	571025	SA	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Note:
X = Sample collected and submitted for analysis.

TABLE 3-19
SUMMARY OF SEDIMENT SAMPLE ANALYSES: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Designation	Sample Designation	QC_Code (Sample/Duplicate)	NYSDEC-CLP- Volatile Organic Compounds	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP- Metals	Cationic Exchange Capacity	Nitrate-Nitrite Nitrogen	Percent Solids	pH	Total Organic Carbon
SW/SD57-1	573035	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-2	573013	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-3	573012	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-4	573011	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-5	573016	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-6	573020	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-7	573010	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-8	573009	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-9	573032	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-10	573030	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-10	573031	DU	X	X	X	X	X		X	X		X
SW/SD57-11	573007	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-11	573008	DU	X	X	X	X	X		X	X		X
SW/SD57-12	573018	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-13	573001	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-14	573003	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-15	573017	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-16	573000	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-17	573004	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-18	573005	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-19	573033	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-20	573034	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-21	573014	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-22	573015	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-23	573019	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-24	573002	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-25	573036	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-26	573006	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-27	573023	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-28	573024	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-29	573025	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-30	573026	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-31	573021	SA	X	X	X	X	X	X	X	X	X	X
SW/SD57-32	573022	SA	X	X	X	X	X	X	X	X	X	X

Note:

X = Sample collected and submitted for analysis.

TABLE 3-20
SUMMARY OF SURFACE WATER SAMPLE CHARACTERISTICS: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Surface Water Sampling Location	Surface Water Sample ID	Date Sampled	Sample Depth (in)	Field-Measured Parameters			
				Temperature (°F)	pH	Specific Conductivity (umhos)	Turbidity (NTU)
SW57-1	571035	01/11/00	0 to 2	--	--	--	--
SW57-2	571013	01/07/00	0 to 2	35.3	9.1	355	2.8
SW57-3	571012	01/07/00	0 to 2	36.8	8.9	351	3.4
SW57-4	571011	01/06/00	0 to 2	33.3	7.3	421	70
SW57-5	571016	01/07/00	0 to 2	36.4	7.28	181	9.2
SW57-7	571010	01/06/00	0 to 2	33.6	7.2	386	18
SW57-8	571009	01/06/00	0 to 2	33.1	9.3	385	5.6
SW57-9	571032	01/10/00	0 to 2	37.6	8.6	417	5.4
SW57-10	571030	01/10/00	0 to 2	36.8	8.42	235	27
SW57-10	571031	01/10/00	0 to 2	36.8	8.42	235	27
SW57-11	571007MS/MSD	01/06/00	0 to 2	34.6	5.6	622	6.9
SW57-11	571007MRD	01/06/00	0 to 2	34.6	5.6	622	6.9
SW57-11	571007	01/06/00	0 to 2	34.6	5.6	622	6.9
SW57-11	571008	01/06/00	0 to 2	34.6	5.6	622	6.9
SW57-13	571001	01/04/00	0 to 2	46	5.94	441	27.1
SW57-14	571003	01/05/00	0 to 2	36.6	8.5	442	8.3
SW57-16	571000	01/04/00	0 to 2	51.4	5.76	207	16.95
SW57-17	571004	01/05/00	0 to 2	31.2	8.5	270	4.7
SW57-18	571005	10/09/95	0 to 2	32.3	8.4	272	7.9
SW57-19	571033	01/10/00	0 to 2	37.3	8.49	317	16
SW57-20	571034	01/10/00	0 to 2	39.3	7.91	538	33
SW57-21	571014	01/07/00	0 to 2	37.7	6.37	336	4.1
SW57-22	571015	01/07/00	0 to 2	36.3	7.4	311	5.6
SW57-24	571002	01/04/00	0 to 2	44.8	6.72	370	8.5
SW57-25	571036	01/11/00	0 to 2	--	--	--	--
SW57-26	571006	01/05/00	0 to 2	32.2	8.7	420	85
SW57-27	571023	01/11/00	0 to 2	--	--	--	--
SW57-28	571024	01/11/00	0 to 2	--	--	--	--
SW57-29	571025	01/11/00	0 to 2	--	--	--	--

" -- " indicates that field data was not recorded

TABLE 3-21
SUMMARY OF SEDIMENT SAMPLE CHARACTERISTICS: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Sediment Sampling Location	Sediment Sample ID	Date Sampled	Sample Depth (inches)		Field Physical Characteristics Description	USCS Classification
			Top	Bottom		
SD57-1	573035	36536	0	2"	Not Recorded	--
SD57-2	573013	36532	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-3	573012	36532	0	2"	Light to Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-4	573011	36531	0	2"	Light to Dark Brown SILT, trace F Sand, trace roots, wet	OL
SD57-5	573016	36532	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-6	573020	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-7	573010	36531	0	2"	Light to Dark Brown SILT, trace F Sand, trace roots, wet	OL
SD57-8	573009	36531	0	2"	Light to Dark Brown SILT, trace F Sand, trace roots, wet	OL
SD57-9	573032	36535	0	2"	Not Recorded	--
SD57-10	573030	36535	0	2"	Not Recorded	--
SD57-10	573031	36535	0	2"	Not Recorded	--
SD57-11	573008	36531	0	2"	Light to Dark Brown SILT, trace F Sand, trace roots, wet	OL
SD57-11	573007	36531	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
	MS/MSD					
SD57-11	573007	36531	0	2"	Light to Dark Brown SILT, trace F Sand, trace roots, wet	OL
	MRD					
SD57-12	573018	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-13	573001	36529	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-14	573003	36530	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-15	573017	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-16	573000	36529	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-17	573004	36530	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-18	573005	36530	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-19	573033	36535	0	2"	Not Recorded	--
SD57-20	573034	36535	0	2"	Not Recorded	--
SD57-21	573014	36532	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-22	573015	36532	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-23	573019	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-24	573002	36529	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-25	573036	36536	0	2"	Not Recorded	--
SD57-26	573006	36530	0	2"	Dark Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-27	573023	36534	0	2"	Light to Medium Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-28	573024	36534	0	2"	Light to Medium Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-29	573025	36534	0	2"	Light to Medium Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-30	573026	36534	0	2"	Light to Medium Brown SILT, trace (+)F-M Sand, trace F Gravel, trace roots, wet	ML
SD57-31	573021	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML
SD57-32	573022	36533	0	2"	Dark Brown SILT, trace F Sand, trace F Gravel, trace roots, wet	ML

Table 3-22

SEAD-57 - Monitoring Well Construction Details

SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, NY

Well ID	Well Type	Point of Well Relative to Ground Surface (ft)	Depth of Well Relative to Top of PVC (ft)	Diameter of Boring/Core (in)	Diameter of Well (in)	Well Screen Length (ft)	Screened Interval Relative to Top of PVC (ft)		Well Screen Slot Size (in)	Ground Surface Elevation	Elevation of Top of PVC Well (ft NAVD)	Elevation of Top of Casing	Height of PVC Well Stickup (ft)	Well Casing Material	Well Screen Material	
MW57-1	T/WS	6.00	8.52	NA	2.00	2.00	3.10	to	5.20	0.010	NA	634.17	NA	2.52	PVC	PVC
MW57-2	T/WS	7.00	9.40	NA	2.00	2.00	4.10	to	6.10	0.010	NA	631.48	NA	2.40	PVC	PVC
MW57-3	T/WS	7.00	9.46	NA	2.00	2.00	4.10	to	6.10	0.010	NA	629.83	NA	2.46	PVC	PVC
MW57-4	T/WS	14.51	16.49	8.00	2.00	9.50	7.00	to	16.50	0.010	629.31	631.29	631.67	1.98	PVC	PVC
MW57-5	T/WS	29.27	31.56	8.00	2.00	24.50	7.00	to	31.50	0.010	623.31	625.60	625.88	2.29	PVC	PVC
MW57-6	T/WS	13.72	16.04	8.00	2.00	9.50	6.50	to	16.00	0.010	625.17	627.49	627.83	2.32	PVC	PVC
MW57-7	T/WS	13.95	16.41	8.00	2.00	9.50	6.70	to	16.20	0.010	631.10	633.56	633.89	2.46	PVC	PVC

Notes:

T/WS = Till and Weathered Shale Aquifer

NA = Not Available.

**TABLE 3-23
SUMMARY OF MONITORING WELL DEVELOPMENT DATA: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Well ID	Date Purged	Installation Date	Development Method	Field-Measured Parameters				Gallons of Purge Water Removed
				Temperature (°F)	Specific Conductivity (umhos)	pH	Turbidity (NTU)	
MW57-1	01/11/94	12/02/93	Surge and pump	40.1	220	8.03	4.5	10
MW57-2	12/19/93	12/07/93	Surge and pump	43.7	900	7.2	6.2	29.75
MW57-3	12/19/93	12/07/93	Surge and pump	45.9	405	--	19	18.9
MW57-4	01/04/00	12/01/99	Teflon Bailer & Pump	46.4	710	6.31	20.0	9.40
MW57-5	01/05/00	12/06/99	Teflon Bailer & Pump	46.5	1224	6.19	36.4	25.80
MW57-6	01/05/00	12/05/99	Teflon Bailer & Pump	39.9	1217	5.90	38.0	15.20
MW57-7	01/06/00	12/06/99	Teflon Bailer & Pump	43.2	1110	5.83	19.0	13.90

TABLE 3-24
SUMMARY OF GROUNDWATER SAMPLE ANALYSES: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Location Designation	Sample Designation	QC_Code (Sample/Duplicate)	NYSDEC-CLP- Volatile Organic Compounds	Volatile Organic Compounds - Purge and Trap	NYSDEC-CLP- Semivolatile Organic Compounds	NYSDEC-CLP- Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	Chlorinated Herbicide	NYSDEC-CLP- Metals	Chemical Oxygen Demand	Hardness	Nitrate-Nitrite Nitrogen	Total Suspended Solids
ESI Event													
MW57-1	MW57-1	SA	X		X	X		X	X				
MW57-2	MW57-2	SA	X		X	X	X	X	X				
MW57-3	MW57-3	SA	X		X	X	X	X	X				
MW57-3	MW57-4	DU					X						
Round 1 RI													
MW57-1	572002	SA		X	X	X	X		X	X	X	X	X
MW57-1	122029	SA							X				
MW57-2	572000	SA		X	X	X	X		X	X	X	X	X
MW57-2	572006	DU		X	X	X	X		X			X	
MW57-3	572001	SA		X	X	X	X		X	X	X	X	X
MW57-4	572007	SA		X	X	X	X		X	X	X	X	X
MW57-5	572005	SA		X	X	X	X		X	X	X	X	X
MW57-6	572004	SA		X	X	X	X		X	X	X	X	X
MW57-7	572003	SA		X	X	X	X		X	X	X	X	X
Round 2 RI													
MW57-1	572100	SA		X	X	X	X		X	X	X	X	X
MW57-1	122227	SA							X				
MW57-2	572101	SA		X	X	X	X		X	X	X	X	X
MW57-2	572108	DU		X	X	X	X		X	X	X	X	X
MW57-3	572102	SA		X	X	X	X		X	X	X	X	X
MW57-4	572103	SA		X	X	X	X		X	X	X	X	X
MW57-5	572104	SA		X	X	X	X		X	X	X	X	X
MW57-6	572105	SA		X	X	X	X		X	X	X	X	X
MW57-7	572106	SA		X	X	X	X		X	X	X	X	X

Note:
X = Sample collected and submitted for analysis.

**Table 3-25
SEAD-57 - Monitoring Well Field Sampling Information**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, NY**

Well ID	Sample ID	Date Sampled	Field-Measured Parameters						Gallons of Purge Water Removed
			Temperature (°C)	Specific Conductivity (umhos)	pH	ORP (mv)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	
MW57-1	572002	01/23/00	4.15	387	7.37	174	11.75	10.20	3.15
MW57-2	572000	01/23/00	5.20	1282	6.99	109.4	4.52	4.21	4.45
MW57-3	572001	01/23/00	5.41	504	7.43	102.3	10.15	2.00	2.50
MW57-4	572007	01/25/00	5.81	590	7.28	153	3.98	6.22	2.50
MW57-5	572005	01/24/00	7.43	586	7.45	14.8	0.80	84.40	22.00
MW57-6	572004	01/24/00	5.95	434	7.34	112.4	4.56	35.70	15.00
MW57-7	572003	01/24/00	7.21	680	7.23	119	3.59	22.30	2.60

Well ID	Sample ID	Date Sampled	Field-Measured Parameters						Gallons of Purge Water Removed
			Temperature (°C)	Specific Conductivity (umhos)	pH	ORP (mv)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	
MW57-1	572100	04/26/00	9.66	401	7.03	140.3	1.49	3.85	3.85
MW57-2	572101	04/27/00	8.00	1354	6.65	139	1.75	2.60	1.65
MW57-3	572103	04/26/00	9.05	482	7.14	141	6.48	3.85	1.15
MW57-4	572102	04/27/00	8.19	686	7.05	128	4.37	8.00	1.20
MW57-5	572104	04/26/00	9.31	580	7.24	47.6	0.52	9.80	6.10
MW57-6	572105	04/27/00	7.57	450	6.95	111	0.74	12.60	3.10
MW57-7	572106	04/28/00	8.7	661	6.74	111	4.14	5.62	1.95

**TABLE 3-26
SUMMARY OF GROUNDWATER ELEVATION DATA: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Identification	PVC Elevation (NAVD 88 - ft)	During ESI Development (Dec 93/Jan 94)		ESI Event (February 1994)		During RI Redevelopment (January 2000)		RI Round 1 (January 2000)		RI Round 2 (April 2000)	
		Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)	Depth to Water (ft)	Groundwater Elevation (NAVD 88 - ft)
MW57-1	634.05	4.85	629.2	4.14	629.91	3.45	630.6	3.77	630.28	3.7	630.35
MW57-2	631.35	2.77	628.58	3.42	627.93	3.75	627.6	3.22	628.13	2.78	628.57
MW57-3	629.74	3.09	626.65	4.08	625.66	2.89	626.85	3.2	626.54	3.1	626.64
MW57-4	631.29	--	--	--	--	2.57	628.72	2.71	628.58	2.9	628.39
MW57-5	625.6	--	--	--	--	2.88	622.72	3.44	622.16	3.48	622.12
MW57-6	627.49	--	--	--	--	2.57	624.92	2.5	624.99	2.6	624.89
MW57-7	633.56	--	--	--	--	2.85	630.71	3.26	630.3	3	630.56

" -- " indicates that wells were not present at the time of this sampling event.

Table 3-27

SEAD-57 - Data for Slug Test Hydraulic Conductivity Determinations

SEAD-57 Remedial Investigation
Seneca Army Depot Activity - Romulus, NY

24 I.D.	Test Number	Date Tested	Aquifer	Slug Dimensions (ft)	Well Type	Static Water Level (TOC)		Time Sampled		Transducer Depth (TOC)	Depth of Well Relative to Top of PVC (ft)	Diameter of Well (in)	Well Screen Length (ft)	Screened Interval Relative to Top of PVC (ft)		Well Screen Slot Size (in)	
						Start	Finish	Start	Finish					to	to		
MW57-1	5	01/26/00	T/WS	1.33' X 3.86'	PVC	5.66	6.0	1321	1421	10.87	8.46	2.00	2.00	3.1	to	5.1	0.010
MW57-2	4	01/26/00	T/WS	1.33' X 3.86'	PVC	3.43	3.49	1012	1100	5.34	9.09	2.00	2.00	4.1	to	6.1	0.010
MW57-3	6	01/26/00	T/WS	0.11' X 3'	PVC	3.26	3.23	1025	1109	5.22	9.36	2.00	2.00	4.1	to	6.1	0.010
MW57-4	0	01/25/00	T/WS	0.11' X 5'	PVC	2.71	2.71	1223	1305	12.23	16.49	2.00	9.50	7.0	to	16.5	0.010
MW57-5	3	01/25/00	T/WS	0.11' X 5'	PVC	3.48	3.5	1604	1630	10.35	31.56	2.00	24.5	7.0	to	31.5	0.010
MW57-6	2	01/25/00	T/WS	0.11' X 5'	PVC	2.68	2.68	1503	1519	9.98	16.04	2.00	9.5	6.5	to	16.0	0.010
MW57-7	1	01/25/00	T/WS	0.11' X 5'	PVC	3.1	3.13	1416	1432	11.31	16.41	2.00	9.5	6.7	to	16.2	0.010

Notes:

T/WS = Till Weathered Shale Aquifer

Data used in hydraulic conductivity calculation using AQTESOLV

Data logger used was a In-Situ Hermit 1000C (SNK01532)

The transducer used was a PXD 260 rated at 10psi

TABLE 3-28
SUMMARY OF HYDRAULIC CONDUCTIVITY FIELD RESULTS: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Well ID	Stratigraphic Unit	Hydraulic Conductivity		
		(cm/sec)	(ft/min)	(ft/day)
MW57-2	Till/Weathered Shale	1.95E-04	3.84E-04	0.55
MW57-3	Till/Weathered Shale	2.60E-04	5.12E-04	0.74
MW57-4	Till/Weathered Shale	1.03E-04	2.03E-04	0.29
MW57-5	Till/Weathered Shale	1.85E-04	3.64E-04	0.52
MW57-6	Till/Weathered Shale	4.24E-03	8.35E-03	12.02
MW57-7	Till/Weathered Shale	9.66E-04	1.90E-03	2.74
Geometric Mean	Till/Weathered Shale	3.98E-04	7.83E-04	1.13

TABLE 3-29
SUMMARY DESCRIPTION OF DEBRIS MATERIAL IDENTIFIED DURING BUILDING INSPECTION: SEAD-57

SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York

Debris Sampling Location	Debris Sample ID	Date Sampled	Sample Depth (in)		Field Description	USCS Classification
			Top	Bottom		
SD128-1	573027	01/09/00	0	2"	Dark Brown to Black (-)F-M(+)C SAND, little Silt, trace F Gravel, little organics, <1mm pieces of metal fragments	SM
SD128-2	573028	01/09/00	0	2"	Dark Brown to Black (-)F-M(+)C SAND, little Silt, trace F Gravel, little organics, <1mm pieces of metal fragments	SM
SD128-3	573029	01/09/00	0	2"	Dark Brown to Black (-)F-M(+)C SAND, little Silt, trace F Gravel, little organics, <1mm pieces of metal fragments	SM

**TABLE 3-30
SUMMARY OF DEBRIS MATERIAL SAMPLE ANALYSES: SEAD-57**

**SEAD-46 and SEAD-57 Remedial Investigation Program
Seneca Army Depot Activity - Romulus, New York**

Location Designation	Sample Designation	QC_Code (Sample/Duplicate)	NYSDEC-CLP-Volatile Organic Compounds	NYSDEC-CLP-Semivolatile Organic Compounds	NYSDEC-CLP-Pesticides/PCBs	Nitroaromatic and Nitroamine Compounds	NYSDEC-CLP-Metals	Nitrate-Nitrite Nitrogen	Percent Solids
BLDG128-1	573027	SA	X	X	X	X	X	X	X
BLDG128-2	573028	SA	X	X	X	X	X	X	X
BLDG128-3	573029	SA	X	X	X	X	X	X	X

**Table 3-31
SPECIES OBSERVED AT THE SEAD-57 SITE**

**SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity – Romulus, New York**

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Shallow Emergent Marsh
Canopy Trees							
Red maple	<i>Acer rubrum</i>		X	X			
Silver maple	<i>Acer saccharum</i>			X			
Tree-of-heaven	<i>Ailanthus altissima</i>		X	X			
Gray birch	<i>Betula populifolia</i>			X			
Pignut hickory	<i>Carya glabra</i>			X			
Shagbark hickory	<i>Carya ovata</i>			X			
White ash	<i>Fraxinus americana</i>			X			
Black walnut	<i>Juglans nigra</i>			X			
Eastern cottonwood	<i>Populus deltoides</i>			X			
Black cherry	<i>Prunus serotina</i>		X	X			
Black locust	<i>Robinia pseudo-acacia</i>		X	X			
Basswood	<i>Tilia americana</i>			X			
American elm	<i>Ulmus americana</i>		X	X			
Understory Trees and Shrubs							
Gray birch	<i>Betula populifolia</i>			X			
American hornbeam	<i>Carpinus caroliniana</i>			X			
Red-osier dogwood	<i>Cornus stolonifera</i>	X	X	X			
Hawthorne	<i>Craetegus</i> sp.	X	X	X			
White mulberry	<i>Morus alba</i>		X	X			
Black cherry	<i>Prunus serotina</i>	X	X	X			
European buckthorn	<i>Rhamnus cathartica</i>			X			
Staghorn sumac	<i>Rhus typhina</i>	X	X	X			
Red raspberry	<i>Rubus idacus</i>	X	X	X			

Table 3-31 (continued)
SPECIES OBSERVED AT THE SEAD-57 SITE

SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity – Romulus, New York

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Shallow Emergent Marsh
Herbaceous Plants							
Common ragweed	<i>Ambrosia artemisiifolia</i>	X					
Swamp milkweed	<i>Asclepias incarnata</i>						X
Black mustard	<i>Brassica nigra</i>	X					
Gold saxifrage	<i>Chrysoplemium americanum</i>						
Sedge	<i>Cyperus sp.</i>				X		X
Queen Anne's lace	<i>Daucus carota</i>	X	X		X		
Teasel	<i>Dipsacus sylvestris</i>	X	X				
Common strawberry	<i>Fragaria virginiana</i>	X					
Wild geranium	<i>Geranium maculatum</i>	X					
Gill-over-the-ground	<i>Glechoma hederacea</i>				X		
Manna grass	<i>Glyceria borealis</i>	X					
White grass	<i>Leersia virginica</i>	X					
White sweet clover	<i>Melilotus alba</i>	X					
Panic grass	<i>Panicum spp.</i>	X			X		
Virginia creeper	<i>Parthenocissus quinquefolia</i>	X	X	X			
Plantain	<i>Plantago virginica</i>	X					
Bluegrass	<i>Poa palustris</i>	X					
May apple	<i>Podophyllum peltatum</i>		X	X			
Dandelion	<i>Taraxacum officinale</i>	X					
Poison ivy	<i>Toxicodendron radicans</i>	X	X	X	X		
No common name	<i>Tragopogon officinale</i>	X					
Red clover	<i>Trifolium repens</i>	X					
Nodding trillium	<i>Trillium cernuum</i>			X			
Cattail	<i>Typha latifolia</i>				X	X	X
Wild grape	<i>Vitis sp.</i>	X	X	X	X		

Table 3-31 (continued)
SPECIES OBSERVED AT THE SEAD-57 SITE

SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity – Romulus, New York

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Shallow Emergent Marsh
Birds							
Red-winged blackbird	<i>Agelaius phoeniceus</i>						X
Great blue heron	<i>Ardea herodias</i>				X		
Red-tailed hawk	<i>Buteo jamaicensis</i>	X	X				
Northern cardinal	<i>Cardinalis cardinalis</i>	X	X	X			
American goldfinch	<i>Carduelis tristis</i>		X	X			
Turkey vulture	<i>Cathartes aura</i>	X					
Blue jay	<i>Cyanocitta cristata</i>	X	X	X			
Northern flicker	<i>Colaptes auratus</i>			X			
American crow	<i>Corvus brachyrhynchos</i>	X	X	X			
Yellow warbler	<i>Dendroica petechia</i>				X		X
Blackpoll warbler	<i>Dendroica striata</i>			X	X		
Gray catbird	<i>Dumetella carolinensis</i>	X	X				
American kestrel	<i>Falco sparverius</i>	X					
Mocking bird	<i>Mimus polyglottos</i>	X	X	X			
Great crested flycatcher	<i>Myiarchus crinitus</i>			X			
Black-capped chickadee	<i>Parus atricapillus</i>		X	X			
Tufted titmouse	<i>Parus bicolor</i>			X			
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>		X				
European starling	<i>Sturnus vulgaris</i>	X	X	X			
Tree swallow	<i>Tachycineta bicolor</i>	X					
American robin	<i>Turdus migratorius</i>	X	X	X			
Eastern kingbird	<i>Tyrannus tyrannus</i>		X				
Mourning dove	<i>Zenaida macroura</i>	X	X	X			

Table 3-31 (continued)
SPECIES OBSERVED AT THE SEAD-57 SITE

SEAD-46 and SEAD-57 Remedial Investigation
Seneca Army Depot Activity – Romulus, New York

Species Observed		Terrestrial			Riverine	Lacustrine	Palustrine
		Open Uplands		Forested Uplands	Riverine Cultural	Lacustrine Cultural	Open Wetlands
Common Name	Scientific Name	Successional Old Field	Successional Shrubland	Successional Southern Hardwoods	Ditch/ Artificial Stream	Artificial Pond	Shallow Emergent Marsh
Mammals							
Opossum	<i>Didelphis virginiana</i>	X	X	X	X		
Bobcat	<i>Felis rufus</i>	X	X	X			
Mouse	<i>Peromyscus</i> sp.	X	X	X			
Woodchuck	<i>Marmota monox</i>	X					
White-tailed deer	<i>Odocoileus virginianus</i>	X	X	X			
Raccoon	<i>Procyon lotor</i>	X	X	X	X	X	X
Eastern gray squirrel	<i>Sciurus carolinensis</i>			X			
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>	X	X	X			
Reptiles and Amphibians							
Garter snake	<i>Thamnophis sirtalis</i>				X		X
Northern leopard frog	<i>Rana pipiens</i>				X		X
Fish							
Carp	<i>Cyprinus carpio</i>				X		

Table 3-32
VEGETATION MAP – PERCENT COVERAGE
SEAD-57

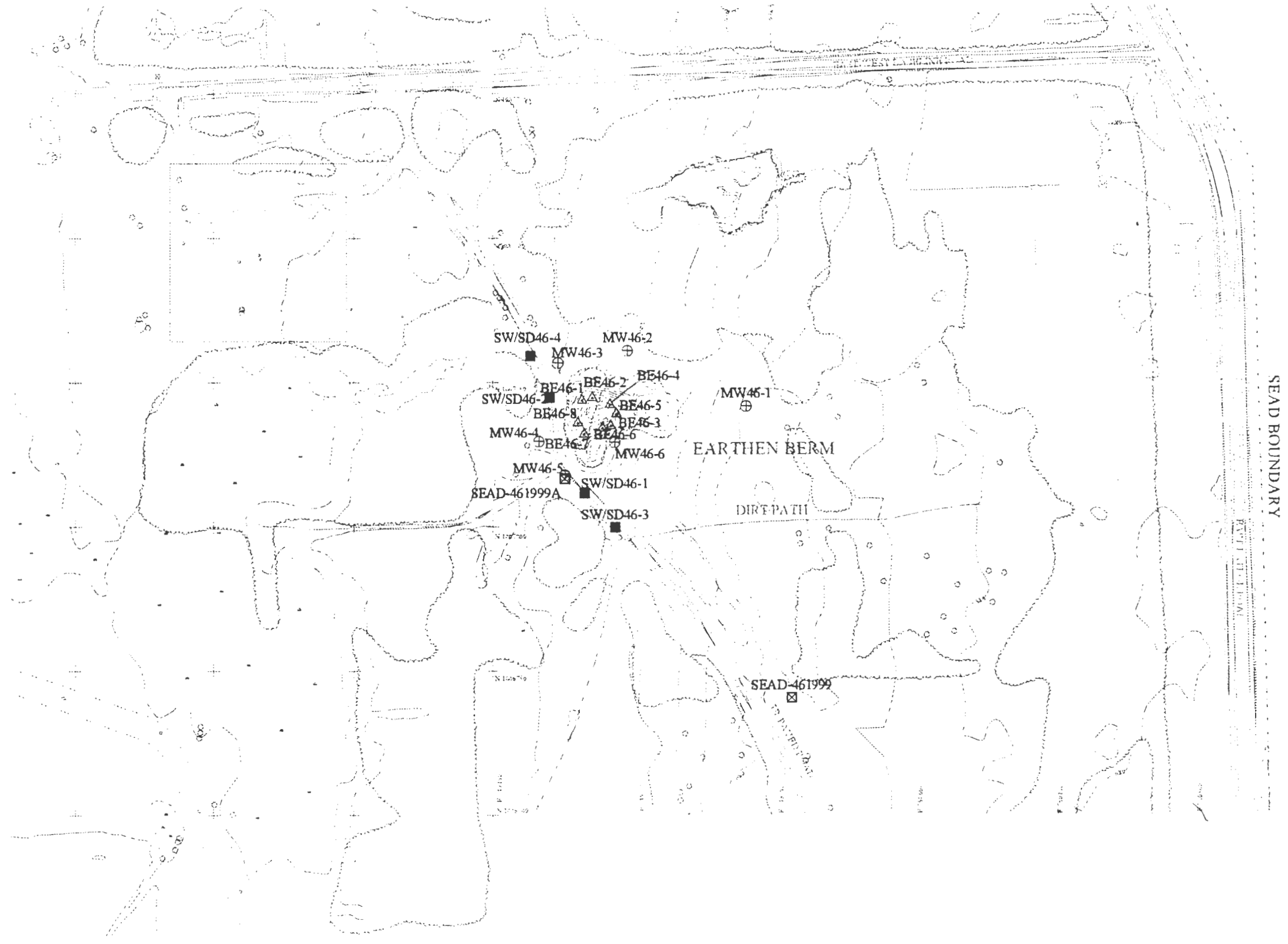
SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity – Romulus, New York Seneca/SEAD-57

Description	Number of Individual Areas	Total Area (acres)	Percent Area
Artificial Pond	1	0.2470	0.05
Ditch/Altered Stream	15	6.8170	1.36
Floodplain Forest	2	7.6350	1.53
Successional Old Field	33	137.2720	27.46
Shallow Emergent Marsh	5	3.0430	0.61
Successional Shrubland	15	115.5420	23.11
Successional Southern Hardwoods	20	182.7150	36.55
Terrestrial Cultural (Various Types)	4	46.6220	9.33

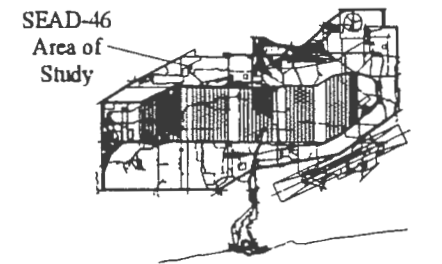


LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE
- Berm/Soil Boring Locations
- SW/Sediment Locations
- Monitoring Well Locations
- Survey Locations



KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

FIGURE 3-1

SEAD-46 SAMPLE LOCATIONS

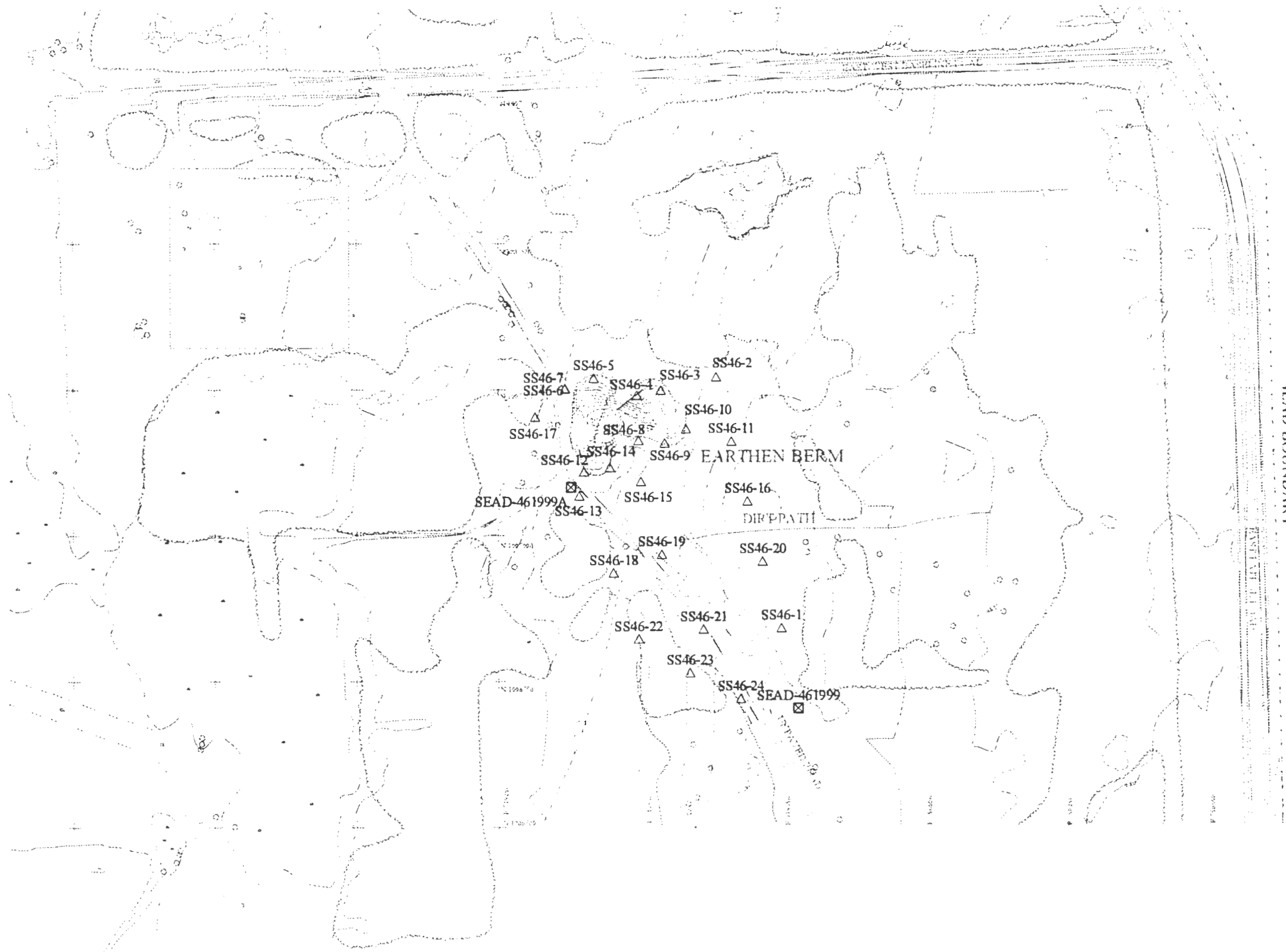
JOB NUMBER: 736676-01002

DATE NOVEMBER 2001



o:\sencca\scad5745\scad46\scad46.apr

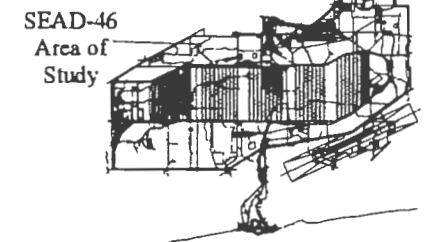
o:\sencca\scad5745\scad46\scad46jwa.apr



LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE
- Surface Soil Locations
- Survey Locations

KEY PLAN



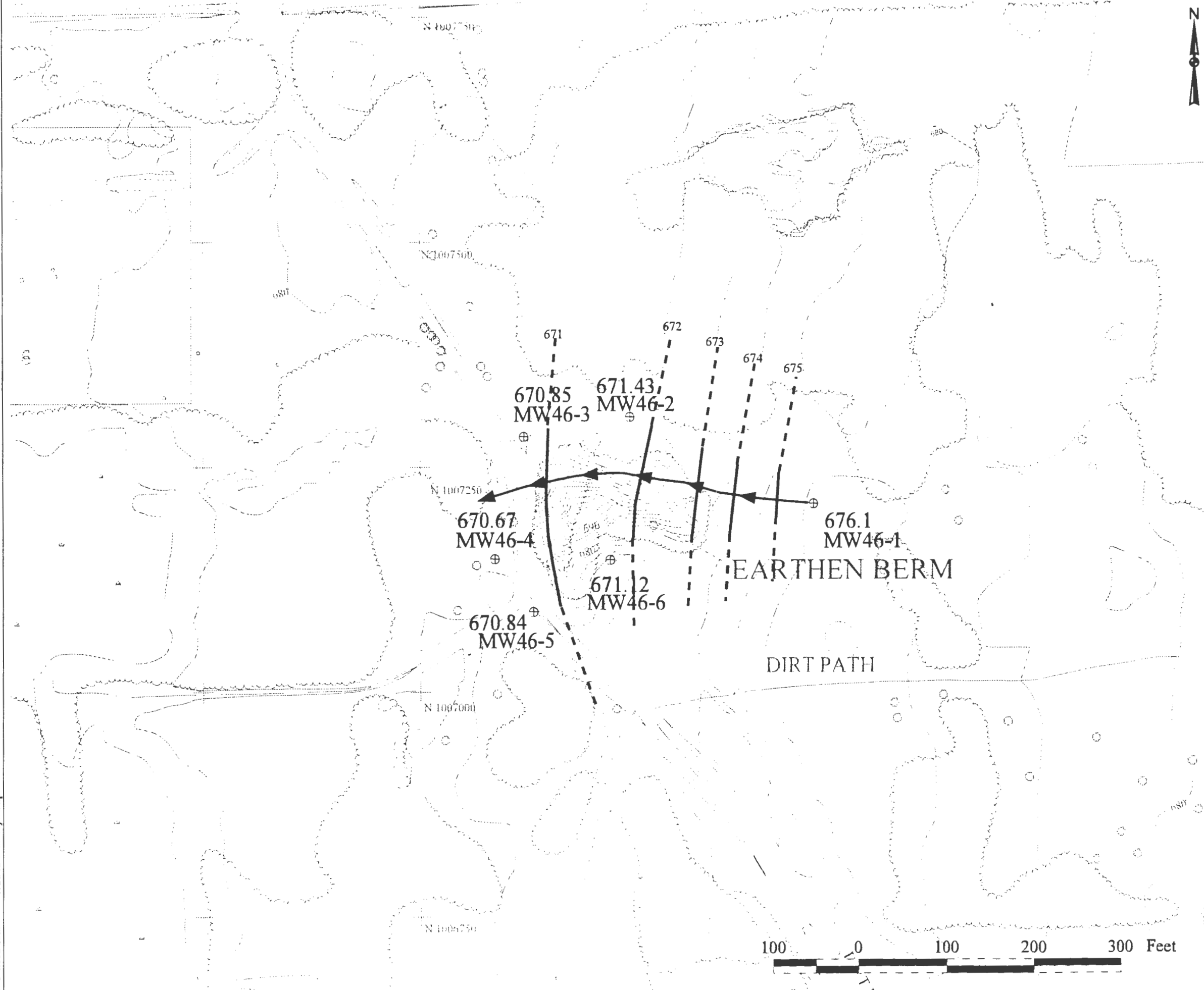
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

FIGURE 3-2

SEAD-46 SURFACE SOIL
SAMPLE LOCATIONS

o:\scncca\scad5745\scad46\scad46jwa.apr



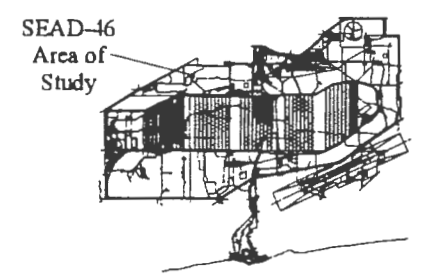
LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE
- Berm/Soil Boring Locations
- SW Sediment Locations
- Monitoring Well Locations
- Survey Locations

Groundwater Contour

672.45
MW46-2
 Monitoring well location with groundwater elevation (feet navd 1988) and location identification.

KEY PLAN



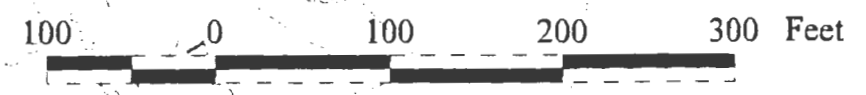
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57











FIGURE 3-3





SEAD-46
JANUARY 2000 GROUNDWATER
ELEVATION CONTOURS


JOB NUMBER: 736676-01002 DATE: NOVEMBER 2001



LEGEND

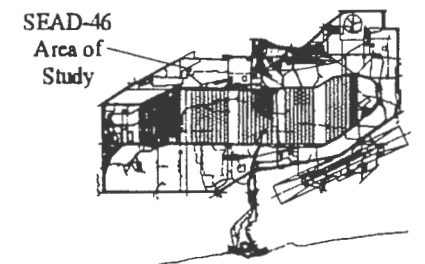
-  RAILROAD TRACK
-  EDGE OF WATER
-  PROPERTY LINE
-  ROAD
-  FENCE
-  CONTOUR ELEVATION
-  TREELINE
-  SURVEY MONUMENT
-  UTILITY POLE
-  DECIDUOUS TREE

-  Berm/Soil Boring Locations
-  SW Sediment Locations
-  Monitoring Well Locations
-  Survey Locations

 Groundwater Contour

672.45
MW46-2
⊕ Monitoring well location with groundwater elevation (feet navd 1988) and location identification.

KEY PLAN

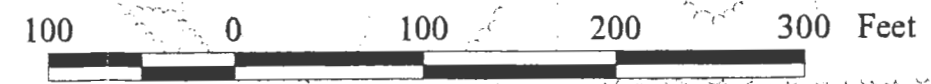
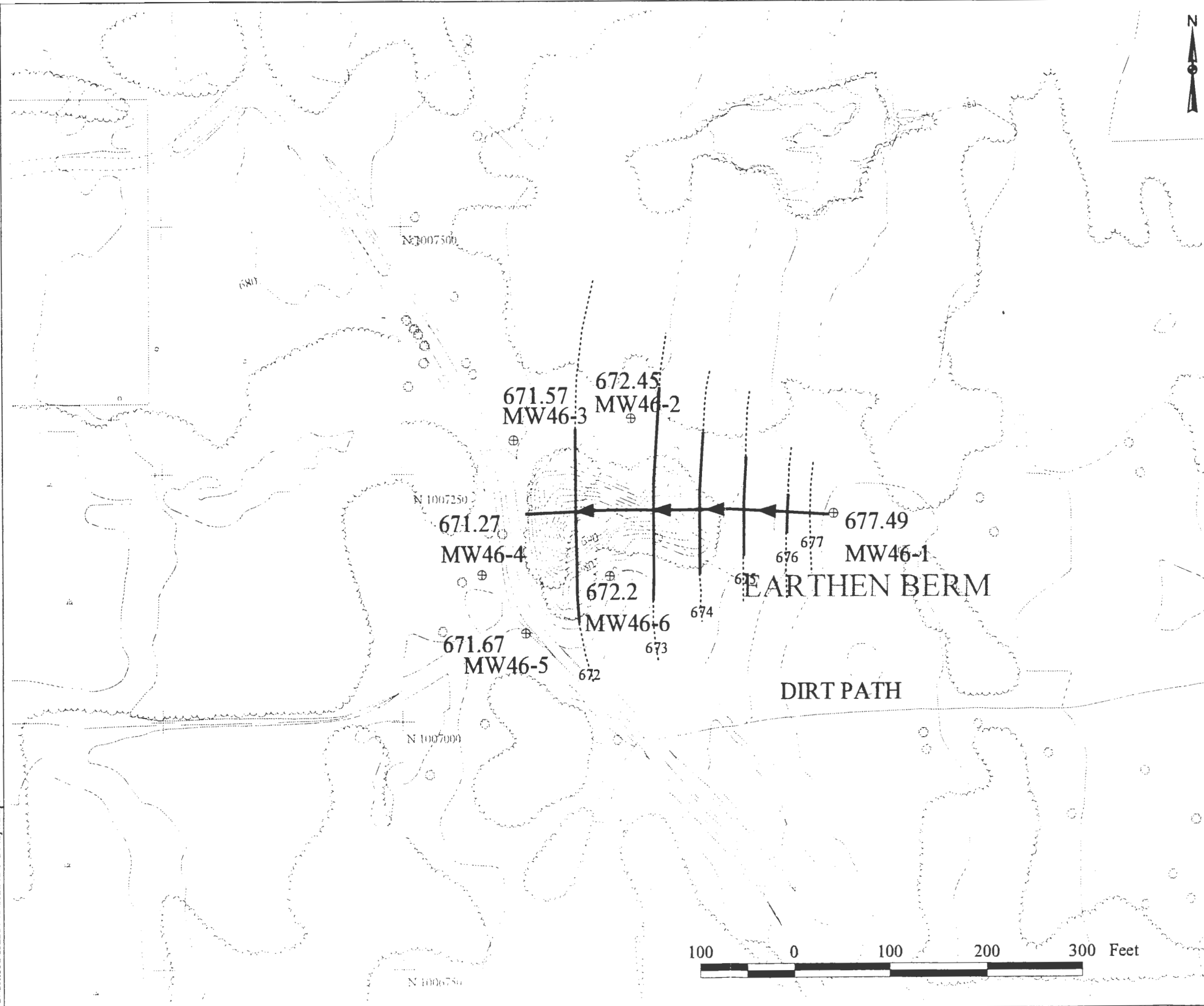


PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 3-4
SEAD-46
APRIL 2000 GROUNDWATER
ELEVATION CONTOURS

JOB NUMBER 736676-01002 DATE NOVEMBER 2001












o:\scncca\scad5745\scad46\scad46jwa.apr



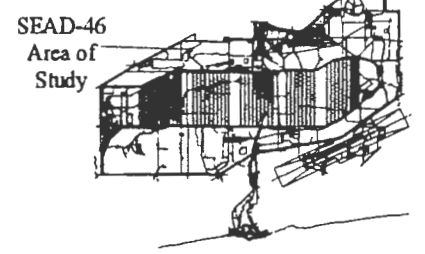
Approximate Center of
SEAD-46 Berm



LEGEND

-  Shallow Emergent Marsh
-  Floodplain Forest
-  Ditch/Altered Stream
-  Artificial Pond
-  Successional Old Field
-  Successional Shrubland
-  Successional Southern Hardwoods
-  Terrestrial Cultural (Various Types)
-  Red Maple - Hardwood Swamp

KEY PLAN



PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 3-5
SEAD-46
VEGETATION MAP



d:\seneca\scad5745\scad46\scad46jwn.apr

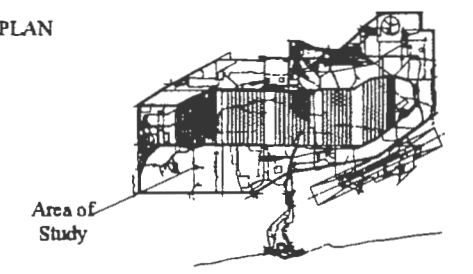


LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE

- SEISMIC PROFILE
- EM TRANSECT
- GPR RECORD (shown in report)

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

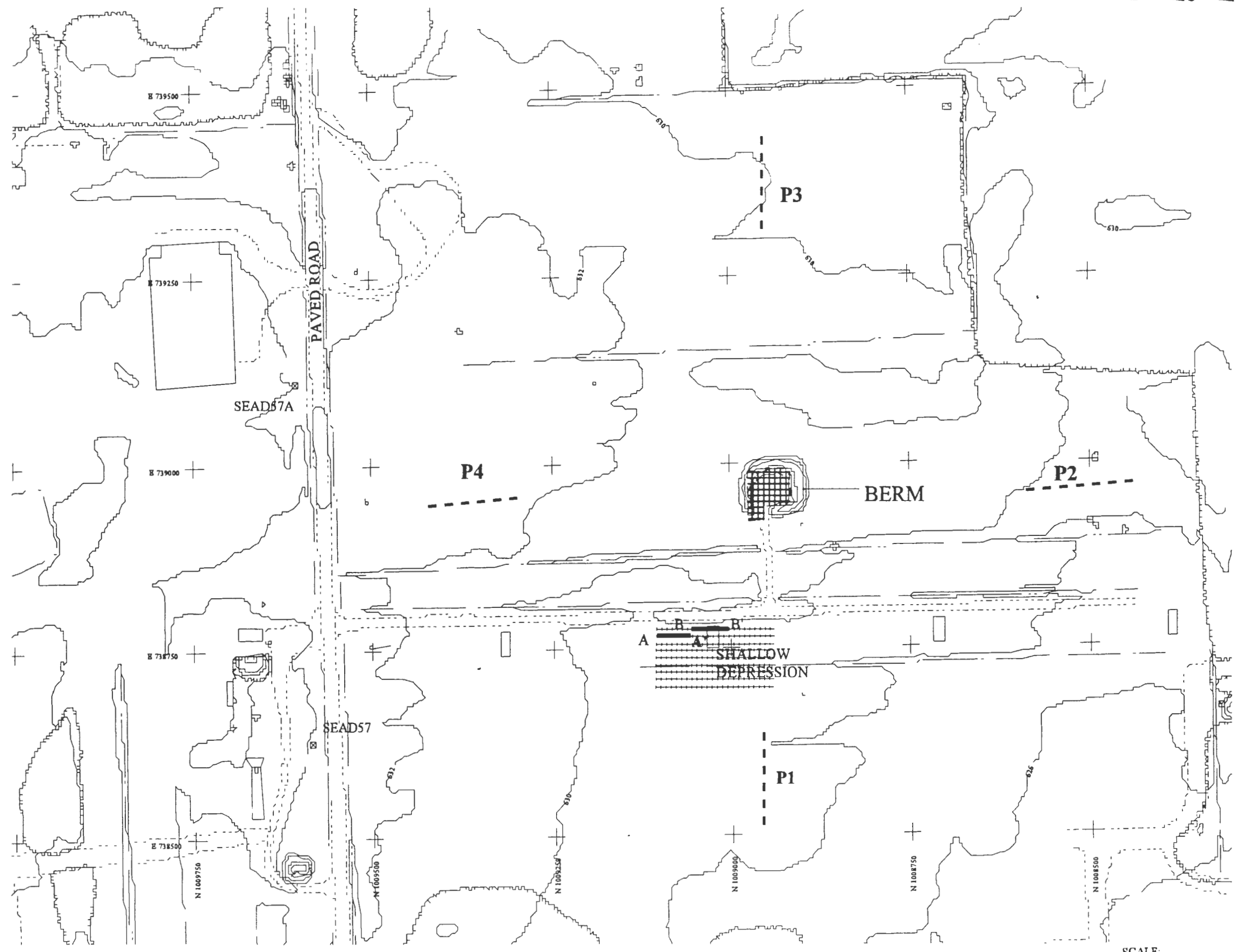
FIGURE 3-6

SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION OF GEOPHYSICAL SURVEYS

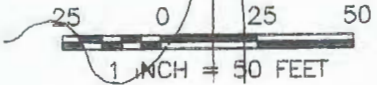
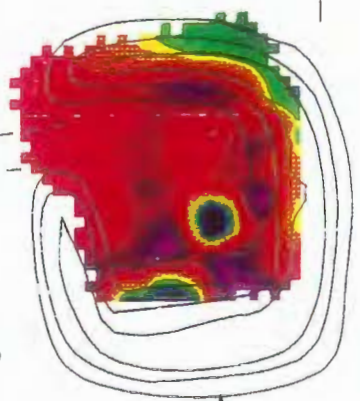
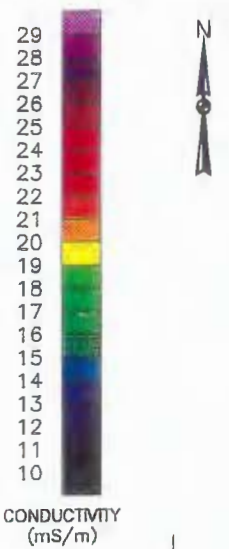
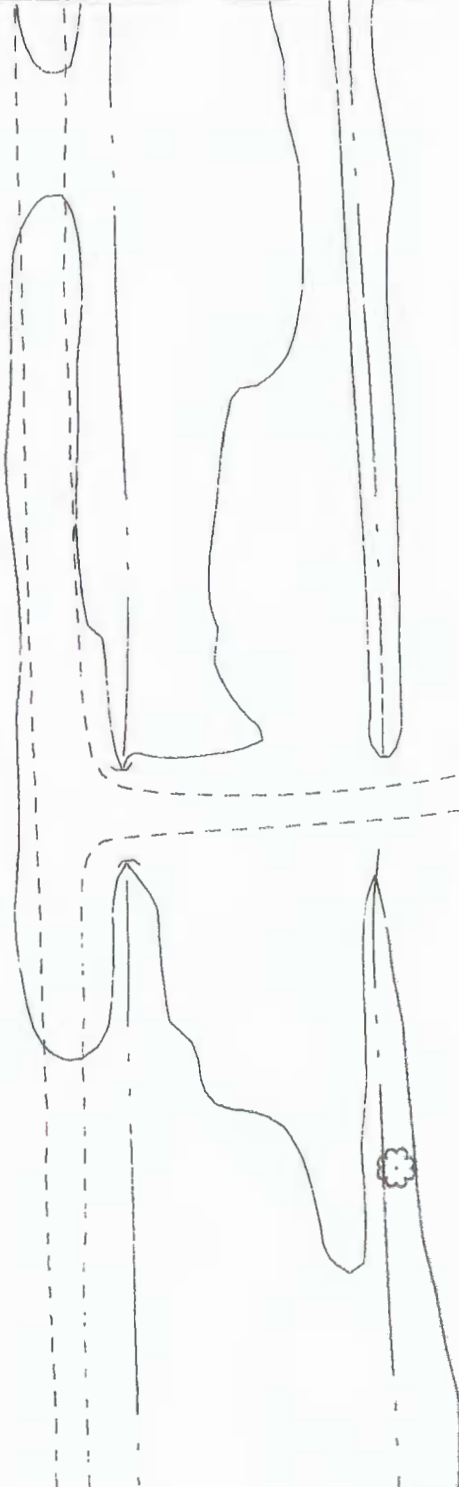
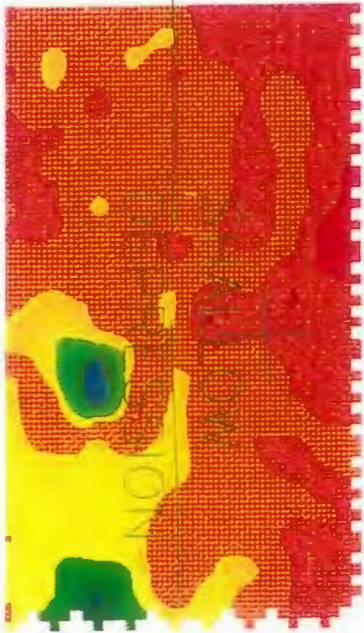
JOB NUMBER. 736676-01001

DATE NOVEMBER 2001


o:\seneca\scad5745\scad5757basc.apr

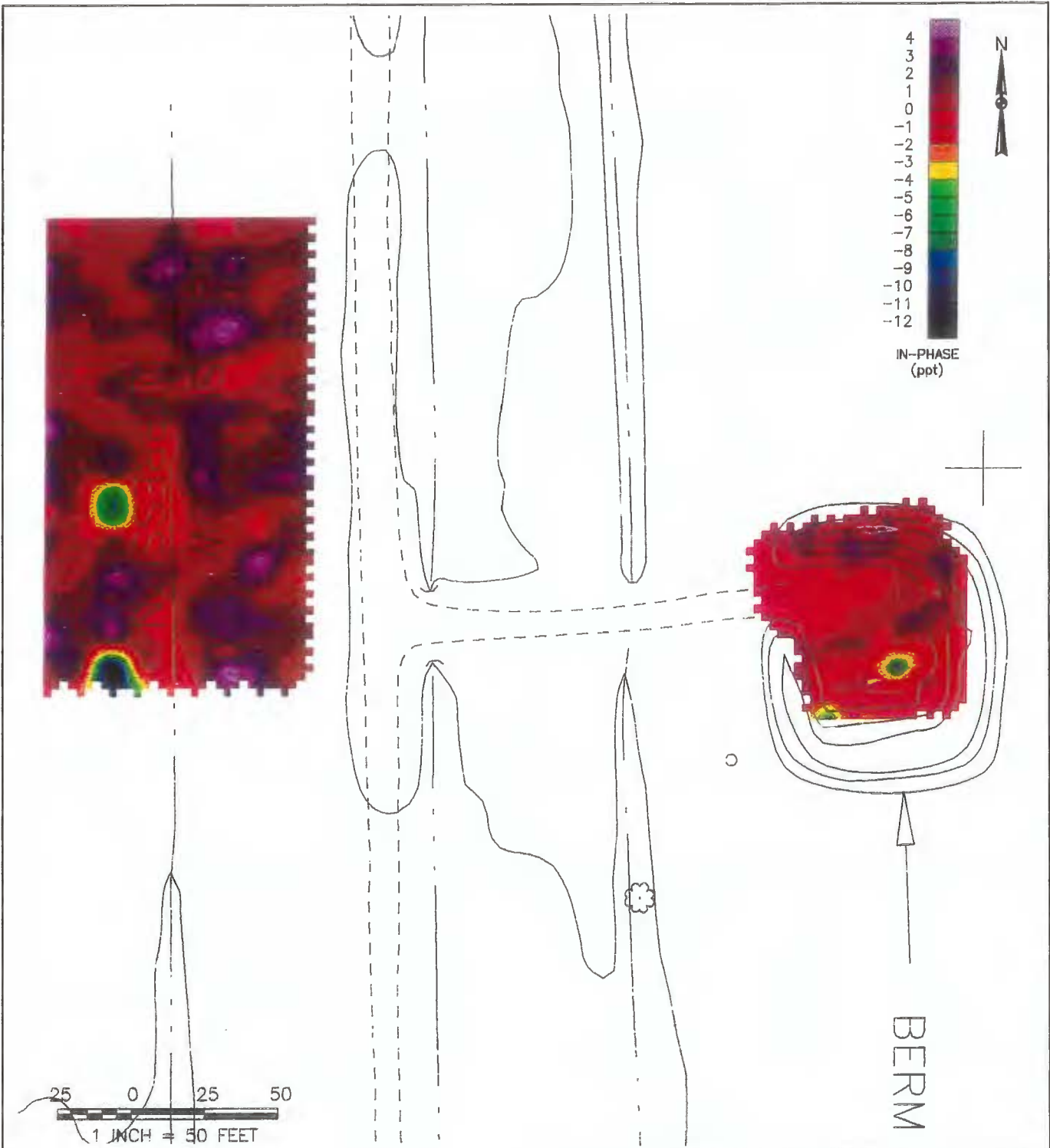



SCALE:
 1 INCH = 150 FEET

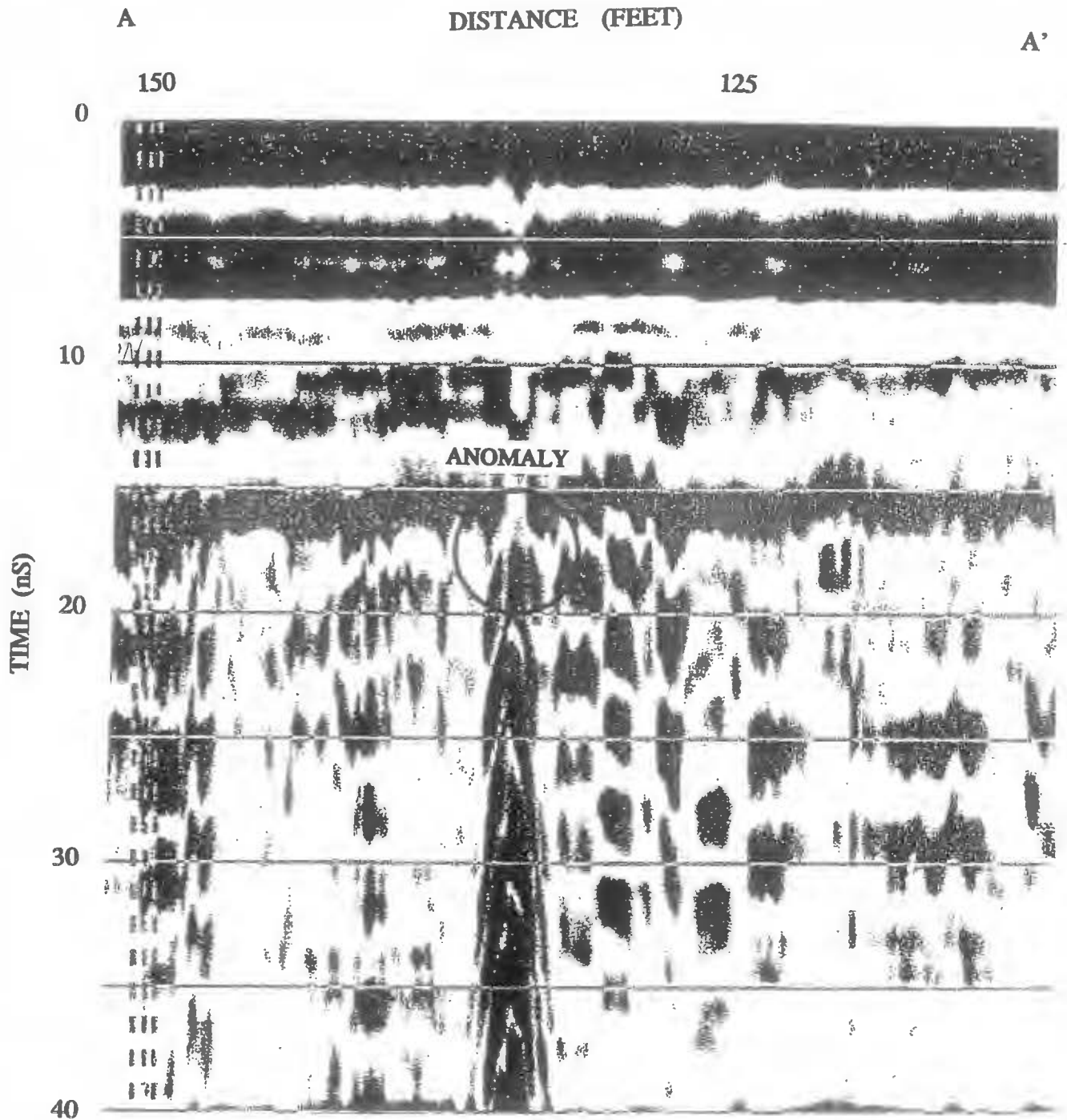



BERM

 PARSONS	
PARSONS ENGINEERING SCIENCE, INC.	
SENECA ARMY DEPOT ACTIVITY DRAFT REMEDIAL INVESTIGATION REPORT SEAD-46 and SEAD-57	
FIGURE 3-7	
SEAD-57 EXPLOSIVE ORDNANCE AREA EM SURVEY, APPARENT CONDUCTIVITY	
JOB NUMBER 736676-01001	DATE NOVEMBER 2001

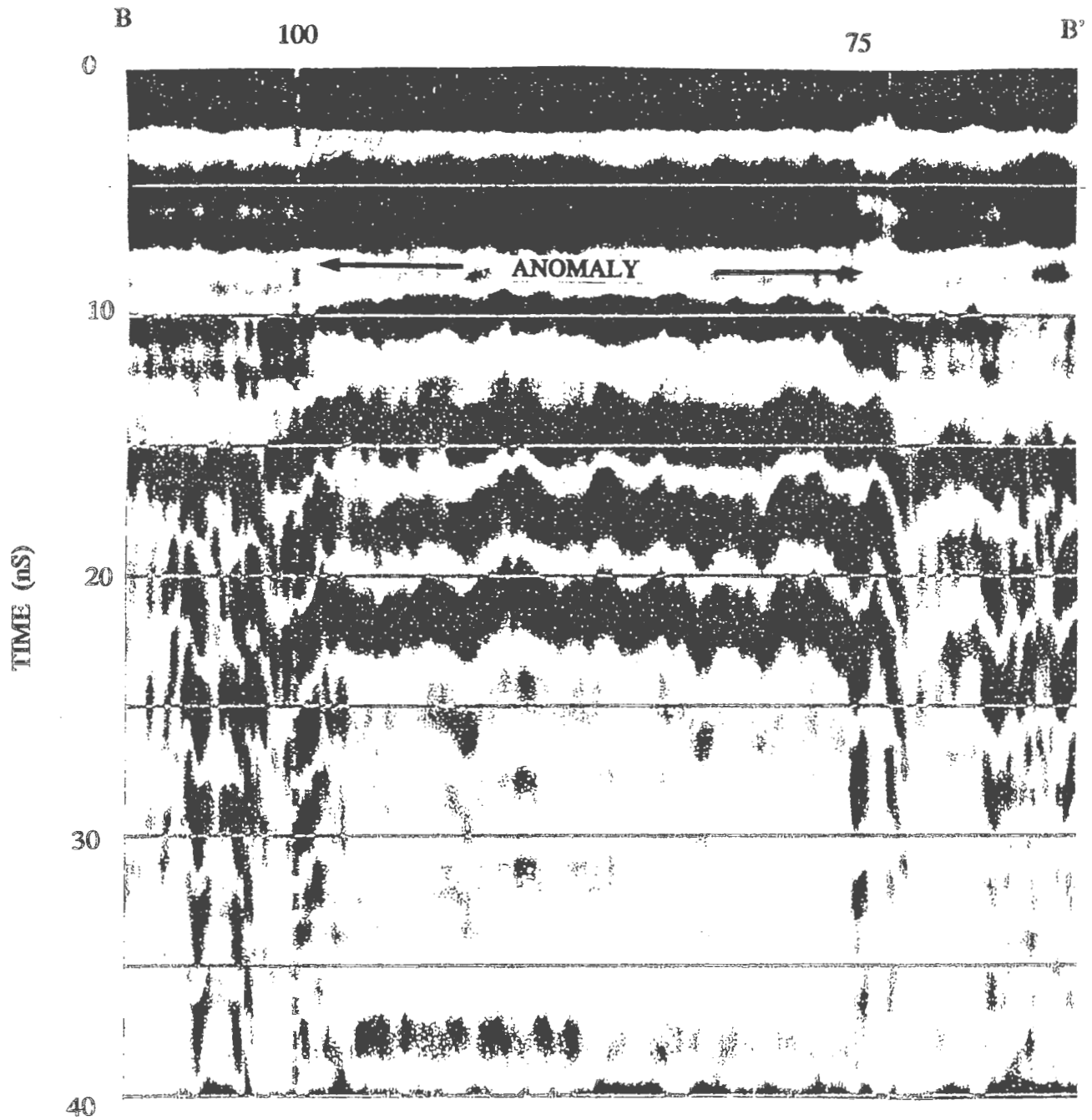


 PARSONS	
PARSONS ENGINEERING SCIENCE, INC.	
SENECA ARMY DEPOT ACTIVITY DRAFT REMEDIAL INVESTIGATION REPORT SEAD-46 and SEAD-57	
FIGURE 3-8 SEAD-57 EXPLOSIVE ORDNANCE AREA EM SURVEY, IN-PHASE RESPONSE	
JOB NUMBER 736676-01001	DATE: NOVEMBER 2001



 PARSONS	
PARSONS ENGINEERING SCIENCE, INC.	
SENECA ARMY DEPOT ACTIVITY DRAFT REMEDIAL INVESTIGATION REPORT SEAD-46 and SEAD-57	
FIGURE 3-9 SEAD-57 EXPLOSIVE ORDNANCE AREA GPR PROFILE A - A'	
JOB NUMBER: 736676-01001	DATE: NOVEMBER 2001

DISTANCE (FEET)



PARSONS

PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

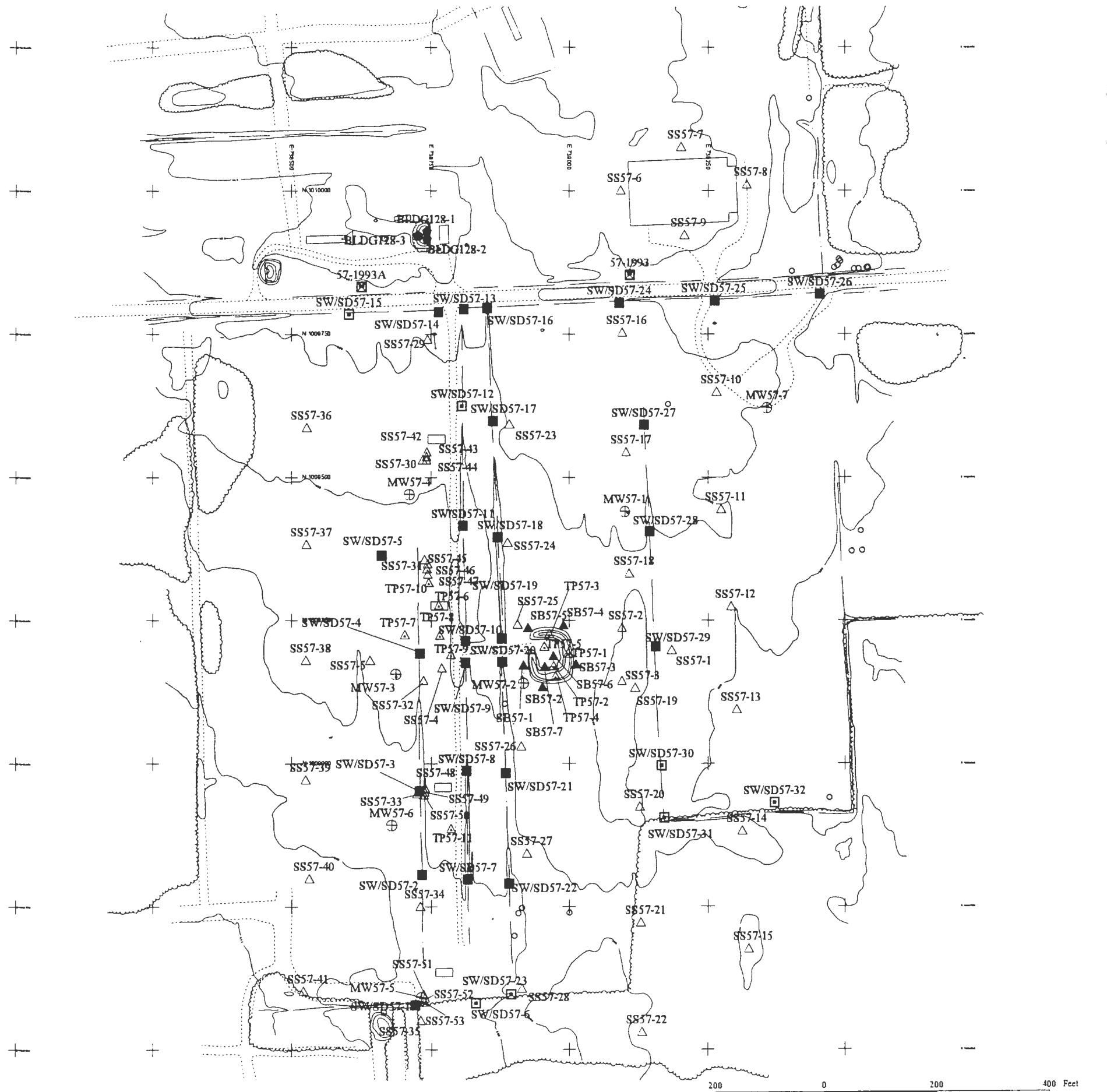
FIGURE 3-10

SEAD-57 EXPLOSIVE ORDNANCE AREA
GPR PROFILE B-B'

JOB NUMBER 736676-01001

DATE NOVEMBER 2001

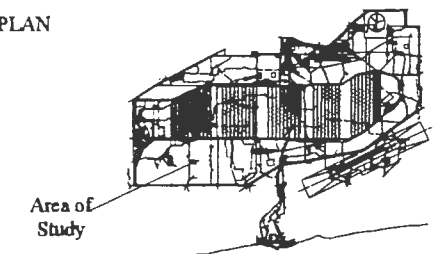
o:\seneca\scad5745\scad5757base.apr



LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE
- Soil Boring Locations
- Surface Soil Locations
- Test Pit Locations
- Surface Water/Sediment Locations
- Sediment Locations
- Ground Water Locations
- Debris Locations
- Survey Points

KEY PLAN

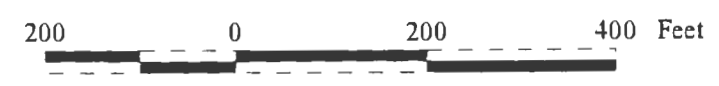
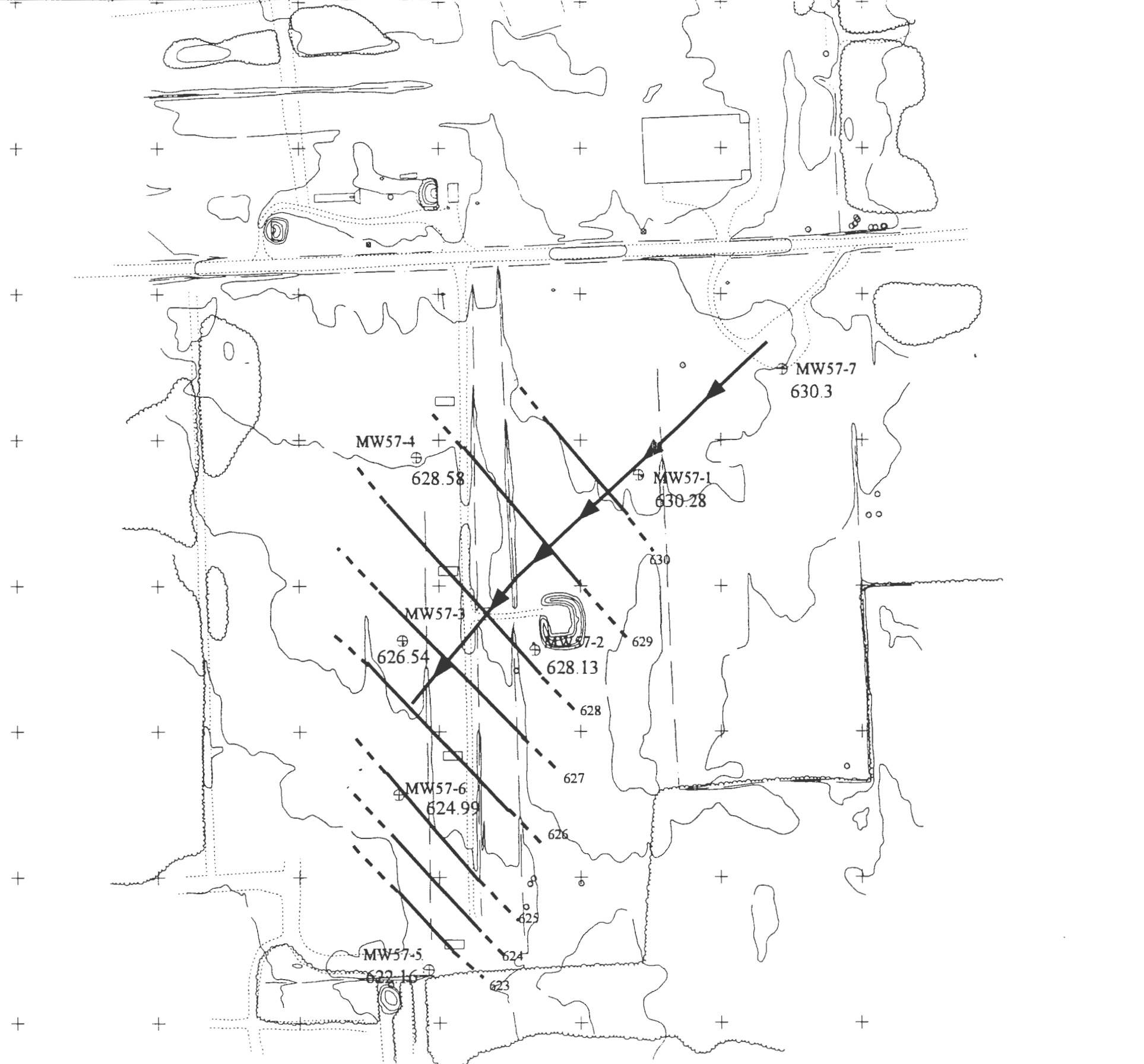


PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

FIGURE 3-11
 SEAD-57 - SAMPLING LOCATIONS

o:\seneca\scad5745\scad5757\basjwa.apr

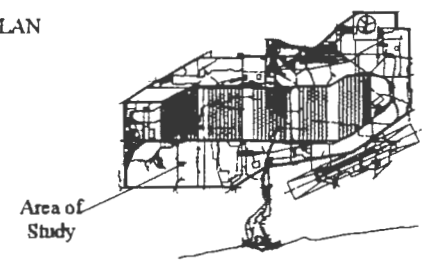


LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE

- Ground Water Locations
- Survey Points
- Groundwater Contour
- 626.64 Monitoring Well Location with groundwater elevation (in feet NA VD 1988) and MW57-3 location identification.

KEY PLAN



PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 AND SEAD-57

FIGURE 3-12

SEAD-57
JANUARY 2000 GROUNDWATER
ELEVATION CONTOURS

JOB NUMBER 736676-01002

DATE DECEMBER 2001

o:\seneca\scad5745\scad57157basejwa apr



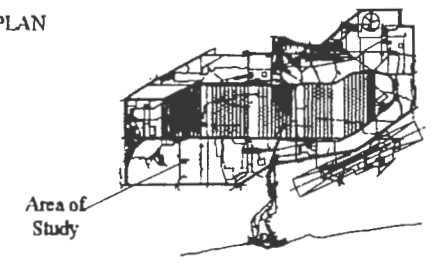
LEGEND

- RAILROAD TRACK
- EDGE OF WATER
- PROPERTY LINE
- ROAD
- FENCE
- CONTOUR ELEVATION
- TREELINE
- SURVEY MONUMENT
- UTILITY POLE
- DECIDUOUS TREE

- Ground Water Locations
- Survey Points
- Groundwater Contour

626.64 Monitoring Well Location with groundwater elevation (in feet NAVD 1988) and MW57-3 location identification.

KEY PLAN



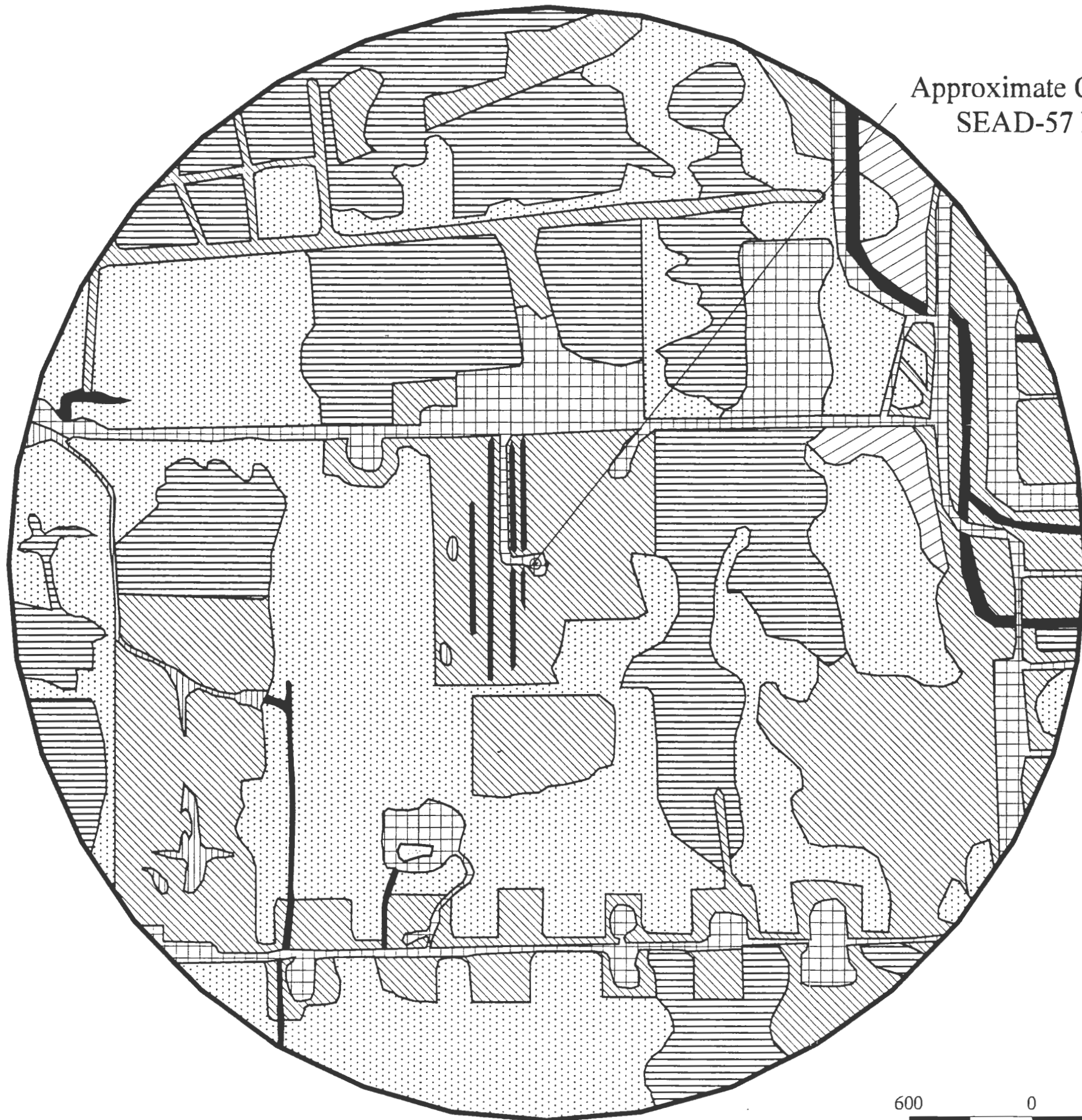
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

FIGURE 3-13

SEAD-57
 APRIL 2000 GROUNDWATER
 ELEVATION CONTOURS









p:\pit\project\seneca\46_57\report\ecological_assess\scad4657\eco.apr



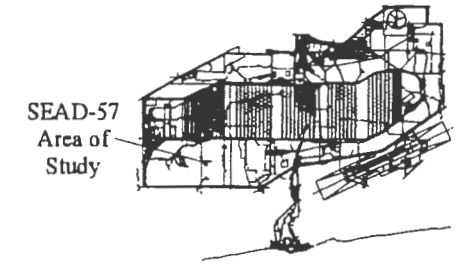
Approximate Center of SEAD-57 Berm



LEGEND

-  Shallow Emergent Marsh
-  Floodplain Forest
-  Ditch/Altered Stream
-  Artificial Pond
-  Successional Old Field
-  Successional Shrubland
-  Successional Southern Hardwoods
-  Terrestrial Cultural (Various Types)

KEY PLAN



PARSONS

PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 AND SEAD-57

FIGURE 3-14

SEAD-57
VEGETATION MAP



4 NATURE AND EXTENT OF IMPACTS

Data quality objectives for this RI follow the guidance described in Data Quality Objective (DQO) for Remedial Response Activities: Development Process (US EPA, March 1987) that is described in the approved Generic Installation RI/FS Workplan for SEDA. This DQO document has been replaced by the Data Quality Objectives Process for Superfund: Interim Final Guidance (USEPA, 1993). Although the workplans for this site referenced the earlier DQO document (USEPA, 1987), a review of the Interim Final Guidance (USEPA, 1993) indicates that the development of the field investigation program for SEADs 46 and 57 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 study area, 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 ESI at SEAD-57 and from historical information about activities conducted at the sites. In order to maintain consistency between the Generic Installation RI/FS Workplan, the Scoping Plan for SEAD-46, the Project Scoping Plan for SEAD-57, and the reports prepared for SEDA, this report will continue to reference the earlier DQO document.

4.1 INTRODUCTION

This section presents the analytical results for all media sampled at SEAD-46 and SEAD-57. Data from the RI investigation conducted at SEAD-46 is presented for the first time and discussed in this report. Data from the prior ESI and the recent RI investigations conducted at SEAD-57 have been merged to yield a single database and the combined data set for this site is discussed as a whole in this RI report.

The investigation activities performed for the ESI (SEAD-57 only) 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, 1993) 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 that are presented in the Interim Final Guidance. To

maintain consistency between the workplans and reports prepared for SEDA, the data categories will continue to be referred to using "Level" terminology.

The Level I data was gathered primarily for health and safety reasons during soil boring and monitoring well sampling activities using field screening instruments (e.g., a PID). Level IV analyses were used to generate data that would positively identify constituents present in environmental media found at SEAD-46 and SEAD-57, and define the extent of their impacts in six types of media. The types of media found at SEAD-46 and SEAD-57 are as follows:

- Surface Soil (both SEADs);
- Subsurface Soil (both SEADs);
- Groundwater (both SEADs);
- Surface Water (both SEADs);
- Sediment (both SEADs); and
- Building Debris (SEAD-57 only).

Classes of parameters analyzed for media as part of the ESI (SEAD-57 only) and RI are summarized in **Tables 2-2** through **2-5** for soil, surface water and sediment, groundwater and building debris, respectively. Detailed chemical analyses performed include determinations of:

- volatile organic compounds (VOCs),
- semivolatile organic compounds (SVOCs),
- chlorinated pesticides and polychlorinated biphenyls (PCBs),
- herbicides (not collected for SEAD 46),
- explosives (nitroaromatic and nitroamine compounds), and
- metals and cyanide.

The VOC and SVOC analyses also included the identification and quantification of tentatively identified compounds (TICs – refer to **Appendix F**). In addition to the detailed chemical analyses for the chemical categories listed above, conventional analytical determinations [e.g., nitrate-nitrite/nitrogen, total organic carbon (TOC), chemical oxygen demand (COD), hardness, alkalinity] were also performed on samples of specific media collected from each SEAD.

The Level IV 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 F**.

4.2 SEAD-46 SMALL ARMS RANGE

4.2.1 Soil

The discussion of soils is divided into surface (i.e., shallow) soils and subsurface (all) soils within each chemical class. Surface soil is defined as soil that collected entirely from depths extending from 0 to 2 feet below the ground surface or organic matter. Subsurface soil is defined as soil that is collected entirely or in part from depths greater than 2 feet below ground surface or organic matter.

Analytical results for soil samples were compared to NYSDEC TAGM HWR-94-4046 ("Determination of Soil Cleanup Objectives and Cleanup Levels", revised January 24, 1994) recommended guidance values. For metals, the comparison value used was the higher of either that which is listed in the NYSDEC TAGM or the 95 percentile value of the SEDA-wide set of 57 background samples. NYSDEC's TAGMs also define maximum soil cleanup objective values for analyte groups as follows: total VOCs less than or equal to (\leq) 10 parts per million (ppm), total SVOCs \leq 500 ppm, individual SVOCs \leq 50 ppm, and total pesticides \leq 10 ppm. Soil sample results were also compared to these total values.

Summary statistics for the surface soil and subsurface soil analyses for samples collected from SEAD-46 are shown in **Tables 4-1** and **4-2**. Tables containing the full analytical results from the samples collected from SEAD-46 are presented in **Appendix F**.

4.2.1.1 Volatile Organic Compounds

Surface (Shallow) Soils

Six volatile organic compounds (i.e., acetone, benzene, carbon disulfide, methyl ethyl ketone, toluene, and total xylenes) were detected in the surface soil samples (**Table 4-1**). Acetone was detected 26 times and it exceeded NYSDEC's TAGM value (i.e., 200 $\mu\text{g}/\text{Kg}$) 21 times. The two highest concentrations reported for acetone were 410 J $\mu\text{g}/\text{Kg}$ at location SS46-22 and 380 J $\mu\text{g}/\text{Kg}$ that was found at two locations, SS46-2 and SS46-6. The source of acetone found in samples from SEAD-46 is uncertain, but it is presumed to result from cross contamination that has occurred either

in the field or in the laboratory. One possible source is acetone production that may result due to the use of the sodium bisulfate preservation technique as is specified for low-level VOC analyses per US EPA SW-846 Method 5035.

Toluene was detected in 25 of the surface soil samples collected, however, all concentrations found were below NYSDEC's TAGM value of 1500 µg/Kg. A maximum concentration of 11 J µg/Kg was detected in the sample collected from location SS46-8. Methyl ethyl ketone was also frequently detected, found in 22 of the surface soil samples at a maximum concentration of 48 µg/Kg at location SS46-2. The NYSDEC TAGM value for methyl ethyl ketone is 300 µg/Kg.

Detection limits reported for all VOC compounds, except acetone, were below their respective NYSDEC TAGM values.

Subsurface Soils (All Soil)

Seven VOCs (i.e., acetone, benzene, carbon disulfide, ethyl benzene, methyl ethyl ketone, toluene, and total xylenes) were detected one or more times in the 34 soil samples collected at the site during the RI program (**Table 4-2**). Ethyl benzene was the only chemical detected in the deeper soils that was not seen in the surface soils (discussed above), but this compound was only detected in the sample collected from location BE46-6 at a concentration of 1 J µg/Kg. Each of the remaining volatile organic compounds was detected in three to seven of the deeper soil samples collected. Furthermore, none of the chemical concentrations measured in the samples from the deeper horizon exceeded any of NYSDEC's TAGM criteria values for soil.

Detection limits reported for all VOC compounds, except acetone, were below their respective NYSDEC TAGM values.

4.2.1.2 Semivolatile Organic Compounds (SVOCs)

Surface Soils (Shallow)

Twenty-seven SVOCs, including mainly polynuclear aromatic hydrocarbons (PAHs), were detected in the surface soil samples collected at SEAD-46 (**Table 4-1**). As a class, the PAH compounds were the most frequently detected SVOCs found in surface soil samples collected from SEAD-46. One or more PAH compounds were found in 21 of the 26 surface soil samples collected from SEAD-46.

Comparatively, one or more phthalate compounds were detected in 12 of the 26 shallow soil samples collected; one or more of the phenolic species were detected in 11 of the 26 shallow soil samples collected; one amine compound was found in four of the 26 shallow soil samples; and one explosive compound was found in the 26 shallow soil samples characterized.

Four of the PAH compounds [i.e., benzo(a)anthracene, benzo(a)pyrene, chrysene, and dibenz(a,h)anthracene] were the only SVOCs detected in any of the shallow soil samples that exceeded their respective NYSDEC TAGM values. All four of these PAH compounds were detected at concentrations that exceeded their respective NYSDEC TAGM value in one sample, collected from location SS46-9 (0 – 2 feet below grade surface (bgs)). Concentrations found for the PAH compounds in this sample were: benzo(a)anthracene at 560 J $\mu\text{g}/\text{Kg}$, benzo(a)pyrene at 500 J $\mu\text{g}/\text{Kg}$, chrysene at 950 J $\mu\text{g}/\text{Kg}$, and dibenz(a,h)anthracene at 120 J $\mu\text{g}/\text{Kg}$.

Three phthalate compounds, three phenol compounds, one amine and one explosive compound were also detected in the surface soil samples. All of these non-PAH compounds were detected at concentrations below their associated NYSDEC TAGM criteria values.

Detection limits reported for the SVOC compounds benzo(a)pyrene, dibenz(a,h)anthracene and phenol were generally higher than their associated NYSDEC TAGM values. The laboratory typically estimated concentrations reported for these compounds.

Subsurface Soils (All Soils)

Twenty-nine SVOCs were detected in the 34 soil samples collected from all depths within SEAD-46 (refer to **Table 4-2**). Two SVOCs not previously found in surface soil samples (i.e., hexachlorobenzene and hexachloroethane) were found collocated in a sample of the deep soil collected from location BE46-8 (1.8 to 2.2 feet). Five additional SVOCs, all PAH compounds, were also found in one or more of the eight deep soil samples collected from SEAD-46. Sample BE46-2 contained benzo(a)fluoranthene and benzo(k)fluoranthene. Sample BE46-6 contained benzo(b)fluoranthene, benzo(k)fluoranthene, and phenanthrene. Sample BE46-8 contained hexachlorobenzene, hexachloroethane, indeno(1,2,3-cd)pyrene and pyrene.

None of the SVOC concentrations measured in the eight deeper soil samples (1.8-2.2 feet) were detected at concentrations that exceeded their respective NYSDEC TAGM values. Furthermore, all concentrations measured for the PAH compounds in the deeper soils were less than the maximum

concentrations measured for these same compounds in the shallow soil samples. The shallow samples contained a greater number and higher concentrations of SVOCs than the subsurface samples did.

4.2.1.3 Pesticides and PCBs

Surface Soils (Shallow)

Thirteen pesticides were detected in the surface soil samples collected from SEAD-46 (**Table 4-1**). Dieldrin exceeded its NYSDEC TAGM criteria value twice, once at location SS46-7 where a concentration of 45 J $\mu\text{g}/\text{Kg}$ was measured, and again at sample location SS46-11 where a concentration of 46 J $\mu\text{g}/\text{Kg}$ was found. All other pesticides were detected at concentrations below their respective TAGM criteria.

No PCBs were detected in shallow soil samples from SEAD-46.

Detection limits reported for the pesticide and PCB compounds were all below their respective NYSDEC TAGM values.

Subsurface Soils (All Soils)

No pesticides or PCBs were detected in any of the eight subsurface soil samples (depth 1.8-2.2 feet) collected from SEAD-46. Detection limits reported for the pesticide and PCB compounds were all below their respective NYSDEC TAGM values.

4.2.1.4 Nitroaromatics

Explosive (i.e., nitroaromatic) compounds were not detected at SEAD-46 using SW-846 Method 8330 procedures. A single nitroaromatic compound (i.e., 2,6-dinitrotoluene) was detected in the soil sample collected from location SS46-2 (i.e., 130 J $\mu\text{g}/\text{Kg}$) using SW-846 Method 8270 procedures. The measured concentration of 2,6-Dinitrotoluene does not surpass NYSDEC's TAGM for this compound.

4.2.1.5 Herbicides

Soil samples were not collected for Herbicides determinations at SEAD 46.

4.2.1.6 Metals

Surface Soils

Twenty-three metals were detected in the 26 surface soil samples collected from SEAD-46 (Table 4-1). Fifteen of the 23 detected metals were found in all of the surface soil samples collected, and two others (i.e., manganese and thallium) were found in 25 of the 26 samples collected. Eight metals were found at concentrations that exceeded their respective NYSDEC TAGM recommended values. The metals that were found at concentrations above their respective TAGM guidance values included beryllium, copper, lead, manganese, mercury, sodium, thallium, and zinc. Of these metals, manganese and sodium are presumed to result from natural or anthropologic sources, while the remainder may result due to historic site operations.

Thallium exceeded its NYSDEC TAGM criteria (i.e., 0.7 mg/Kg) in all 25 of the surface samples in which it was detected. Concentrations measured for thallium ranged from a low of 0.91 J mg/Kg (at SS46-17) to a high of 3.3 mg/Kg (at SS46-21). The only sample found not to contain thallium was collected from location SS46-1, which is located in the southeastern corner of the area investigated.

Lead was detected in all 26 of the surface soil samples and above its NYSDEC TAGM guidance value (i.e., 24.8 mg/Kg) in 17 samples. The maximum concentration measured for lead was 913 J mg/Kg located at location SS46-8, which is located on the south-central face of the berm that exists in SEAD-46. The majority of elevated lead concentrations found in SEAD-46 were located in close proximity to the berm structure.

Mercury was detected in 19 of the 26 surface soil samples collected from SEAD-46, and it exceeded its NYSDEC TAGM guidance value (i.e., 0.1 mg/Kg) in 12 of the analyzed samples. The maximum concentration detected for mercury was 0.17 J mg/Kg, which was located in SS46-16. Unlike lead, samples containing mercury at concentrations exceeding its NYSDEC TAGM value were scattered throughout the area that was surveyed during the RFI.

Copper (7 times), sodium (3 times), beryllium (1 time), manganese (1 time) and zinc (1 time) were the other metals seen to exceed their respective NYSDEC TAGM values in surface soil samples. The distribution of metals found to exceed NYSDEC TAGM levels is shown on **Figure 4-1** and **4-2**. The maximum concentration recorded for each individual metal, except sodium and thallium, were all found in the shallow soil samples collected from SEAD-46.

Subsurface Soils (All Soils)

Nineteen of 23 metals were detected in the eight subsurface (depth 1.8-2.2 feet) soil samples at SEAD-46 (**Table 4-2**). Of the 19 metals detected in the subsurface soils, 18 were found in all samples characterized, while sodium was detected in six of the eight subsurface soils characterized.

Four of the metals detected in the subsurface soils were found at concentrations that exceeded their respective NYSDEC TAGM values in the deep (1.8-2.2 feet) soils. These included thallium (8 times), mercury and sodium (2 times each), and lead (1 time). The maximum concentration of thallium measured in SEAD-46 was found at location BE46-3 (1.8 – 2.2 feet) where a concentration of 3.4 mg/Kg was found. This location is located in the south-central portion of the berm structure that remains in the SEAD. Comparably, the maximum concentration measured for sodium (i.e., 272 mg/Kg) in SEAD-46 was found at location BE46-6 (1.8 – 2.2 feet), which is slightly west of location BE46-3. The distribution of metals surpassing their TAGM values in subsurface soil is shown in **Figure 4-1** and **4-2**.

4.2.1.7 Other Constituents

Nitrate/Nitrite Nitrogen

Surface Soils

Nitrate/nitrite nitrogen was detected in 18 of 20 surface sample locations at concentrations ranging between 0.01 mg/Kg and 4.5 mg/Kg (**Table 4-1**). The highest of these concentrations was measured in the surface sample at SS46-9.

Subsurface Soils (All Soils)

Nitrate/nitrite nitrogen was detected in all seven of the subsurface samples tested at concentrations ranging between 0.67 mg/Kg and 2.2 mg/Kg (**Table 4-2**). The highest subsurface concentration was found in BE46-7 at a depth of 1.8-2.2 feet (2.2 mg/Kg).

4.2.2 Groundwater

Two rounds of groundwater sampling were completed in the six monitoring wells that were installed at SEAD-46. One round was conducted in late January 2000, while the second was conducted in late April 2000. The discussion below presents and summarizes the results found during both rounds of sampling. All of the groundwater data developed for SEAD-46 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 federal secondary MCLs.

Summary statistics for the groundwater analyses are shown in **Table 4-3**. The table of the results of the chemical analyses for the groundwater from the RI is presented in **Appendix F**.

4.2.2.1 Volatile Organic Compounds

Volatile organic compounds were not detected in any of the wells sampled during either of the two sampling events conducted in SEAD-46 (see **Table 4-3**).

4.2.2.2 Semivolatile Organic Compounds (SVOCs)

Butylbenzylphthalate was the only semivolatile organic compound detected in any of the monitoring wells sampled in SEAD-46. This compound was detected in the sample collected from location MW46-1 during the January 2000 sampling event, and this compound was found at a concentration of 0.057 J $\mu\text{g/L}$ (see **Table 4-3**). None of the regulatory lists (i.e., New York State Class GA standards, Federal Drinking Water Standards Maximum Contaminant Levels (MCLs), and secondary MCLs) used during this analysis reports a criteria value for butylbenzylphthalate. Semivolatile organic compounds were not detected in the groundwater samples characterized during the April 2000 sampling event.

4.2.2.3 Pesticide and PCBs

Pesticides and PCBs were not detected in any of the groundwater samples collected from SEAD-46 during either of the sampling events.

4.2.2.4 Nitroaromatics

Nitroaromatic compounds were not detected in any of the groundwater samples collected from monitoring wells sampled at SEAD-46 during either of the sampling events (**Table 4-3**).

4.2.2.5 Herbicides

Analyses were performed for Herbicides as part of the SEAD-46 RI groundwater sampling program.

4.2.2.6 Metals

Seventeen metals were detected in the six monitoring wells sampled in SEAD-46 (**Table 4-3**). Eight of the detected metals were found in all 12 of the samples that were collected and analyzed during the two sampling events, and of these eight, aluminum was found at concentrations that exceeded its federal MCL level (50 µg/L) in all samples. The maximum concentration (i.e., 500 µg/L) found for aluminum was detected in the sample collected from MW46-3 during the first sampling round, and this was followed closely by a concentration of 498 µg/L that was detected in MW46-2 during the first sampling event. Both of these sampling locations are located north of the bermed structure.

Four other metals (i.e., antimony, iron, manganese and thallium) were found at concentrations that exceeded their respective criteria values (i.e., NYS Class GA, EPA MCL, and secondary MCLs) in one or more samples (**Figure 4-3**). Antimony surpassed its NYSDEC Class GA standard (i.e., 3 µg/L) in the sample collected from MW46-1 during the January 2000 sampling event, where a concentration of 5.5 J µg/L was found. Iron, with a maximum concentration of 568 J µg/L in MW46-3, exceeded NYSDEC's Class GA standard in four samples, three of which were collected during the January 2000 sampling event. Samples collected from the same wells (i.e., MW46-2, MW46-3, and MW46-6) during the April 2000 sampling event all showed less iron in the groundwater, suggesting that the elevated iron concentrations maybe a residual of initial well development process.

Manganese exceeded its secondary MCL value in five of the 12 samples characterized, and four of these occurred in samples that were collected during the January 2000 sampling event. This again suggests that the observed concentrations may be residuals of the initial well development process. Thallium surpassed its federal MCL (i.e., 2 µg/L) in one groundwater sample collected from MW46-6 where a concentration of 4J µg/L was reported. This sample was collected during the January 2000 sampling event.

4.2.2.7 Other Constituents

Chemical Oxygen Demand

Chemical Oxygen Demand (COD) analyses were only performed on groundwater samples collected during the second (i.e., April 2000) sampling event. COD levels of 8 mg/L were reported for samples collected from locations MW46-4 and MW46-6.

Nitrate/Nitrite-Nitrogen

Nitrate/nitrite-nitrogen was detected in groundwater samples collected during the January 2000 sampling event at concentrations ranging from 0.02 mg/L to 0.19 mg/L (**Table 4-3**). Nitrate/nitrite-nitrogen was detected in groundwater samples collected during the April 2000 event at concentrations ranging from 0.02 mg/L to 0.25 mg/L.

Total Dissolved Solids (TDS)

Total Dissolved Solids (TDS) analyses was not performed for samples collected in Round 1. TDS was reported at concentrations ranging from 266 to 364 mg/L in samples collected during the April 2000 sampling event.

Total Hardness-CaCO₃

Total Hardness analyses were not conducted for Round 1 groundwater samples. The range for total hardness measured for groundwater samples collected during Round 2 was 250 to 290 mg/L.

Turbidity

Groundwater turbidity data was collected in the field, immediately prior to the collection of samples. Turbidity data are presented in **Table 3-9** for both groundwater sampling events completed during the RI at SEAD-46. Data collected during the January 2000 event indicate that the turbidity ranged from a low value of 5 Neophelometric Units (NTUs) at location MW46-1 to a high of 28 NTUs at location MW46-3. Equivalent data collected during the April 2000 sampling event showed that the turbidity of all groundwater samples had decreased as the reported range varied from 3.3 to 8.5 NTUs.

4.2.3 Surface Water

The quality of surface water at SEAD-46 has not been classified by NYSDEC. Summary statistics for the surface water analyses from the RI are shown in **Table 4-4**. Analytical data developed from the analysis of surface water samples collected in SEAD-46 was compared to the NYSDEC's Class C surface water standards. The complete results from the chemical analyses of samples of the surface water found in SEAD-46 are presented in **Appendix F**.

4.2.3.1 Volatile Organic Compounds

Two VOCs, acetone and toluene, were found one or more times in the four surface water samples collected from SEAD-46 (see **Table 4-4**). Toluene was detected in each of the four surface water samples collected at concentrations ranging from 0.29 $\mu\text{g/L}$ to 1.4 $\mu\text{g/L}$. The NYS Class C surface water standard for toluene is 6,000 $\mu\text{g/L}$. Acetone was detected at a concentration of 6.4 $\mu\text{g/L}$ in the sample collected from location SW/SD46-1. There is no published Class C standard for acetone.

4.2.3.2 Semivolatile Organic Compounds

SVOCs were not detected in any of the four surface water samples collected from SEAD-46.

4.2.3.3 Pesticide and PCBs

Pesticides and PCBs were not detected in the four surface water samples collected from SEAD-46.

4.2.3.4 Nitroaromatics

Nitroaromatics were not detected in the four surface water samples collected from SEAD-46.

4.2.3.5 Herbicides

Herbicides were not analyzed as part of the RI surface water sampling program at SEAD-46.

4.2.3.6 Metals

Results obtained for metals in surface water samples were compared to NYS Class C surface water quality standards. The Class C surface water quality standard values for chromium, copper, lead, nickel, and zinc are based on the hardness of the surface water found at the site. The average hardness found in surface water samples collected from the Seneca Army Depot Activity is approximately 216.4 parts per million (ppm). This hardness value was used in the calculation of the NYS Class C standards for the metals mentioned above.

Nineteen metals were detected in one or more of the four surface water samples collected from SEAD-46 (**Table 4-4**). Of the 19 metals reported, 10 were found in all of the collected samples. Four metals (i.e., aluminum, iron, lead, and silver) were found at concentrations that exceeded their respective NYS Class C surface water standards (**Figure 4-4**). Aluminum and iron surpassed their respective class C standards (i.e., 100 µg/L and 300 µg/L, respectively) in each of the four surface water samples collected from SEAD-46. Lead also exceeded its Class C standard (i.e., 1.46 µg/L) in the sample collected from SW/SD46-4. The maximum concentration measured for aluminum (i.e., 4,610 µg/L), iron (i.e., 4,650 µg/L), lead (i.e., 5.7 µg/L) and for 11 other metals, were all found in the sample collected from SW/SD46-4, which is north and hydraulically downgradient of the berm structure that is located in SEAD-46. Silver was also detected in the sample collected from SW/SD46-3 at a concentration that exceeded its Class C standard (i.e., 0.1 µg/L).

4.2.3.7 **Other Constituents**

Nitrate/Nitrite-Nitrogen

Nitrate/nitrite-nitrogen was detected in two of the surface water samples (SW/SD46-2 and SW/SD46-4) at concentrations ranging from 0.01 mg/L to 0.02 mg/L (**Table 4-4**). There is no NYS Class C standard criteria value for nitrate/nitrite-nitrogen.

Total Hardness-CaCO₃

Total hardness levels measured for surface water samples collected from SEAD-46 ranged from 142 mg/L to 290 mg/L (**Table 4-4**). The average measured for these four samples was approximately 218 mg/L, which compares favorably with the average hardness found at the depot.

Total Organic Carbon

Total organic carbon was determined for all four surface water samples at SEAD-46. The total organic carbon concentrations measured ranged from 3.5 mg/L to 9.6 mg/L (**Table 4-4**).

pH

The pH levels measured in the four surface water samples ranged from a low of 7.26 to a high of 7.77 (**Table 4-4**).

4.2.4 **Drainage Ditch Soil/Sediment**

Analytical results obtained from drainage ditch samples collected in SEAD-46 were compared NYSDEC's sediment criteria and soil guidance values. Drainage ditches in the immediate vicinity of SEAD-46 are ephemeral; typically containing water only after heavy storm events or during spring melts. Thus, the ability of these man-made and refined ditches to support aquatic life or vegetation is highly suspect. As is indicated in discussions provided in **Section 3.1.8**, and in **Figure 3-5**, areas defined as "riverine, ditch or altered stream" are limited to areas to the east of SEAD-46, generally outside of the SEDA's boundary. Samples of "sediment" collected during the RI were obtained along the western side of SEAD-46 in man-made drainage ditches that run adjacent to the access

road. Therefore, it is probable that compound levels identified in these ditches should more closely approximate "soil" concentrations.

With regards to the comparisons made to NYSDEC Sediment criteria, the comparison of site data is made to the lowest of six possible screening criteria defined by the New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources. For metals, these criteria include the lowest effect level (NYSLEL) and the severe effect level (NYSSSEL). For organic species, the possible comparison criteria include the human health bioaccumulation (NYS HHB) criteria, the benthic aquatic life acute toxicity (NYSALC) criteria, the benthic aquatic life chronic toxicity (NYSCLC), and the wildlife bioaccumulation criteria (NYSWB). All of the guidance criteria published for organic species are contingent on the level of total organic carbon that is present in the sediment collected. Sediment criteria values used for SEAD-46 are derived using a total organic carbon content of 39,105 mg/Kg which represents the average concentration measured in sediment samples collected from SEDA.

Summary statistics for the sediment results to both TAGM and sediment criteria are shown in **Table 4-5**. The table of all results derived from the chemical analyses of sediment samples collected from SEAD-46 is presented in **Appendix F**.

4.2.4.1 Volatile Organic Compounds

Five VOCs (i.e., acetone, carbon disulfide, methyl ethyl ketone, toluene and xylene) were detected in one or more of the four sediment samples collected from SEAD-46 (**Table 4-5**). Acetone and toluene were detected in all four of the samples, and methyl ethyl ketone was detected in three of the four samples collected.

Comparison of site VOC "sediment" results to NYSDEC TAGM criteria for soils indicates that only acetone was detected in site samples at levels that exceeded criteria values. However, the validity of all reported acetone concentrations is of concern due to the possibility of acetone production in collected samples due to the use of the sodium bisulfate preservation technique as is specified for low-level VOC analyses per US EPA SW-846 Method 5035 during the collection of the sediment samples. Locations where acetone was measured at concentrations exceeding NYSDEC soil criteria level are shown on **Figure 4-5b**.

New York State has only defined sediment guidelines for toluene and total xylenes, and none of the concentrations measured for either of these compounds exceeded its guidance value.

4.2.4.2 Semivolatile Organic Compounds

Eight SVOCs were detected in one or more of the four sediment locations sampled in SEAD-46. Seven of the eight compounds were PAHs, while the last was phenol (**Table 4-5**).

Phenol was the only SVOC detected in all four samples, with its highest concentration (i.e., 33 J $\mu\text{g}/\text{Kg}$) found at location SW/SD46-4. The concentration reported for phenol in this sample was the only one that surpassed applicable sediment and TAGM criteria levels for SVOCs. The sample collected from location SW/SD46-2 contained all eight SVOCs, including the seven PAH compounds. The location of the phenol exceedance is displayed on **Figures 4-5a** and **4-5b**.

4.2.4.3 Pesticides and PCBs

Pesticides and PCBs were not detected in any of the four sediment samples collected from SEAD-46.

4.2.4.4 Nitroaromatics

Nitroaromatics were not detected in any of the four sediments sampled collected from SEAD-46.

4.2.4.5 Herbicides

Herbicides were not analyzed in samples collected from SEAD-46.

4.2.4.6 Metals

Twenty metals were detected in one or more of the four sediment samples collected from SEAD-46 (see **Table 4-5**). All of the metals were detected in the sample collected from location SW/SD46-1, which is located southwest of the berm structure in SEAD-46.

Five metals (arsenic, copper, iron, manganese, and nickel) were found to exceed their respective NYSLEL sediment criteria levels (**Figure 4-5a**), one or more times. Copper, iron, and nickel levels

exceeded their LEL criteria values in all four sediment samples, while arsenic and manganese surpassed their NYSLEL criteria values three times each.

Comparison of the collected data to TAGM criteria values indicates that drainage ditch materials are not significantly different than site soils. Under this evaluation, measured levels of beryllium (1 time), iron (1 time), manganese (1 time) and thallium (4 times) exceeded TAGM criteria values. The absence of arsenic, copper, and nickel from the list of metals exhibiting exceedances of TAGM criteria suggests that the levels found in samples collected from the drainage ditch may be largely attributable to their presence in native soils in the area of SEAD-46. Conversely, noting that thallium is a common contaminant in the drainage ditch samples correlates well with the soil sample results presented in **Section 4.2.1.1** above, where thallium was found to be a common contaminant in the site soils. The locations of drainage ditch soil sample metal exceedances are displayed on **Figure 4-5b**.

4.2.4.7 Other Constituents

Cation Exchange Capacity

The cation exchange capacity of the sediment was measured for all four samples collected from SEAD-46 (**Table 4-5**). Results ranged from 10.7 milliequivalents per 100 grams (MEQ/100G) to 18.7 MEQ/100G.

Nitrate/Nitrite-Nitrogen

Nitrate/nitrite-nitrogen levels were measured for all four of the sediment samples collected at SEAD-46 (**Table 4-8**). Resulting levels ranged from 0.03 mg/Kg to 0.09 mg/Kg.

4.2.5 Building Material or Debris

No buildings exist in SEAD-46; therefore, building materials were not sampled.

4.2.6 Summary of the Extent of Impacts at SEAD-46

Based on the analytical results presented above, the most significant compounds detected in samples collected from SEAD-46 appear to be limited to metals. Metals have been found in both the shallow

and subsurface soils at SEAD-46. Eight metals were found at concentrations that exceeded their respective TAGM values. Of these, six (beryllium, copper, lead, mercury, thallium, and zinc) are considered to be toxic. Thallium, lead, and mercury ranked 1, 2, and 3, respectively, in terms of the number of times they were found at concentrations above their respective criteria values.

Four metals exceeded their respective TAGM values in deep soil samples (depth 1.8-2.2 feet). Thallium exceeded its TAGM (i.e., 0.7 mg/Kg) value in all eight subsurface (1.8-2.2 feet) soil samples collected. Thallium's maximum concentration (i.e., 3.4 mg/Kg) was detected in the sample collected from BE46-3 at a depth of 1.8-2.2 feet. The sample collected from SB46-6 (depth 1.8-2.2 feet) contained concentrations for mercury, sodium, and thallium that exceeded their TAGM criteria. Impacts from the remaining organic and inorganic constituents, which were detected in the subsurface soil samples, were less significant than the impacts from metals discussed above.

Twenty-seven SVOCs were detected in surface soils collected from SEAD-46. However, only four SVOCs (i.e., benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenz(a,h)anthracene) were detected at concentrations above their associated TAGM value. Each of these compounds was detected at a concentration above its TAGM value in the sample collected from SB46-9.

Seven VOCs were detected in soil samples collected from SEAD-46. Acetone was the only VOC to exceed its TAGM value, but it is presumed that the all results are artifacts of the sample collection and analytical procedure used because no known source of acetone existed in the area of SEAD-46. Acetone exceeded the TAGM criteria a total of 21 times in the surface soils.

Metals have also been detected in groundwater at SEAD-46. Sixteen metals were detected in groundwater samples collected at SEAD-46. Aluminum, antimony, iron, manganese, and thallium were found in one or more of the groundwater samples at concentrations above comparative criteria levels i.e., NYS Class GA, EPA MCL or secondary MCL standards). Aluminum concentrations exceeded its EPA MCL value (i.e., 50 µg/L) in all 12 samples.

Surface water found in the vicinity of SEAD-46 contains concentrations of several metals that exceed NYSDEC's Class C standards. Specifically, four metals (i.e., aluminum, iron, lead and silver) were found at concentrations that exceeded their respective surface water standard levels. Turbidity data was not obtained at the time of sampling to determine if the elevated concentrations of metals identified in surface water samples may result from suspended solids or soil.

Metals are also detected in the drainage ditch samples that were collected in the vicinity of SEAD-46. Arsenic, copper, iron, manganese, and nickel exceeded published NYS sediment criteria in one or more samples; however, the applicability of these criteria to the samples collected is doubtful because of the ephemeral nature of the drainage ditches located in this area. Comparison of drainage ditch sample results to TAGM values suggests that these conveyances are best represented as soil, and that one of the major contaminants found in the site soils (thallium) is also detected at elevated concentrations within the ditches.

4.3 SEAD-57, EXPLOSIVE ORDNANCE DISPOSAL AREA

4.3.1 Soils

The discussion of soils is divided into surface (i.e., shallow) soils and subsurface (all) soils for each chemical class. Surface soil is defined as soil that exists at depths extending from 0 to 2 feet below the ground surface or organic matter. Subsurface soil occurs at depths greater than 2 feet below ground surface or organic matter.

Analytical results for soil samples were compared to NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046 ("Determination of Soil Cleanup Objectives and Cleanup Levels", revised January 24, 1994) values. For metals, the comparison value used was the higher of either that which is listed in the NYSDEC TAGM or the background concentration determined for a SEDA-wide set of 57 background samples. NYSDEC's TAGMs also define maximum soil cleanup objective values for analyte groups as follows: total VOCs \leq 10 ppm, total SVOCs \leq 500 ppm, individual SVOCs \leq 50 ppm, and total pesticides \leq 10 ppm. Soil sample results were also compared to these total values.

Summary statistics for the surface soil and subsurface soil analyses completed for SEAD-57 are shown in **Tables 4-6** and **4-7**. The tables of results of the chemical analyses for surface and subsurface soils are presented in **Appendix F**.

4.3.1.1 Volatile Organic Compounds (VOCs)

Shallow Soils

Seven VOCs were found in one or more of the shallow soil samples collected from SEAD-57 (**Table 4-6**). Acetone, methyl ethyl ketone, and toluene were the three most frequently detected compounds, found in 54, 46, and 46 of the 72 shallow samples characterized, respectively. Acetone was the only volatile organic compound seen to exceed its TAGM value, and this condition occurred in 23 of the samples. The common occurrence of acetone at elevated concentrations is believed to be an artifact of the field collection and analytical procedure (i.e., SW846 Method 5035 field preservation) used for the collection and analysis of soil samples from SEAD-57.

Subsurface Soil

Eight VOCs were detected in the combined shallow and subsurface soil data set developed for SEAD-57 (see **Table 4-6**). Of the eight VOCs detected, five (i.e., acetone, benzene, carbon disulfide, toluene and xylene) were found in soil samples recovered from depths of greater than 2 feet below grade. Acetone was found in eight of the 25 deeper soil samples, while benzene was found in two samples, carbon disulfide was found in six samples, toluene was detected in three samples and xylenes were found in two samples. None of the VOCs measured in the deeper soil samples were detected at a level above its respective TAGM value.

4.3.1.2 Semivolatile Organic Compounds (SVOC)

Shallow Soil

Nineteen SVOCs were detected in the 63 shallow surface samples collected from SEAD-57 (**Table 4-6**). Four phthalates, 12 PAH compounds, two phenolics, and one amine compound were included among the 19 SVOCs that were detected in collected samples. Pyrene and fluoranthene were the two SVOCs most frequently detected in shallow soil samples collected from SEAD-57, being found in 42 and 40 samples apiece, respectively. However, none of the SVOCs were found at concentrations that exceeded their respective NYSDEC TAGM criteria values.

Soil sample SS57-25 contained the most SVOCs (i.e., 11 compounds detected) found in any single sample from SEAD-57, and this sample included the maximum concentration detected for

di-n-butylphthalate (190 µg/Kg). Soil sample SS57-23 contained 10 SVOCs including the maximum concentration reported for benzo(g,h,i)perylene (i.e., 10 µg/Kg) and dibenz(a,h)anthracene (i.e., 6.4 µg/Kg).

Eight of the SVOCs detected in the shallow soil samples were not detected in the subsurface soils. These compounds included: 4-methylphenol, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, di-n-octylphthalate, dibenz(a,h)anthracene, and indeno(1.2.3-cd)pyrene.

4.3.1.3 Pesticides and PCBs

Shallow Soils

Ten Pesticides and PCBs were detected in the 63 shallow soil samples collected from SEAD-57 (see **Table 4-6**). No Pesticide or PCB compound was found at a concentration that exceeded its TAGM criteria level. Dieldrin (7 detects), alpha-Chlordane (6 detects), and 4,4'-DDE (6 detects) were the most frequently detected pesticides found in the shallow soil. Aroclor-1260 (2 detects) was the only PCB detected in the shallow soil samples collected from SEAD-57.

Sample SS57-23 contained five pesticides and included the maximum concentrations recorded for 4,4'-DDD (54 µg/Kg), endosulfan I (5.2 J µg/Kg), and endosulfan II (3.1 J µg/Kg) in soil samples collected from SEAD-57. Aroclor-1260 was detected in shallow soil samples located at SS57-48 (i.e., 27 J µg/Kg), and SS57-1 (24 J µg/Kg). Both concentrations are below its TAGM criteria of 1000 µg/Kg.

Subsurface Soils

Only four (i.e., 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and alpha-chlordane) of the pesticides were detected in any of the 23 subsurface soil samples collected from SEAD-57 (**Table 4-7**). Again, none of the detected pesticides was found at a concentration that exceeded its TAGM value. The most frequently detected pesticides found in the subsurface soil samples included 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT, each of which was found three times.

PCBs were not detected in subsurface soils at SEAD-57.

Only five subsurface samples contained pesticides. Sample SB57-6 (depth 4-6 feet) contained four pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and alpha-BHC). Subsurface samples TP-10 and TP-11 each contained three detects for pesticides. Subsurface samples SB57-1 and SB57-7 both contained pesticides.

4.3.1.4 Nitroaromatics

Nitroaromatic compounds were not detected in any of the 88 soil samples collected from SEAD-57

4.3.1.5 Herbicides

Herbicides were not detected in any of the 20 soil samples analyzed for these species in SEAD-57.

4.3.1.6 Metals

Shallow Soils

Twenty-three metals were detected in the 63 surface soil samples collected from SEAD-57 (**Table 4-6**). Of the 23 metals detected, 12 metals were found at concentrations that exceeded their respective TAGM criteria values. The 12 metals seen to exceed TAGM levels included: beryllium, cadmium, calcium, copper, lead, manganese, mercury, selenium, silver, sodium, thallium, and zinc.

Three of the 12 metals found at concentrations in excess of their TAGM criterion are common constituents of soil (i.e., calcium, manganese, and sodium) and thus are believed to result from variability in the native soils. The distribution of surface soil samples containing metals that exceed their respective TAGM values is shown on **Figures 4-6 and 4-7**. While the exceedances tend to be distributed throughout SEAD-57, the higher concentrations of metals, especially copper, lead, nickel and iron are prevalent in and around the berm area.

Thallium and mercury exceeded their TAGM values most frequently in the shallow soil samples. Thallium was detected in 49 samples and exceeded its TAGM level (i.e., 0.7 mg/Kg) 48 times. Thallium concentration ranged from not detected to 6.7 mg/Kg. Mercury was detected in 52 samples and exceeded its TAGM value (i.e., 0.1 mg/Kg) 14 times.

Beryllium was detected in all 63 samples, and exceeded TAGM criteria of 1.1 mg/Kg, nine times. Beryllium ranged in concentration from 0.32 J mg/Kg to 1.5 mg/Kg. The maximum concentration measured for beryllium was observed twice, once at sample location SS57-35 and again at location SS57-37. Cadmium was detected seven times in shallow soil samples and exceeded its TAGM criteria twice. The maximum concentration for cadmium (i.e., 6 mg/Kg) was observed at sample location SS57-21. Copper was detected in all 63 samples, and exceeded its TAGM criteria (i.e., 33 mg/Kg) three times. The maximum detection reported for copper was 52.7 mg/Kg and this was found at location SB57-7. Lead was detected in all 63 surface soil samples, and it exceeded its TAGM value (i.e., 24.8 mg/Kg) nine times. Lead concentrations ranged from 9.5 mg/Kg to 66.8 J mg/Kg (SS57-21). The maximum concentration reported for mercury (i.e., 0.14 J mg/Kg) was detected at sampling location SS57-37. Selenium was detected 42 times and exceeded its TAGM value twice. Silver was detected in 21 samples and exceeded its TAGM value three times. Zinc was detected in 54 shallow soil samples and exceeded its TAGM criteria once.

Shallow soil locations SS57-33 and SS57-41, each contained five metals that exceed their respective TAGM levels. Both samples exceeded the TAGM criteria for beryllium, manganese, mercury, selenium, and thallium.

Subsurface Soil

Twenty-two metals, excluding cadmium, were detected in the 23 subsurface soil samples collected from SEAD-57 (**Table 4-7**). Cadmium was not present in the deeper soil samples collected from SEAD-57. Fourteen of these metals were found at concentrations that exceeded their TAGM criteria values one or more times. Metals in the subsurface soil samples found at concentrations above their respective TAGM values included aluminum, antimony, arsenic, chromium, copper, iron, lead, magnesium, mercury, nickel, potassium, sodium, thallium, and zinc. The distribution of metal exceedances in the berm and test pit is shown in **Figure 4-7**. Of these metals, aluminum, antimony, arsenic, chromium, iron, magnesium, nickel, and potassium had not previously been seen to exceed their TAGM values in the shallow surface samples discussed above.

Thallium was the metal detected in the deeper soils that surpassed its TAGM value most frequently, as the concentration reported for 18 samples surpassed its TAGM level of 0.7 mg/Kg. Comparably, aluminum exceeded its TAGM (i.e., 19300 mg/Kg) twice. The concentration reported for antimony exceeded its TAGM in one sample collected from location TP57-5. Arsenic exceeded its TAGM criteria (i.e., 8.2 mg/Kg) four times in the subsurface samples. Chromium was found to exceed its

TAGM criteria value in four subsurface samples. Iron had two exceedances in the subsurface. Nickel exceeded its TAGM (i.e., 49 mg/Kg) four times.

The subsurface sample collected from location TP57-2 contained the seven metal that exceeded TAGM criteria values. These included TAGM exceedances for aluminum, arsenic, chromium, copper, iron, nickel, and thallium. The subsurface sample collected from TP57-2 also contained the maximum concentrations for aluminum, arsenic, chromium, and iron measured in the deeper soils.

4.3.1.7 Other Constituents

Nitrate/Nitrite Nitrogen

Shallow Soil

Nitrate/nitrite nitrogen was reported for 53 of the 54 shallow soil samples (**Table 4-6**). The maximum detection for this analyte was 4.4 J mg/Kg found at location SS57-3. The range for nitrate/nitrite nitrogen was 0.01 mg/Kg to 4.4 J mg/Kg.

Subsurface Soil

Levels reported for nitrate/nitrite nitrogen in subsurface soil samples ranged from 0.05 mg/Kg to 2.9 mg/Kg (**Table 4-7**).

4.3.2 Groundwater

Seven groundwater monitoring wells are located at SEAD-57. Two complete rounds of groundwater sampling were completed for the seven monitoring wells that are installed at SEAD-57. One round was conducted in late January 2000, while the second was conducted in late April 2000. Additionally, three of the wells were sampled at varying times between 1994 and 2000 as part of other sampling events conducted in the vicinity of SEAD-57. The discussion below presents and summarizes the results found during all sampling events. All of the groundwater data developed for SEAD-57 was compared to the 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.

4.3.2.1 Volatile Organic Compounds (VOCs)

Summary statistics for the groundwater analyses are shown in **Table 4-8**. The table of the results of the chemical analyses for the groundwater from the RI is presented in **Appendix F**.

No VOCs were detected in the groundwater samples collected from SEAD-57

4.3.2.2 Semivolatile Organic Compounds (SVOCs)

Three SVOCs were detected in 19 groundwater samples collected from SEAD-57 (**Table 4-8**). One compound, bis(2-ethylhexyl)phthalate, exceeded its NYSDEC GA standard (i.e., 5 µg/L) in one sample collected from location MW57-3 (see **Figure 4-8**) in 1994. Analytical results for samples collected from this well since then indicate that bis(2-ethylhexyl)phthalate is not present in the well.

In January 2000, diethyl phthalate was detected at a concentration of 1.9 µg/L in well MW57-4 and butylbenzylphthalate was detected in the sample collected from well MW57-4 at a concentration of 0.077 µg/L. Neither of these wells was found to contain any phthalates during the April 2000 sampling event.

4.3.2.3 Pesticides and PCBs

No pesticide or PCB compounds were detected in the groundwater samples collected from SEAD-57.

4.3.2.4 Nitroaromatics

Nitroaromatics were not detected in groundwater samples collected from SEAD-57.

4.3.2.5 Herbicides

Herbicides were not detected in the groundwater samples collected from SEAD-57.

4.3.2.6 Metals

Twenty-two metals were detected in the 21 groundwater samples collected between 1994-2000 in SEAD-57 (Table 4-8). Six of the metals detected in these samples exceeded established groundwater standards (Figure 4-8). These six metals included aluminum, antimony, iron, manganese, sodium, and thallium.

Aluminum was detected in all of the groundwater samples collected from SEAD-57. It exceeded EPA's MCL of 50 µg/L, 18 times. Aluminum concentrations in SEAD-57 ranged from a low of 18.4 J µg/L to a high of 6,540 µg/L (MW57-2). The maximum concentration reported for aluminum was measured in February 1994 and is assumed directly related to high turbidity, because the well was poorly developed. In January 2000, the concentration of aluminum found in this well dropped to 43.9 J µg/L and by April 2000 it had dropped again to 18.4 J µg/L.

Antimony was detected in three groundwater samples and exceeded its NYSDEC GA standard (i.e., 3 µg/L) two times. The maximum concentration of antimony observed in wells in SEAD-57 occurred at well MW57-1 in February 1994, when a level of 44.7 J µg/L was reported. The next two samples collected from this location did not contain any antimony, but a concentration of 3 J µg/L was detected in this well in January 2000. The April 2000 groundwater sample from MW57-1 again did not show evidence of any antimony. Antimony also exceeded its GA standard in the February 1994 sample collected at MW57-3. No antimony has been detected at this well during any recent sampling events. The elevated concentrations of antimony detected in the wells sampled in 1994 is believed to be associated, at least in part, with the high level of solids found in the wells at the times, as is evidenced by turbidity levels in excess of 10 NTUs.

Iron was detected in 19 of the 21 groundwater samples obtained at SEAD-57. The concentration of iron ranged from 29.5 J µg/L to 9,260 µg/L. Concentrations reported for 12 of the groundwater samples exceeded the 300 µg/L NYSDEC GA standard for iron. The maximum concentration reported for iron was again detected in the sample collected from location MW57-2 in February 1994. More recent sampling from MW57-2 shows a drop in concentrations to below the TAGM value. All locations, except MW57-3, show a decrease in the concentration of iron present with each sampling. Again, many of the highest levels of iron detected in samples occur in samples where the turbidity levels exceed 10 NTUs at the time of sample collection.

Manganese was detected in 19 groundwater samples and exceeded its EPA secondary MCL value (i.e., 50 µg/L) six times. Four of the noted exceedences occurred in early sampling rounds and the concentrations have since decreased below the secondary MCL limit value. The two exceedences that were observed in the January 2000 event also decreased during the April 2000 sampling.

Thallium was detected in four samples and exceeded its EPA MCL value all four times. The exceedences noted at locations MW57-2 and MW57-4 both occurred during the January 2000 event and both fell to not detect in the April 2000 event. The elevated concentration measured at location MW57-1 occurred on consecutive sampling events in December 1999 and January 2000.

4.3.2.7 Other Constituents

COD

Chemical Oxygen Demand (COD) determinations were performed for the 15 groundwater samples collected in January and April of 2000 (**Table 4-8**). Six values were reported for COD and these ranged from 6 mg/L to 16 mg/L. The maximum value reported for COD occurred in MW57-6 during the April 2000 sampling event.

Nitrate/Nitrite Nitrogen

Nitrate/Nitrite nitrogen was measured in 15 of 16 groundwater samples (**Table 4-8**) characterized. The NYSDEC GA Standard of 10 mg/L was not exceeded in any sample. The range of nitrate/nitrite nitrogen was 0.02 mg/L to 0.49 mg/L. The maximum concentration was in MW57-2.

Total Dissolved Solids

Total dissolved solids levels were determined for 15 groundwater samples (**Table 4-8**) collected during 2000. The range for total dissolved solids measured was 233 mg/L to 1030 mg/L. The maximum concentration reported for total dissolved solids occurred in well MW57-2.

Total Hardness-CaCO₃

Total hardness was determined in 15 of 15 samples taken (**Table 4-8**). Total hardness ranged from 180 mg/L to 790 mg/L. The maximum concentration for total hardness occurred in MW57-2.

Turbidity

Groundwater turbidity data was collected in the field, immediately prior to the collection of samples. Turbidity data are presented in **Table 3-25** for both groundwater sampling events completed during the RI at SEAD-57. Data collected during the January 2000 event indicate that the turbidity ranged from a low value of 2 NTUs at location MW57-3 to a high of roughly 84 NTUs at location MW57-5. Equivalent data collected during the April 2000 sampling event showed that the turbidity of all groundwater samples had decreased as the reported range varied from 2.6 to 12.6 NTUs.

4.3.3 Surface Waters

The quality of surface water at SEAD-57 has not been classified by NYSDEC. Summary statistics for the surface water analyses from the RI are presented in **Table 4-9**. Analytical data developed from the analysis of surface water samples collected in SEAD-57 were compared to the NYSDEC's Class C surface water standards. The complete results from the chemical analyses of samples of the surface water found in SEAD-57 are presented in **Appendix F**.

4.3.3.1 Volatile Organic Compounds (VOCs)

Two VOCs, acetone and toluene were detected in 27 surface water samples at SEAD-57 (**Table 4-9**). Acetone was detected in sample and the duplicate sample from SW57-10 at concentrations of 2.6 J $\mu\text{g/L}$ and 3.0 J $\mu\text{g/L}$ respectively. Toluene was detected in SW57-9 at a concentration of 0.39 J $\mu\text{g/L}$. Neither compound detected exceeded NYSDEC's Class C surface water standard.

4.3.3.2 Semivolatile Organic Compounds (SVOCs)

Six SVOCs (i.e., 4-methylphenol, bis(2-ethylhexyl)phthalate, di-n-butylphthalate, di-n-octylphthalate, diethyl phthalate, and phenol) were detected in one or more of the 27 surface water samples taken at SEAD-57. No SVOCs exceeded their applicable Class C surface water standards (**Table 4-9**). Di-n-butylphthalate was the most frequently detected SVOC, as it was detected in six of the 27 samples. Three samples contained more than one SVOC, SW57-11 (4-methylphenol and phenol), SW57-14 (di-n-butylphthalate and diethyl phthalate), and SW57-18 (di-n-butylphthalate and diethyl phthalate).

4.3.3.3 Pesticides/PCBs

Twelve pesticides and two PCBs were detected in one or more of the 27 surface water samples collected from SEAD-57 (Table 4-9). Seven pesticides and two PCBs exceeded their Class C surface water quality standards criteria. The compounds that exceeded the TAGM criteria included 4,4'-DDE, 4,4'-DDT, aldrin, aroclor-1242, aroclor-1254, dieldrin, heptachlor, heptachlor epoxide, and hexachlorobenzene.

Seven pesticides and PCBs were detected in surface water sample SW57-7. Six of these compounds (aldrin, Arochlor-1242, Arochlor-1254, dieldrin, heptachlor, and heptachlor epoxide) exceeded their Class C surface water standards. With the exception of heptachlor epoxide, all pesticides and PCBs reported in sample SW57-7 represented maximum detections for SEAD-57.

4.3.3.4 Nitroaromatics

Nitroaromatics were not detected in surface water samples collected from SEAD-57.

4.3.3.5 Herbicides

Herbicides were not detected in the surface water samples collected from SEAD-57.

4.3.3.6 Metals

Results obtained for metals in surface water samples were compared to NYS Class C surface water quality standards. The Class C surface water quality standard values for chromium, copper, lead, nickel, and zinc are based on the hardness of surface water found at the site. The average hardness found in surface water samples collected from the Seneca Army Base is approximately 216.4 ppm. This hardness value was used in the calculation of NYS Class C surface water quality standards for the metals mentioned above.

Twenty-three metals were detected in one or more of the 27 surface water samples collected from SEAD-57 (Table 4-9). Of the 23 metals reported, nine were found in all 27 samples collected. Additionally, nine metals were found at concentrations that exceeded their respective NYS Class C surface water quality standards, and these included: aluminum, cadmium, cobalt, copper, iron, lead,

mercury, silver, and vanadium. The nine metals observed at levels surpassing their Class C standard levels were evenly distributed throughout SEAD-57 (see **Figure 4-9**).

Aluminum surpassed its Class C standard (100 µg/L) in each of the 27 surface water samples collected from SEAD-57. Surface water sample SW57-25 contained a total of 14 maximum detections for metals and eight were in excess of their respective Class C standards.

4.3.3.7 Other Constituents

Alkalinity

Alkalinity was determined for 25 surface water samples, see **Table 4-9**. Alkalinity ranged from 31 mg/L to 872 mg/L. The maximum detection occurred at surface water sample SW57-25.

Ammonia Nitrogen

Ammonia nitrogen was detected in 24 of 26 surface water samples (**Table 4-9**). The range for ammonia nitrogen was 0.03 mg/L to 0.33 mg/L. The maximum concentration occurred at SW57-25.

Nitrate/Nitrite Nitrogen

Nitrate/nitrite nitrogen was detected in 13 of the 27 surface water samples collected from SEAD-57. The concentrations ranged from 0.01 mg/L to 0.04 mg/L (**Table 4-9**). There is no NYS Class C standard criteria value for nitrate/nitrite nitrogen.

Total Dissolved Solids

Total dissolved solids were analyzed for 15 surface water samples at SEAD-57 (**Table 4-9**). The amount of total dissolved solids ranged from 91 mg/L to 27700 mg/L. The maximum concentration occurred at SW57-11.

Total Hardness-CaCO₃

Total hardness levels measured for surface water samples collected from SEAD-57 ranged from 51 mg/L to 412 mg/L (**Table 4-9**). The average measured for these 27 samples was approximately 139

mg/L, which is less than the average hardness found in surface waters at Seneca Army Depot of 216.4 mg/L.

Total Organic Carbon

Total organic carbon was determined for 26 of 27 surface water samples at SEAD-57. The total organic carbon concentrations measured ranged from 5.4 mg/L to 13 mg/L (**Table 4-9**).

Total Phosphorous as P

The total phosphorous as P was analyzed in 26 surface water samples (**Table 4-9**). It was detected in 25 samples. The range of total phosphorous as P was 0.01 mg/L to 0.56 mg/L in SW57-25.

Total Suspended Solids (TSS)

TSS was determined for 25 samples (**Table 4-9**). TSS results ranged from 2.4 mg/L to 1970 mg/L.

pH

The pH levels were measured for 25 surface water samples at SEAD-57. The pH levels measured ranged from 6.81 to 7.85.

Turbidity

Surface water turbidity data was collected in the field, immediately prior to the collection of samples. Turbidity data are presented in **Table 3-20** for the surface water sampling event completed in January 2000 during the RI at SEAD-57. Data collected during the January 2000 event indicate that the turbidity ranged from a low value of 2.8 NTUs at location SW/SD57-2 to a high of 85 NTUs at location SW/SD57-26.

4.3.4 Drainage Ditch Soils/Sediments

Analytical results obtained from drainage ditch samples collected in SEAD-57 were compared NYSDEC's sediment criteria and soil guidance values. Drainage ditches in the immediate vicinity of SEAD-57 are ephemeral; typically containing water only after heavy storm events or during spring

melts. Thus, the ability of these man-made and refined ditches to support aquatic life or vegetation is highly suspect. As is indicated in discussions provided in **Section 3.2.10**, areas defined as “riverine, ditch or altered stream” in the immediate vicinity of the SEAD-57 berm area are covered with forb and grass species tolerant of inundation and frequent mowing. Based on a filed ecological assessment that was completed as part of the RI, there is no indication that any form of wetland vegetation was found in any of the drainage ditches. Further, there is also no indication that any clear stream channel was identified at any location near the detonation area berm. Therefore, it is probable that compound levels identified in these ditches should more closely approximate “soil” concentrations.

With regards to the comparisons made to NYSDEC sediment criteria, the comparison of site data is made to the lowest of six possible screening criteria defined by the New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources. For metals, these criteria include the lowest effect level (NYSLEL) and the severe effect level (NYSSEL). For organic species, the possible comparison criteria include the human health bioaccumulation (NYSHHB) criteria, the benthic aquatic life acute toxicity (NYSALC) criteria, the benthic aquatic life chronic toxicity (NYSCLC), and the wildlife bioaccumulation criteria (NYSWB). All of the guidance criteria published for organic species are contingent on the level of total organic carbon that is present in the sediment collected. Sediment criteria values used for SEAD-46 are derived using a total organic carbon content of 39,105 mg/Kg which represents the average concentration measured in sediment samples collected from SEDA.

Summary statistics for the sediment results to both NYSDEC sediment and soil criteria are shown in **Table 4-10**. The table of all results derived from the chemical analyses of sediment samples collected from SEAD-57 is presented in **Appendix F**. Graphic presentations of the sediment and soil criteria level comparisons are provided in **Figure 4-10a** (sediment criteria) and **4-10b** (soil criteria).

4.3.4.1 Volatile Organic Compounds (VOCs)

Five VOCs (i.e., acetone, carbon disulfide, methyl ethyl ketone, methylene chloride, and toluene) were detected one or more times in the 34 drainage ditch samples collected at SEAD-57 (**Table 4-10**). None of the detected VOCs exceeded their respective sediment quality criteria; however, acetone was observed to exist at concentrations that exceeded its soil (i.e., TAGM) criteria value for soil in 13 of the 34 samples collected. As has been indicated previously, acetone is presumed to result due to its production as a by-product of the soil/sediment collection and preservation

procedure recommended by US EPA SW-846 Method 5035. Acetone, methyl ethyl ketone, and toluene were each detected in 34 of 34 sediment samples.

4.3.4.2 Semivolatile Organic Compounds (SVOCs)

Seventeen SVOCs were detected in one or more of the 34 drainage ditch samples from SEAD-57 (**Table 4-10**). Five SVOCs (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and phenol) exceeded their respective sediment screening criteria, whereas only two SVOCs (i.e., benzo(a)pyrene and dibenz(a,h)anthracene) were observed at levels that exceeded NYSDEC's TAGM criteria values for soil. The distribution of sediment samples that exceeded their respective sediment screening criteria is shown in **Figure 4-10a**, while a comparable presentation for SVOCs against soil criteria is presented in **Figure 4-10b**.

Sediment sample SD57-18 contained 14 SVOCs. Of the 14 SVOCs present in SD57-18, 13 were the maximum detection for SEAD-57 sediments and four were in excess of their respective criteria values.

4.3.4.3 Pesticides/PCBs

Six pesticides were detected in at least one of the 34 drainage ditch samples collected from SEAD-57 (**Table 4-10**). Two pesticides, 4,4'-DDT and heptachlor, exceeded the sediment NYSHHB criteria value once each, as is shown in **Figure 4-10a**. The compound, 4,4'-DDT had a maximum concentration of 2.9 $\mu\text{g}/\text{Kg}$ at location SD57-18. Heptachlor had a maximum concentration of 1.6 $\mu\text{g}/\text{Kg}$ at location SD57-14. None of the detected pesticide or PCB compounds were found at levels that exceeded NYSDEC's TAGM values for soil.

4.3.4.4 Nitroaromatics

Nitroaromatics were not detected in any of the 34 sediment samples from SEAD-57.

4.3.4.5 Herbicides

Herbicides were not analyzed for sediment samples from SEAD-57.

4.3.4.6 Metals

Twenty-three metals were detected in one or more of the 34 drainage ditch samples collected from SEAD-57 (Table 4-10). Ten metals were found to exceed NYS sediment criteria, while 11 metal species were seen to exceed NYSDEC TAGM criteria values for soil.

Metals species that exceeded NYSLEL sediment criteria in SEAD-57 are shown on Figure 4-10a. These metals include antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, and zinc.

Nickel exceeded its NYSLEL criteria value in all 34 samples. The concentrations of nickel ranged from 16.2 mg/Kg to 41.8 mg/Kg. Iron surpassed its NYSLEL criteria value in 32 sediment samples collected from SEAD-57. The concentration of iron ranged from 17,500 mg/Kg to 37,200 mg/Kg. Sediment sample SD57-6 contained seven metals (i.e., antimony, arsenic, copper, iron, lead, nickel, and zinc) that exceeded their respective NYSLEL criteria.

Metals detected in SEAD-57 drainage ditch samples that exceeded NYSDEC soil criteria values in one or more samples included aluminum, arsenic, beryllium, cadmium, copper, iron, lead, manganese, mercury, sodium, thallium and zinc. Locations containing metals that exceeded soil criteria values are displayed on Figure 4-10b. The metal species found to exceed NYSDEC TAGM criteria values in drainage ditch samples closely resemble data previously presented and discussed for soil. Thallium is again the metal that is found present in the most drainage ditch soil samples (31 of 34 samples analyzed) at levels that exceed its TAGM value. Lead is the second most frequently detected metal that is found at levels above its TAGM criteria value.

4.3.4.7 Other Constituents

Cation Exchange Capacity

The cation exchange capacity of the sediment was measured for 32 samples collected from SEAD-57 (Table 4-10). Results ranged from 6.5 milliequivalents per 100 grams (MEQ/100g) to 31.4 MEQ/100g.

Nitrate/Nitrite Nitrogen

Nitrate/nitrite nitrogen levels were measured in 33 of 34 samples collected from SEAD-57 (**Table 4-10**). Resulting levels of nitrate/nitrite nitrogen ranged from 0.01 mg/Kg to 3.1 J mg/Kg.

4.3.5 Debris Samples

Summary statistics for debris analysis completed for SEAD-57 is shown in **Table 4-11**. The table of results of the chemical analysis for debris is presented in **Appendix F**. There are no comparative criteria values established for debris.

4.3.5.1 Volatile Organic Compounds (VOCs)

Six VOCs (i.e., acetone, benzene, ethylbenzene, methyl ethyl ketone, toluene, and total xylenes) were detected in all three debris samples collected from SEAD-57 (**Table 4-11**). The maximum concentration measured for acetone, benzene, methyl ethyl ketone, and toluene all were recorded in debris sample BLDG128-3. Ethyl benzene and total xylenes had maximum concentrations in sample BLDG128-1.

4.3.5.2 Semivolatile Organic Compounds (SVOCs)

Twenty-two SVOCs were detected in two or more of the three debris samples collected from SEAD-57 (**Table 4-11**). All SVOCs reported at SEAD-57 were detected in each debris sample, except butylbenzylphthalate, which was not detected in debris sample BLDG128-3.

4.3.5.3 Pesticides/PCBs

Twelve pesticides and PCBs were detected in three debris samples from SEAD-57 (**Table 4-11**). Aroclor-1254 was found in all three debris samples at concentrations ranging from 110 J $\mu\text{g/L}$ to 220 J $\mu\text{g/L}$. Aroclor-1260 was detected one time, with a concentration of 260 J $\mu\text{g/Kg}$. BLDG128-2 contained all pesticides and PCBs, and ten maximum concentrations reported in debris samples from SEAD-57.

4.3.5.4 Nitroaromatics

Two nitroaromatics, 2,4-dinitrotoluene and 3-nitrotoluene, were detected in debris samples collected from SEAD-57. 2,4-dinitrotoluene was detected in sample BLDG128-2 with a concentration of 1300 J $\mu\text{g}/\text{Kg}$. The compound, 3-nitrotoluene was detected in sample BLDG128-3 with a concentration of 130 J $\mu\text{g}/\text{Kg}$.

4.3.5.5 Herbicides

Herbicides were not analyzed for debris samples collected from SEAD-57.

4.3.5.6 Metal

Twenty-three metals were reported in the three debris samples collected from SEAD-57 (**Table 4-11**). All 23 metals were detected in each of the three samples. Thirteen metal maximum concentrations were detected in debris sample BLDG128-1.

4.3.5.7 Other Constituents

Nitrate/Nitrite Nitrogen

Nitrate/nitrite nitrogen was detected in all three debris samples, with concentrations ranging from 0.47 mg/Kg to 7.5 mg/Kg.

4.3.6 Summary of the Extent of Impacts at SEAD-57

Based on the analytical results presented above for SEAD-57, the most prevalent compounds detected at the site are metals. SVOCs and pesticides were also identified in samples that were collected.

Metals were found at concentrations that exceeded NYSDEC's TAGM criteria values in the surface soils at SEAD-57. Of the 12 metals that were found to exceed their respective TAGM values, nine are considered toxic and have potential significance. Beryllium, cadmium, copper, lead, mercury, selenium, silver, thallium, and zinc were detected in the surface soil samples at concentrations above the respective TAGM values. Beryllium, mercury, and thallium had the largest percentage of

samples exceeding the TAGM values. Five of the TAGM exceedances of metals were detected in surface soil sample SS57-33 and SS57-41.

Metals were also detected in the subsurface soils at SEAD-57 at concentrations exceeding their respective TAGM comparative values. Of the 14 metals that exceeded their respective TAGM values, 14 metals are considered to have potential significance. Aluminum, antimony, arsenic, chromium, copper, iron, lead, magnesium, mercury, nickel, potassium, sodium, thallium, and zinc were detected in the subsurface soil samples at concentrations above their respective TAGM values. However, aluminum, antimony, arsenic, chromium, iron, magnesium, nickel, and potassium were not seen to exceed their respective TAGM comparative values in the shallow surface samples, and thus, these metal species may be naturally occurring. Soil sample TP57-2 contained the most metal exceedances found in the deeper soil samples with seven.

Acetone was the only VOC to be detected at a concentration exceeding its TAGM criteria value in soil samples from SEAD-57, but it is presumed that the observed results reflect acetone production resulting due to the preservation and analytical procedure used for the soil samples collected from SEAD-57. Several papers have appeared in technical symposia that suggest that acetone can be produced in soil or sediment samples that are preserved with sodium bisulfate per specifications of EPA SW-846 Method 5035 that was used for samples collected from SEADs 46 and 57.

Phenol was the only SVOC detected that ever exceeded its TAGM criteria value at SEAD-57, and this occurred in one sample collected from a depth of 2-4 feet below grade at location SB57-7 which was located within the berm structure along the south side. Samples collected above and below the 2 to 4 foot sample did not contain phenol.

Metals were detected in the groundwater at SEAD-57. Twenty-two metals were detected in groundwater samples at SEAD-57. Six metals, aluminum, antimony, iron, manganese, sodium, and thallium were found in one or more of the groundwater samples at concentrations above the NYS Class GA, EPA MCL, or EPA SEC standards. Aluminum, iron, and manganese ranked 1, 2, and 3 respectively in terms of the number of times they were found at concentrations above their respective comparative criteria values. The groundwater sample collected from location MW57-2 during the ESI contained the maximum concentration measured for 12 metals at SEAD-57 and numerous concentrations that exceeded comparative criteria levels. Finally, review of the available groundwater data does not suggest that there is any obvious correlation between increased metal concentration in the groundwater and the turbidity of collected groundwater samples.

Surface water samples collected from SEAD-57 contained pesticides/PCBs and metals. Fourteen pesticides/PCBs were detected in the surface water samples. Nine pesticides/PCBs were found at concentrations that exceeded their respective surface water standard levels in SEAD-57. SW57-7 contained seven pesticides/PCB compound, and of these seven, six values were maximum concentration detected in surface water samples from SEAD-57, and five exceeded surface water comparative levels. Twenty-three metals were detected in the surface water samples collected from SEAD-57. Of the twenty-three metals detected, nine metals exceeded established surface water standard levels in one or more samples. SW57-25 contained eight metals concentrations that exceeded Class C standard levels, and 11 of the maximum metal concentrations detected in samples collected from SEAD-57. Again there was no clear correlation seen between the concentration of metals contained in a surface water sample and the measured turbidity of total suspended solids level.

SVOCs and metals were also detected in drainage ditch soil/sediment at SEAD-57. Seventeen SVOCs were detected in one or more of the samples collected, while twenty-three metals were detected in one or more of the samples collected. Comparison of the collected data to NYSDEC sediment criteria indicates that five of the detected SVOCs exceeded NYSHHB or NYSALC criteria for sediments. Comparably, ten of the detected metals found in samples collected from the drainage ditches in SEAD-57 exceeded their respective NYSLEL criteria. The sample collected from location SD57-6 contained seven metals that exceeded NYSLEL criteria. Comparisons of the collected data from drainage ditch samples to NYSDEC TAGM criteria for soil indicate that twelve metal species were observed to exceed their respective TAGM values in one or more samples. Of the metals found to exceed comparative TAGM criteria values, thallium was seen most frequently above its comparative value while lead was the second most common metal seen to exceed its TAGM comparison criteria.

The building debris collected from SEAD-57 contained low to moderate levels of VOCs, SVOCs, metals, and pesticides/PCBs. Typically all VOCs were found at levels of less than 250 ug/Kg, while all SVOCs were detected at levels below 1301 ug/Kg. The highest concentrations reported for pesticide/PCB compounds was 260 J ug/Kg found in one sample for Aroclor-1260. Each of the 23 detected metals was found in all three of the collected samples. There are no criteria levels defined by NYSDEC for comparison of the analytical results obtained for building debris.

Table 4-1
SUMMARY STATISTICS - SURFACE SOIL
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/KG	410	100.0%	200	21	26	26
Benzene	UG/KG	4	19.2%	60	0	5	26
Carbon disulfide	UG/KG	33	34.6%	2700	0	9	26
Methyl ethyl ketone	UG/KG	48	84.6%	300	0	22	26
Toluene	UG/KG	11	96.2%	1500	0	25	26
Total Xylenes	UG/KG	6	15.4%	1200	0	4	26
Semivolatile Organics							
2,6-Dinitrotoluene	UG/KG	130	3.8%	1000	0	1	26
2-Methylnaphthalene	UG/KG	6.3	7.7%	36400	0	2	26
4-Methylphenol	UG/KG	13	7.7%	900	0	2	26
Acenaphthene	UG/KG	9.4	3.8%	50000	0	1	26
Acenaphthylene	UG/KG	18	3.8%	41000	0	1	26
Anthracene	UG/KG	44	7.7%	50000	0	2	26
Benzo(a)anthracene	UG/KG	560	42.3%	224	1	11	26
Benzo(a)pyrene	UG/KG	500	76.9%	61	1	20	26
Benzo(b)fluoranthene	UG/KG	1100	65.4%	1100	0	17	26
Benzo(ghi)perylene	UG/KG	310	23.1%	50000	0	6	26
Benzo(k)fluoranthene	UG/KG	640	65.4%	1100	0	17	26
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	19.2%	50000	0	5	26
Carbazole	UG/KG	53	3.8%	NA	0	1	26
Chrysene	UG/KG	950	53.8%	400	1	14	26
Di-n-butylphthalate	UG/KG	1100	34.6%	8100	0	9	26
Dibenz(a,h)anthracene	UG/KG	120	11.5%	14	1	3	26
Dibenzofuran	UG/KG	9.5	7.7%	6200	0	2	26
Diethyl phthalate	UG/KG	11	11.5%	7100	0	3	26
Fluoranthene	UG/KG	1000	80.8%	50000	0	21	26
Fluorene	UG/KG	10	3.8%	50000	0	1	26
Indeno(1,2,3-cd)pyrene	UG/KG	310	23.1%	3200	0	6	26
N-Nitrosodiphenylamine	UG/KG	59	15.4%	NA	0	4	26
Naphthalene	UG/KG	14	11.5%	13000	0	3	26
Pentachlorophenol	UG/KG	130	3.8%	1000	0	1	26
Phenanthrene	UG/KG	110	65.4%	50000	0	17	26
Phenol	UG/KG	22	30.8%	30	0	8	26
Pyrene	UG/KG	56	76.9%	50000	0	20	26
Pesticides/PCBs							
4,4'-DDD	UG/KG	12	3.8%	2900	0	1	26
4,4'-DDE	UG/KG	4.6	23.1%	2100	0	6	26
4,4'-DDT	UG/KG	15	11.5%	2100	0	3	26
Alpha-BHC	UG/KG	1.6	3.8%	110	0	1	26
Alpha-Chlordane	UG/KG	3.5	7.7%	NA	0	2	26
Beta-BHC	UG/KG	3.2	3.8%	200	0	1	26
Dieldrin	UG/KG	46	50.0%	44	2	13	26
Endosulfan I	UG/KG	5.8	3.8%	900	0	1	26
Endosulfan II	UG/KG	2.3	3.8%	900	0	1	26
Endrin	UG/KG	5.1	11.5%	100	0	3	26

Note 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value
2) Based on 95 percentile of site background data

Table 4-1
SUMMARY STATISTICS - SURFACE SOIL
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedances	Number of Detections	Number of Samples
Endrin aldehyde	UG/KG	3.6	3.8%	NA	0	1	26
Endrin ketone	UG/KG	3.4	7.7%	NA	0	2	26
Gamma-Chlordane	UG/KG	1.9	7.7%	540	0	2	26
Metals and Cyanide							
Aluminum	MG/KG	15300	100.0%	19300 (2)	0	26	26
Antimony	MG/KG	2.3	19.2%	5.9 (2)	0	5	26
Arsenic	MG/KG	7.9	100.0%	8.2 (2)	0	26	26
Barium	MG/KG	149	100.0%	300	0	26	26
Beryllium	MG/KG	1.2	100.0%	1.1 (2)	1	26	26
Cadmium	MG/KG	0.09	3.8%	2.3 (2)	0	1	26
Calcium	MG/KG	56200	100.0%	121000 (2)	0	26	26
Chromium	MG/KG	26.3	100.0%	29.6 (2)	0	26	26
Cobalt	MG/KG	16.2	100.0%	30	0	26	26
Copper	MG/KG	203	100.0%	33 (2)	7	26	26
Iron	MG/KG	32300	100.0%	36500 (2)	0	26	26
Lead	MG/KG	913	100.0%	24.8 (2)	17	26	26
Magnesium	MG/KG	20400	100.0%	21500 (2)	0	26	26
Manganese	MG/KG	1170	96.2%	1060 (2)	1	25	26
Mercury	MG/KG	0.17	73.1%	0.1	12	19	26
Nickel	MG/KG	44.7	100.0%	49 (2)	0	26	26
Potassium	MG/KG	1770	100.0%	2380 (2)	0	26	26
Selenium	MG/KG	0.81	7.7%	2	0	2	26
Silver	MG/KG	0.46	3.8%	0.75 (2)	0	1	26
Sodium	MG/KG	230	38.5%	172 (2)	3	10	26
Thallium	MG/KG	3.3	96.2%	0.7 (2)	25	25	26
Vanadium	MG/KG	28.6	100.0%	150 (2)	0	26	26
Zinc	MG/KG	115	100.0%	110 (2)	1	26	26
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/KG	4.5	90.0%	NA	0	18	20
Percent Solids	% WW	88.3	100.0%	NA	0	26	26

NA = Not Available.

Note 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value
2) Based on 95 percentile of site background data

Table 4-2
SUMMARY STATISTICS - ALL SOIL
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/KG	410	100.0%	200	21	33	33
Benzene	UG/KG	12	29.4%	60	0	10	34
Carbon disulfide	UG/KG	33	44.1%	2700	0	15	34
Ethyl benzene	UG/KG	1	2.9%	5500	0	1	34
Methyl ethyl ketone	UG/KG	48	73.5%	300	0	25	34
Toluene	UG/KG	12	88.2%	1500	0	30	34
Total Xylenes	UG/KG	7	26.5%	1200	0	9	34
Semivolatile Organics							
2,6-Dinitrotoluene	UG/KG	130	2.9%	1000	0	1	34
2-Methylnaphthalene	UG/KG	6.3	5.9%	36400	0	2	34
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34
Acenaphthene	UG/KG	9.4	2.9%	50000	0	1	34
Acenaphthylene	UG/KG	18	2.9%	41000	0	1	34
Anthracene	UG/KG	44	5.9%	50000	0	2	34
Benzo(a)anthracene	UG/KG	560	32.4%	224	1	11	34
Benzo(a)pyrene	UG/KG	500	58.8%	61	1	20	34
Benzo(b)fluoranthene	UG/KG	1100	55.9%	1100	0	19	34
Benzo(ghi)perylene	UG/KG	310	17.6%	50000	0	6	34
Benzo(k)fluoranthene	UG/KG	640	55.9%	1100	0	19	34
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	14.7%	50000	0	5	34
Carbazole	UG/KG	53	2.9%	NA	0	1	34
Chrysene	UG/KG	950	41.2%	400	1	14	34
Di-n-butylphthalate	UG/KG	1100	26.5%	8100	0	9	34
Dibenz(a,h)anthracene	UG/KG	120	8.8%	14	1	3	34
Dibenzofuran	UG/KG	9.5	5.9%	6200	0	2	34
Diethyl phthalate	UG/KG	11	8.8%	7100	0	3	34
Fluoranthene	UG/KG	1000	61.8%	50000	0	21	34
Fluorene	UG/KG	10	2.9%	50000	0	1	34
Hexachlorobenzene	UG/KG	11	2.9%	410	0	1	34
Hexachloroethane	UG/KG	9.9	2.9%	NA	0	1	34
Indeno(1,2,3-cd)pyrene	UG/KG	310	20.6%	3200	0	7	34
N-Nitrosodiphenylamine	UG/KG	59	11.8%	NA	0	4	34
Naphthalene	UG/KG	14	8.8%	13000	0	3	34
Pentachlorophenol	UG/KG	130	2.9%	1000	0	1	34
Phenanthrene	UG/KG	110	52.9%	50000	0	18	34
Phenol	UG/KG	22	23.5%	30	0	8	34
Pyrene	UG/KG	56	61.8%	50000	0	21	34
Pesticides/PCBs							
4,4'-DDD	UG/KG	12	2.9%	2900	0	1	34
4,4'-DDE	UG/KG	4.6	17.6%	2100	0	6	34
4,4'-DDT	UG/KG	15	8.8%	2100	0	3	34
Alpha-BHC	UG/KG	1.6	2.9%	110	0	1	34
Alpha-Chlordane	UG/KG	3.5	5.9%	NA	0	2	34

Note: 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value.
2) Based on 95 percentile of site background data.

Table 4-2
SUMMARY STATISTICS - ALL SOIL
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedances	Number of Detections	Number of Samples
Beta-BHC	UG/KG	3.2	2.9%	200	0	1	34
Dieldrin	UG/KG	46	38.2%	44	2	13	34
Endosulfan I	UG/KG	5.8	2.9%	900	0	1	34
Endosulfan II	UG/KG	2.3	2.9%	900	0	1	34
Endrin	UG/KG	5.1	8.8%	100	0	3	34
Endrin aldehyde	UG/KG	3.6	2.9%	NA	0	1	34
Endrin ketone	UG/KG	3.4	5.9%	NA	0	2	34
Gamma-Chlordane	UG/KG	1.9	5.9%	540	0	2	34
Metals and Cyanide							
Aluminum	MG/KG	15300	100.0%	19300 (2)	0	34	34
Antimony	MG/KG	2.3	14.7%	5.9 (2)	0	5	34
Arsenic	MG/KG	7.9	100.0%	8.2 (2)	0	34	34
Barium	MG/KG	149	100.0%	300	0	34	34
Beryllium	MG/KG	1.2	100.0%	1.1 (2)	1	34	34
Cadmium	MG/KG	0.09	2.9%	2.3 (2)	0	1	34
Calcium	MG/KG	56200	100.0%	121000 (2)	0	34	34
Chromium	MG/KG	26.3	100.0%	29.6 (2)	0	34	34
Cobalt	MG/KG	16.2	100.0%	30	0	34	34
Copper	MG/KG	203	100.0%	33 (2)	7	34	34
Iron	MG/KG	32300	100.0%	36500 (2)	0	34	34
Lead	MG/KG	913	100.0%	24.8 (2)	18	34	34
Magnesium	MG/KG	20400	100.0%	21500 (2)	0	34	34
Manganese	MG/KG	1170	97.1%	1060 (2)	1	33	34
Mercury	MG/KG	0.17	79.4%	0.1	14	27	34
Nickel	MG/KG	44.7	100.0%	49 (2)	0	34	34
Potassium	MG/KG	1770	100.0%	2380 (2)	0	34	34
Selenium	MG/KG	0.81	5.9%	2	0	2	34
Silver	MG/KG	0.46	2.9%	0.75 (2)	0	1	34
Sodium	MG/KG	272	47.1%	172 (2)	5	16	34
Thallium	MG/KG	3.4	97.1%	0.7 (2)	33	33	34
Vanadium	MG/KG	28.6	100.0%	150 (2)	0	34	34
Zinc	MG/KG	115	100.0%	110 (2)	1	34	34
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/KG	4.5	92.6%	NA	0	25	27
Percent Solids	% WW	89.5	100.0%	NA	0	34	34

NA = Not Available

Note: 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value.
2) Based on 95 percentile of site background data.

Table 4-3
SUMMARY STATISTICS - GROUNDWATER
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedances	Number of Detections	Number of Samples
Semivolatile Organics								
Butylbenzylphthalate	UG/L	0.057	8.3%		NA	0	1	12
Metals and Cyanide								
Aluminum	UG/L	500	100.0%	MCL	50	12	12	12
Antimony	UG/L	5.5	8.3%	GA	3	1	1	12
Arsenic	UG/L	4	25.0%	MCL	5	0	3	12
Barium	UG/L	79.5	100.0%	GA	1000	0	12	12
Calcium	UG/L	98400	100.0%		NA	0	12	12
Chromium	UG/L	2.5	50.0%	GA	50	0	6	12
Copper	UG/L	7	8.3%	GA	200	0	1	12
Iron	UG/L	568	100.0%	GA	300	4	12	12
Magnesium	UG/L	24600	100.0%		NA	0	12	12
Manganese	UG/L	104	100.0%	SEC	50	5	12	12
Potassium	UG/L	5890	100.0%		NA	0	12	12
Selenium	UG/L	2.4	8.3%	GA	10	0	1	12
Silver	UG/L	2.2	16.7%	GA	50	0	2	12
Sodium	UG/L	4980	100.0%	GA	20000	0	12	12
Thallium	UG/L	4	8.3%	MCL	2	1	1	12
Vanadium	UG/L	3.7	16.7%		NA	0	2	12
Zinc	UG/L	3.9	66.7%	MCL	5000	0	8	12
Conventional Analyses								
COD	MG/L	8	33.3%		NA	0	2	6
Nitrate/Nitrite Nitrogen	MG/L	0.25	100.0%	GA	10	0	12	12
Total Dissolved Solids	MG/L	364	100.0%		NA	0	6	6
Total Hardness-CaCO3	MG/L	290	100.0%		NA	0	6	6

NA = Not Available

- (1) GA = NYSDEC Ambient Water Quality Standards for a source of Drinking Water from Groundwater (TOGS 1.1.1)
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 822-B-00-001)

Table 4-4
SUMMARY STATISTICS - SURFACE WATER
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/L	6.4	25.0%	NA	0	1	4
Toluene	UG/L	1.4	100.0%	6000	0	4	4
Metals and Cyanide							
Aluminum	UG/L	4610	100.0%	100	4	4	4
Antimony	UG/L	2.3	25.0%	NA	0	1	4
Arsenic	UG/L	3.1	25.0%	150	0	1	4
Barium	UG/L	58.6	100.0%	NA	0	4	4
Beryllium	UG/L	0.31	50.0%	1100	0	2	4
Calcium	UG/L	96600	100.0%	NA	0	4	4
Chromium	UG/L	5.5	75.0%	139.45	0	3	4
Cobalt	UG/L	2	50.0%	5	0	2	4
Copper	UG/L	6.3	100.0%	17.32	0	4	4
Iron	UG/L	4650	100.0%	300	4	4	4
Lead	UG/L	5.7	25.0%	1.4624632	1	1	4
Magnesium	UG/L	16000	100.0%	NA	0	4	4
Manganese	UG/L	180	100.0%	NA	0	4	4
Nickel	UG/L	6.7	50.0%	99.92	0	2	4
Potassium	UG/L	4720	100.0%	NA	0	4	4
Silver	UG/L	1.4	25.0%	0.1	1	1	4
Sodium	UG/L	1220	100.0%	NA	0	4	4
Vanadium	UG/L	7.8	75.0%	14	0	3	4
Zinc	UG/L	32.5	100.0%	159.25	0	4	4
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/L	0.02	50.0%	NA	0	2	4
Total Hardness-CaCO3	MG/L	290	100.0%	NA	0	4	4
Total Organic Carbon	MG/L	9.6	100.0%	NA	0	4	4
pH	MG/L	7.77	100.0%	NA	0	4	4

NA = Not Available

(1) New York State Ambient Water Quality Standards, Class C Surface Waters (TOGS I.1.1)

Table 4-5
SUMMARY STATISTICS - DRAINAGE DITCH SOIL/SEDIMENT
SEAD-46

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Number of Detections	Number of Samples	Sediment Criteria			Soil Criteria		
						Criteria Type (1)	Criteria Value	Number of Exceedances	Criteria Type (1)	Criteria Value	Number of Exceedances
Volatile Organics											
Acetone	UG/KG	280	100.0%	4	4		NA	0	TAGM	200	2
Carbon disulfide	UG/KG	2	50.0%	2	4		NA	0	TAGM	2700	0
Methyl ethyl ketone	UG/KG	25	75.0%	3	4		NA	0	TAGM	300	0
Toluene	UG/KG	13	100.0%	4	4	NYSALC	1916.145	0	TAGM	1500	0
Total Xylenes	UG/KG	3	25.0%	1	4	NYSALC	3597.66	0	TAGM	1200	0
Semivolatile Organics											
Benzo(a)anthracene	UG/KG	3.3	25.0%	1	4	NYSHHB	50.8365	0	TAGM	224	0
Benzo(b)fluoranthene	UG/KG	6	25.0%	1	4	NYSHHB	50.8365	0	TAGM	1100	0
Benzo(k)fluoranthene	UG/KG	7.4	25.0%	1	4	NYSHHB	50.8365	0	TAGM	1100	0
Chrysene	UG/KG	7.2	25.0%	1	4	NYSHHB	50.8365	0	TAGM	400	0
Fluoranthene	UG/KG	8.9	25.0%	1	4	NYSALC	39887.1	0	TAGM	50000	0
Phenanthrene	UG/KG	5	25.0%	1	4	NYSALC	4692.6	0	TAGM	50000	0
Phenol	UG/KG	33	100.0%	4	4	NYSALC	19.5525	1	TAGM	30	1
Pyrene	UG/KG	8	25.0%	1	4	NYSALC	37579.905	0	TAGM	50000	0
Metals and Cyanide											
Aluminum	MG/KG	16500	100.0%	4	4		NA	0	TAGM	19300 (2)	0
Antimony	MG/KG	0.73	50.0%	2	4	NYSLEL	2	0	TAGM	5.9 (2)	0
Arsenic	MG/KG	7.2	100.0%	4	4	NYSLEL	6	3	TAGM	8.2 (2)	0
Barium	MG/KG	152	100.0%	4	4		NA	0	TAGM	300	0
Beryllium	MG/KG	1.2	100.0%	4	4		NA	0	TAGM	1.1 (2)	1
Calcium	MG/KG	69300	100.0%	4	4		NA	0	TAGM	121000 (2)	0
Chromium	MG/KG	23.1	100.0%	4	4	NYSLEL	26	0	TAGM	29.6 (2)	0
Cobalt	MG/KG	20	100.0%	4	4		NA	0	TAGM	30	0
Copper	MG/KG	32.5	100.0%	4	4	NYSLEL	16	4	TAGM	33 (2)	0
Iron	MG/KG	39100	100.0%	4	4	NYSLEL	20000	4	TAGM	36500 (2)	1
Lead	MG/KG	22	100.0%	4	4	NYSLEL	31	0	TAGM	24.8 (2)	0
Magnesium	MG/KG	8910	100.0%	4	4		NA	0	TAGM	21500 (2)	0
Manganese	MG/KG	1070	100.0%	4	4	NYSLEL	460	3	TAGM	1060 (2)	1
Mercury	MG/KG	0.07	50.0%	2	4	NYSLEL	0.15	0	TAGM	0.1	0
Nickel	MG/KG	47.4	100.0%	4	4	NYSLEL	16	4	TAGM	49 (2)	0
Potassium	MG/KG	1410	100.0%	4	4		NA	0	TAGM	2380 (2)	0
Sodium	MG/KG	116	75.0%	3	4		NA	0	TAGM	172 (2)	0
Thallium	MG/KG	3.7	100.0%	4	4		NA	0	TAGM	0.7 (2)	4
Vanadium	MG/KG	29.3	100.0%	4	4		NA	0	TAGM	150	0
Zinc	MG/KG	82.5	100.0%	4	4	NYSLEL	120	0	TAGM	110 (2)	0
Conventional Analyses											
Cation exchange capacity	MEQ/100G	18.7	100.0%	4	4		NA	0		NA	0
Nitrate/Nitrite Nitrogen	MG/KG	0.09	100.0%	4	4		NA	0		NA	0
Percent Solids	% WW	81.8	100.0%	4	4		NA	0		NA	0
Total Organic Carbon	MG/KG	37300	100.0%	4	4		NA	0		NA	0
pH	pH units	7.97	100.0%	4	4		NA	0		NA	0

NA = Not Available

(1) NYSALC = NYS Benthic Aquatic Life Chronic Toxicity Criteria

NYSHHB = NYS Human Health Bioaccumulation Criteria

NYSLEL = NYS Lowest Effect Level

NYSWB = NYS Wildlife Bioaccumulation Criteria

TAGM = Technical and Administrative Guidance Memorandum # 4046

(2) Based on 95 percentile of site background data set.

**Table 4-6
SUMMARY STATISTICS - SHALLOW SOIL
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/KG	350	75.0%	200	23	54	72
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72
Chloroform	UG/KG	7	1.4%	300	0	1	72
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72
Toluene	UG/KG	33	63.9%	1500	0	46	72
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72
Semivolatile Organics							
2-Methylnaphthalene	UG/KG	4.5	1.6%	36400	0	1	63
4-Methylphenol	UG/KG	4.9	1.6%	900	0	1	63
Benzo(a)anthracene	UG/KG	24	14.3%	224	0	9	63
Benzo(a)pyrene	UG/KG	20	9.5%	61	0	6	63
Benzo(b)fluoranthene	UG/KG	25	25.4%	1100	0	16	63
Benzo(ghi)perylene	UG/KG	10	11.1%	50000	0	7	63
Benzo(k)fluoranthene	UG/KG	26	25.4%	1100	0	16	63
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	15.9%	50000	0	10	63
Chrysene	UG/KG	42	30.2%	400	0	19	63
Di-n-butylphthalate	UG/KG	190	30.2%	8100	0	19	63
Di-n-octylphthalate	UG/KG	2.6	1.6%	50000	0	1	63
Dibenz(a,h)anthracene	UG/KG	6.4	3.2%	14	0	2	63
Diethyl phthalate	UG/KG	2.6	1.6%	7100	0	1	63
Fluoranthene	UG/KG	56	63.5%	50000	0	40	63
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	11.1%	3200	0	7	63
N-Nitrosodiphenylamine	UG/KG	75	1.6%	NA	0	1	63
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63
Phenol	UG/KG	8.3	19.0%	30	0	12	63
Pyrene	UG/KG	49	66.7%	50000	0	42	63
Pesticides/PCBs							
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63
Alpha-Chlordane	UG/KG	16	9.5%	NA	0	6	63
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63
Dieldrin	UG/KG	27	11.1%	44	0	7	63
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63
Heptachlor epoxide	UG/KG	2	1.6%	20	0	1	63
Metals and Cyanide							
Aluminum	MG/KG	17400	100.0%	19300 (2)	0	63	63
Antimony	MG/KG	1.6	38.1%	5.9 (2)	0	24	63
Arsenic	MG/KG	6.6	84.1%	8.2 (2)	0	53	63
Barium	MG/KG	202	100.0%	300	0	63	63
Beryllium	MG/KG	1.5	100.0%	1.1 (2)	9	63	63
Cadmium	MG/KG	6	11.1%	2.3 (2)	2	7	63
Calcium	MG/KG	213000	100.0%	121000 (2)	1	63	63
Chromium	MG/KG	24.5	100.0%	29.6 (2)	0	63	63
Cobalt	MG/KG	19.2	100.0%	30	0	63	63
Copper	MG/KG	52.7	100.0%	33 (2)	3	63	63
Iron	MG/KG	32700	100.0%	36500 (2)	0	63	63
Lead	MG/KG	66.8	100.0%	24.8 (2)	9	63	63
Magnesium	MG/KG	13500	100.0%	21500 (2)	0	63	63
Manganese	MG/KG	2270	100.0%	1060 (2)	9	63	63
Mercury	MG/KG	0.14	82.5%	0.1	14	52	63
Nickel	MG/KG	46	100.0%	49 (2)	0	63	63
Potassium	MG/KG	1830	100.0%	2380 (2)	0	63	63
Selenium	MG/KG	2.7	66.7%	2	2	42	63
Silver	MG/KG	1.7	33.3%	0.75 (2)	3	21	63
Sodium	MG/KG	214	30.2%	172 (2)	2	19	63
Thallium	MG/KG	6.7	77.8%	0.7 (2)	48	49	63
Vanadium	MG/KG	32.3	100.0%	150	0	63	63
Zinc	MG/KG	133	85.7%	110 (2)	1	54	63
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/KG	4.4	98.1%	NA	0	53	54
Percent Solids	% WW	85.4	100.0%	NA	0	54	54

NA = Not Available

Note: 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value
2) Based on 95 percentile of site background data

**Table 4-7
SUMMARY STATISTICS - ALL SOIL
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/KG	350	63.9%	200	23	62	97
Benzene	UG/KG	1	2.1%	60	0	2	97
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97
Chloroform	UG/KG	7	1.0%	300	0	1	97
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97
Toluene	UG/KG	33	50.5%	1500	0	49	97
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97
Semivolatile Organics							
2-Methylnaphthalene	UG/KG	750	3.4%	36400	0	3	88
4-Methylphenol	UG/KG	4.9	1.1%	900	0	1	88
Benzo(a)anthracene	UG/KG	24	11.4%	224	0	10	88
Benzo(a)pyrene	UG/KG	20	6.8%	61	0	6	88
Benzo(b)fluoranthene	UG/KG	25	18.2%	1100	0	16	88
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88
Chrysene	UG/KG	42	23.9%	400	0	21	88
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88
Fluorene	UG/KG	120	1.1%	50000	0	1	88
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88
N-Nitrosodiphenylamine	UG/KG	75	2.3%	NA	0	2	88
Naphthalene	UG/KG	180	1.1%	13000	0	1	88
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88
Phenol	UG/KG	51	14.8%	30	1	13	88
Pyrene	UG/KG	49	48.9%	50000	0	43	88
Pesticides/PCBs							
4,4'-DDD	UG/KG	54	9.1%	2900	0	8	88
4,4'-DDE	UG/KG	32	10.2%	2100	0	9	88
4,4'-DDT	UG/KG	23	5.7%	2100	0	5	88
Alpha-BHC	UG/KG	1.1	1.1%	110	0	1	88
Alpha-Chlordane	UG/KG	16	8.0%	NA	0	7	88
Aroclor-1260	UG/KG	27	2.3%	10000	0	2	88
Dieldrin	UG/KG	27	8.0%	44	0	7	88
Endosulfan I	UG/KG	5.2	1.1%	900	0	1	88
Endosulfan II	UG/KG	3.1	1.1%	900	0	1	88
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88
Metals and Cyanide							
Aluminum	MG/KG	22900	100.0%	19300 (2)	2	88	88
Antimony	MG/KG	6.5	44.3%	5.9 (2)	1	39	88
Arsenic	MG/KG	9.6	88.6%	8.2 (2)	4	78	88
Barium	MG/KG	202	100.0%	300	0	88	88
Beryllium	MG/KG	1.5	100.0%	1.1 (2)	9	88	88
Cadmium	MG/KG	6	8.0%	2.3 (2)	2	7	88
Calcium	MG/KG	213000	100.0%	121000 (2)	1	88	88
Chromium	MG/KG	34.5	100.0%	29.6 (2)	4	88	88
Cobalt	MG/KG	19.2	100.0%	30	0	88	88
Copper	MG/KG	2930	100.0%	33 (2)	9	88	88
Iron	MG/KG	44400	100.0%	36500 (2)	2	88	88
Lead	MG/KG	1860	100.0%	24.8 (2)	12	88	88
Magnesium	MG/KG	27600	100.0%	21500 (2)	1	88	88
Manganese	MG/KG	2270	100.0%	1060 (2)	9	88	88
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88
Nickel	MG/KG	54.1	100.0%	49 (2)	4	88	88
Potassium	MG/KG	3250	100.0%	2380 (2)	1	88	88
Selenium	MG/KG	2.7	62.5%	2	2	55	88
Silver	MG/KG	1.7	36.4%	0.75 (2)	3	32	88
Sodium	MG/KG	270	38.6%	172 (2)	4	34	88
Thallium	MG/KG	6.7	78.4%	0.7 (2)	66	69	88
Vanadium	MG/KG	104	100.0%	150	0	88	88
Zinc	MG/KG	1250	89.8%	110 (2)	7	79	88
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/KG	4.4	98.5%		0	67	68
Percent Solids	% WW	94	100.0%		0	68	68

NA = Not Available

Note 1) NYSDEC Technical and Administrative Guidance Memorandum # 4046 Recommended Value
2) Based on 95 percentile of site background data

Table 4-8
SUMMARY STATISTICS - GROUNDWATER
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedances	Number of Detections	Number of Samples
Semivolatile Organics								
Bis(2-Ethylhexyl)phthalate	UG/L	20	5.3%	GA	5	1	1	19
Butylbenzylphthalate	UG/L	0.077	5.3%		NA	0	1	19
Diethyl phthalate	UG/L	1.9	5.3%		NA	0	1	19
Metals and Cyanide								
Aluminum	UG/L	6540	100.0%	MCL	50	18	21	21
Antimony	UG/L	44.7	14.3%	GA	3	2	3	21
Arsenic	UG/L	4.1	9.5%	MCL	5	0	2	21
Barium	UG/L	129	100.0%	GA	1000	0	21	21
Beryllium	UG/L	0.63	4.8%	MCL	4	0	1	21
Cadmium	UG/L	3.1	9.5%	GA	5	0	2	21
Calcium	UG/L	297000	100.0%		NA	0	21	21
Chromium	UG/L	14.5	61.9%	GA	50	0	13	21
Cobalt	UG/L	14.8	4.8%		NA	0	1	21
Copper	UG/L	19.5	47.6%	GA	200	0	10	21
Iron	UG/L	9260	90.5%	GA	300	12	19	21
Lead	UG/L	2.2	14.3%	MCL	15	0	3	21
Magnesium	UG/L	36900	100.0%		NA	0	21	21
Manganese	UG/L	327	90.5%	SEC	50	6	19	21
Nickel	UG/L	18.8	28.6%	GA	100	0	6	21
Potassium	UG/L	4600	100.0%		NA	0	21	21
Selenium	UG/L	2.4	9.5%	GA	10	0	2	21
Silver	UG/L	3.1	14.3%	GA	50	0	3	21
Sodium	UG/L	26100	100.0%	GA	20000	2	21	21
Thallium	UG/L	6.7	19.0%	MCL	2	4	4	21
Vanadium	UG/L	9.2	23.8%		NA	0	5	21
Zinc	UG/L	85.1	95.2%	MCL	5000	0	20	21
Conventional Analyses								
COD	MG/L	16	40.0%		NA	0	6	15
Nitrate/Nitrite Nitrogen	MG/L	0.49	93.8%	GA	10000	0	15	16
Total Dissolved Solids	MG/L	1030	100.0%		NA	0	15	15
Total Hardness-CaCO3	MG/L	790	100.0%		NA	0	15	15

NA = Not Available

(1) GA = NYSDEC Ambient Water Quality Standards for a source of Drinking Water from Groundwater (TOGS 1.1.1)

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 822-B-00-001)

**Table 4-9
SUMMARY STATISTICS - SURFACE WATER
SEAD-57**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/L	3	7.4%	NA	0	2	27
Toluene	UG/L	0.39	3.7%	6000	0	1	27
Semivolatile Organics							
4-Methylphenol	UG/L	0.091	7.4%	NA	0	2	27
Bis(2-Ethylhexyl)phthalate	UG/L	0.5	11.1%	0.6	0	3	27
Di-n-butylphthalate	UG/L	0.096	22.2%	NA	0	6	27
Di-n-octylphthalate	UG/L	0.074	3.7%	NA	0	1	27
Diethyl phthalate	UG/L	0.19	14.8%	NA	0	4	27
Phenol	UG/L	0.24	3.7%	5	0	1	27
Pesticides/PCBs							
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27
Alpha-BHC	UG/L	0.008	7.4%	NA	0	2	27
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27
Beta-BHC	UG/L	0.0027	3.7%	NA	0	1	27
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27
Endrin aldehyde	UG/L	0.0092	7.4%	NA	0	2	27
Endrin ketone	UG/L	0.038	3.7%	NA	0	1	27
Gamma-Chlordane	UG/L	0.0032	3.7%	NA	0	1	27
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27
Metals and Cyanide							
Aluminum	UG/L	12900	100.0%	100	27	27	27
Antimony	UG/L	3.8	14.8%	NA	0	4	27
Arsenic	UG/L	7.1	18.5%	150	0	5	27
Barium	UG/L	91.9	100.0%	NA	0	27	27
Beryllium	UG/L	0.77	22.2%	1100	0	6	27
Cadmium	UG/L	8.1	40.7%	3.84	2	11	27
Calcium	UG/L	143000	100.0%	NA	0	27	27
Chromium	UG/L	3.5	37.0%	139.45	0	10	27
Cobalt	UG/L	11.1	14.8%	5	1	4	27
Copper	UG/L	33	66.7%	17.32	1	18	27
Iron	UG/L	17800	100.0%	300	16	27	27
Lead	UG/L	30.3	22.2%	1.4624632	4	6	27
Magnesium	UG/L	19000	100.0%	NA	0	27	27
Manganese	UG/L	565	100.0%	NA	0	27	27
Mercury	UG/L	0.14	25.9%	0.0007	7	7	27
Nickel	UG/L	20.8	29.6%	99.92	0	8	27
Potassium	UG/L	5070	100.0%	NA	0	27	27
Selenium	UG/L	3.6	3.7%	4.6	0	1	27
Silver	UG/L	2.3	33.3%	0.1	9	9	27
Sodium	UG/L	3760	100.0%	NA	0	27	27
Thallium	UG/L	4.3	14.8%	8	0	4	27
Vanadium	UG/L	26.1	44.4%	14	1	12	27
Zinc	UG/L	125	100.0%	159.25	0	27	27
Conventional							
Alkalinity	MG/L	872	100.0%	NA	0	25	25
Ammonia Nitrogen	MG/L	0.33	92.3%	NA	0	24	26
Nitrate/Nitrite Nitrogen	MG/L	0.04	48.1%	NA	0	13	27
Total Dissolved Solids	MG/L	27700	100.0%	NA	0	25	25
Total Hardness-CaCO3	MG/L	412	100.0%	NA	0	27	27
Total Organic Carbon	MG/L	13	100.0%	NA	0	26	26
Total Phosphorous as P	MG/L	0.56	96.2%	NA	0	25	26
Total Suspended Solids	MG/L	1970	100.0%	NA	0	25	25
pH	MG/L	7.85	100.0%	NA	0	25	25

NA = Not Available

1. NYS Ambient Water Quality Standards, Class C Freshwater (TOGS 1.1.1, June 1998)

Table 4-10
SUMMARY STATISTICS - DRAINAGE DITCH SOIL/SEDIMENT
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Number of Detections	Number of Samples	Sediment Criteria			Soil Criteria		
						Criteria Type (1)	Criteria Value	Number of Exceedances	Criteria Type (1)	Criteria Value	Number of Exceedances
Volatile Organics											
Acetone	UG/KG	700	100.0%	34	34		NA	0	TAGM	200	13
Carbon disulfide	UG/KG	3	20.6%	7	34		NA	0	TAGM	2700	0
Methyl ethyl ketone	UG/KG	64	100.0%	34	34		NA	0	TAGM	300	0
Methylene chloride	UG/KG	1	5.9%	2	34		NA	0	TAGM	100	0
Toluene	UG/KG	16	100.0%	34	34	NYSALC	1916.145	0	TAGM	1500	0
Semivolatile Organics											
4-Methylphenol	UG/KG	13	5.9%	2	34	NYSALC	19.5525	0	TAGM	900	0
Anthracene	UG/KG	8.2	8.8%	3	34	NYSALC	4184.235	0	TAGM	50000	0
Benzo(a)anthracene	UG/KG	62	47.1%	16	34	NYSHHB	50.8365	2	TAGM	224	0
Benzo(a)pyrene	UG/KG	76	41.2%	14	34	NYSHHB	50.8365	4	TAGM	61	2
Benzo(b)fluoranthene	UG/KG	67	41.2%	14	34	NYSHHB	50.8365	2	TAGM	1100	0
Benzo(ghi)perylene	UG/KG	54	26.5%	9	34		NA	0	TAGM	50000	0
Benzo(k)fluoranthene	UG/KG	50	41.2%	14	34	NYSHHB	50.8365	0	TAGM	1100	0
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	7	34	NYSALC	7801.4475	0	TAGM	50000	0
Chrysene	UG/KG	110	55.9%	19	34	NYSHHB	50.8365	4	TAGM	400	0
Di-n-butylphthalate	UG/KG	76	61.8%	21	34			0	TAGM	8100	0
Dibenz(a,h)anthracene	UG/KG	24	14.7%	5	34			0	TAGM	14	3
Fluoranthene	UG/KG	150	58.8%	20	34	NYSALC	39887.1	0	TAGM	50000	0
Fluorene	UG/KG	8.1	2.9%	1	34	NYSALC	312.84	0	TAGM	50000	0
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	9	34	NYSHHB	50.8365	0	TAGM	3200	0
Phenanthrene	UG/KG	110	47.1%	16	34	NYSALC	4692.6	0	TAGM	50000	0
Phenol	UG/KG	24	8.8%	3	34	NYSALC	19.5525	1	TAGM	30	0
Pyrene	UG/KG	230	58.8%	20	34	NYSALC	37579.905	0	TAGM	50000	0
Pesticides/PCBs											
4,4'-DDT	UG/KG	2.9	2.9%	1	34	NYSHHB	0.39105	1	TAGM	2900	0
Alpha-BHC	UG/KG	1.4	2.9%	1	34		NA	0	TAGM	110	0
Beta-BHC	UG/KG	4.5	2.9%	1	34		NA	0	TAGM	200	0
Endrin aldehyde	UG/KG	3.8	2.9%	1	34		NA	0		NA	0
Endrin ketone	UG/KG	4	2.9%	1	34		NA	0		NA	0
Heptachlor	UG/KG	1.6	2.9%	1	34	NYSHHB	0.031284	1	TAGM	100	0

Table 4-10
SUMMARY STATISTICS - DRAINAGE DITCH SOIL/SEDIMENT
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Number of Detections	Number of Samples	Sediment Criteria			Soil Criteria		
						Criteria Type (1)	Criteria Value	Number of Exceedances	Criteria Type (1)	Criteria Value	Number of Exceedances
Metals and Cyanide											
Aluminum	MG/KG	19800	100.0%	34	34		NA	0	TAGM	19300 (2)	1
Antimony	MG/KG	2.2	58.8%	20	34	NYSLEL	2	1	TAGM	5.9 (2)	0
Arsenic	MG/KG	17.8	100.0%	34	34	NYSLEL	6	8	TAGM	8.2 (2)	2
Barium	MG/KG	237	100.0%	34	34		NA	0	TAGM	300	0
Beryllium	MG/KG	1.8	100.0%	34	34		NA	0	TAGM	1.1 (2)	3
Cadmium	MG/KG	28.6	55.9%	19	34	NYSLEL	0.6	7	TAGM	2.3 (2)	4
Calcium	MG/KG	14600	100.0%	34	34		NA	0	TAGM	121000 (2)	0
Chromium	MG/KG	27	100.0%	34	34	NYSLEL	26	1	TAGM	29.6 (2)	0
Cobalt	MG/KG	29.7	100.0%	34	34		NA	0	TAGM	30	0
Copper	MG/KG	44.4	70.6%	24	34	NYSLEL	16	22	TAGM	33 (2)	3
Iron	MG/KG	37200	100.0%	34	34	NYSLEL	20000	32	TAGM	36500 (2)	1
Lead	MG/KG	35	100.0%	34	34	NYSLEL	31	3	TAGM	24.8 (2)	14
Magnesium	MG/KG	5920	100.0%	34	34		NA	0	TAGM	21500 (2)	0
Manganese	MG/KG	2580	100.0%	34	34	NYSLEL	460	14	TAGM	1060 (2)	3
Mercury	MG/KG	0.15	52.9%	18	34	NYSLEL	0.15	0	TAGM	0.1	4
Nickel	MG/KG	41.8	100.0%	34	34	NYSLEL	16	34	TAGM	49 (2)	0
Potassium	MG/KG	2350	100.0%	34	34		NA	0	TAGM	2380 (2)	0
Selenium	MG/KG	1.9	64.7%	22	34		NA	0	TAGM	2	0
Silver	MG/KG	0.63	38.2%	13	34	NYSLEL	1	0	TAGM	0.75 (2)	0
Sodium	MG/KG	183	26.5%	9	34		NA	0	TAGM	172 (2)	1
Thallium	MG/KG	4.4	91.2%	31	34		NA	0	TAGM	0.7 (2)	31
Vanadium	MG/KG	37.4	97.1%	33	34		NA	0	TAGM	150	0
Zinc	MG/KG	487	100.0%	34	34	NYSLEL	120	4	TAGM	110 (2)	4
Conventional Analyses											
Cation exchange capacity	MEQ/100G	31.4	100.0%	32	32		NA	0		NA	0
Nitrate/Nitrite Nitrogen	MG/KG	3.1	97.1%	33	34		NA	0		NA	0
Percent Solids	% WW	80.9	100.0%	34	34		NA	0		NA	0
Soil pH (std. units)	pH units	7.83	100.0%	33	33		NA	0		NA	0
Total Organic Carbon	MG/KG	70500	100.0%	32	32		NA	0		NA	0

- (1) NYSALC = NYS Benthic Aquatic Life Chronic Toxicity Criteria
 NYSHHB = NYS Human Health Bioaccumulation Criteria
 NYSLEL = NYS Lowest Effect Level
 NYSWB = NYS Wildlife Bioaccumulation Criteria
 TAGM = Technical and Administrative Guidance Memorandum # 4046
- (2) Based on 95 percentile of site background set.

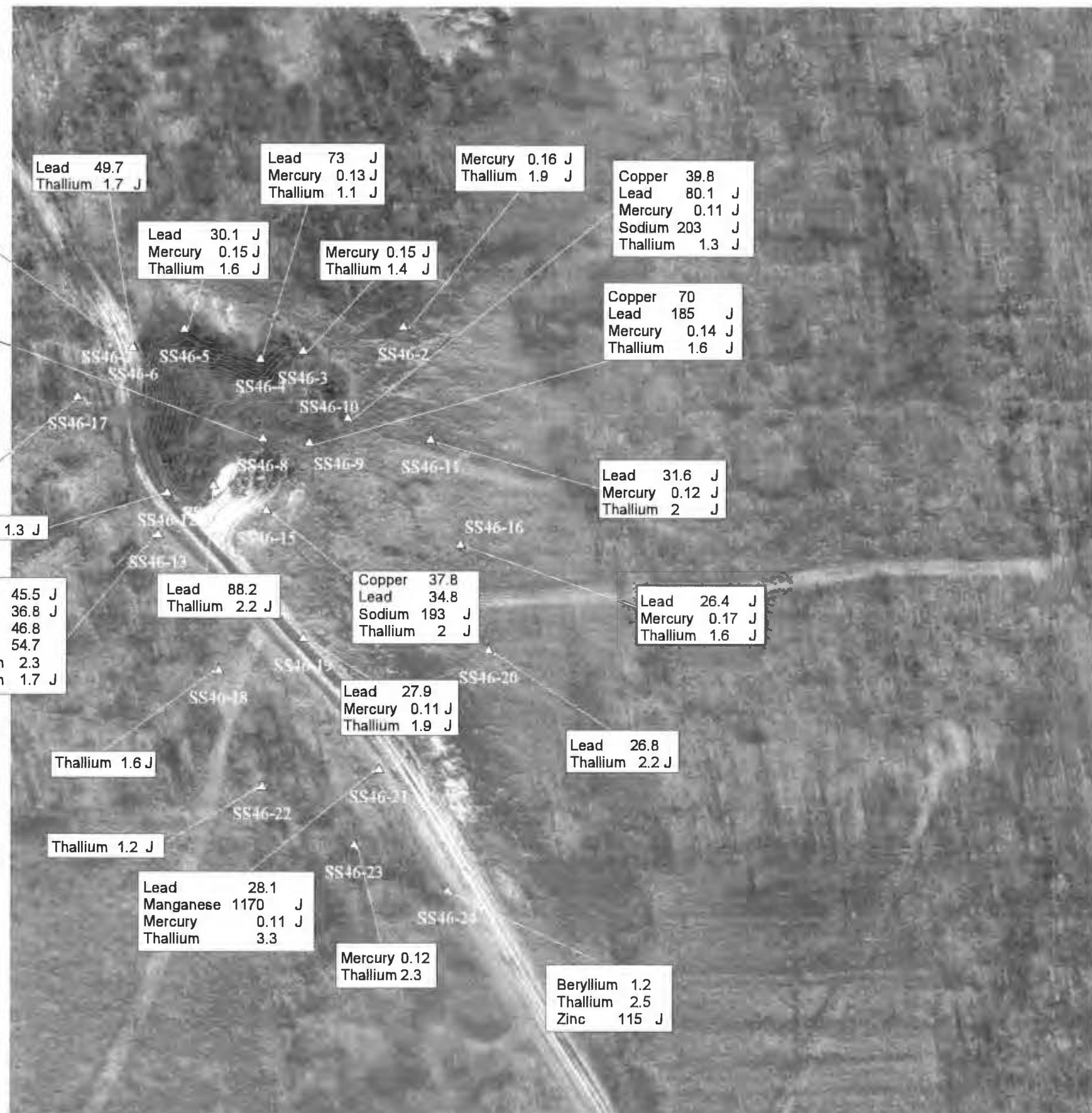
Table 4-11
SUMMARY STATISTICS - DEBRIS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedances	Number of Detections	Number of Samples
Volatile Organics							
Acetone	UG/KG	250	100.0%	NA	0	3	3
Benzene	UG/KG	31	100.0%	NA	0	3	3
Ethyl benzene	UG/KG	5	100.0%	NA	0	3	3
Methyl ethyl ketone	UG/KG	50	100.0%	NA	0	3	3
Toluene	UG/KG	24	100.0%	NA	0	3	3
Total Xylenes	UG/KG	17	100.0%	NA	0	3	3
Semivolatile Organics							
2-Methylnaphthalene	UG/KG	47	100.0%	NA	0	3	3
4-Methylphenol	UG/KG	24	100.0%	NA	0	3	3
Acenaphthene	UG/KG	58	100.0%	NA	0	3	3
Anthracene	UG/KG	160	100.0%	NA	0	3	3
Benzo(a)anthracene	UG/KG	490	100.0%	NA	0	3	3
Benzo(a)pyrene	UG/KG	820	100.0%	NA	0	3	3
Benzo(b)fluoranthene	UG/KG	820	100.0%	NA	0	3	3
Benzo(ghi)perylene	UG/KG	430	100.0%	NA	0	3	3
Benzo(k)fluoranthene	UG/KG	760	100.0%	NA	0	3	3
Bis(2-Ethylhexyl)phthalate	UG/KG	400	100.0%	NA	0	3	3
Butylbenzylphthalate	UG/KG	64	66.7%	NA	0	2	3
Carbazole	UG/KG	110	100.0%	NA	0	3	3
Chrysene	UG/KG	620	100.0%	NA	0	3	3
Di-n-butylphthalate	UG/KG	200	100.0%	NA	0	3	3
Dibenz(a,h)anthracene	UG/KG	200	100.0%	NA	0	3	3
Dibenzofuran	UG/KG	26	100.0%	NA	0	3	3
Fluoranthene	UG/KG	770	100.0%	NA	0	3	3
Fluorene	UG/KG	55	100.0%	NA	0	3	3
Indeno(1,2,3-cd)pyrene	UG/KG	430	100.0%	NA	0	3	3
Naphthalene	UG/KG	34	100.0%	NA	0	3	3
Phenanthrene	UG/KG	460	100.0%	NA	0	3	3
Pyrene	UG/KG	600	100.0%	NA	0	3	3
2,4-Dinitrotoluene	UG/KG	1300	33.3%	NA	0	1	3
3-Nitrotoluene	UG/KG	130	33.3%	NA	0	1	3
Pesticides/PCBs							
4,4'-DDD	UG/KG	3.7	33.3%	NA	0	1	3
4,4'-DDE	UG/KG	8.3	100.0%	NA	0	3	3
4,4'-DDT	UG/KG	20	100.0%	NA	0	3	3
Aldrin	UG/KG	1.3	33.3%	NA	0	1	3
Aroclor-1254	UG/KG	220	100.0%	NA	0	3	3
Aroclor-1260	UG/KG	260	33.3%	NA	0	1	3
Beta-BHC	UG/KG	1.9	33.3%	NA	0	1	3
Dieldrin	UG/KG	19	100.0%	NA	0	3	3
Endrin aldehyde	UG/KG	23	100.0%	NA	0	3	3
Endrin ketone	UG/KG	4.3	100.0%	NA	0	3	3
Gamma-Chlordane	UG/KG	2.7	100.0%	NA	0	3	3
Heptachlor epoxide	UG/KG	2.2	100.0%	NA	0	3	3
Metals and Cyanide							
Aluminum	MG/KG	7090	100.0%	NA	0	3	3
Antimony	MG/KG	7.2	100.0%	NA	0	3	3
Arsenic	MG/KG	50.6	100.0%	NA	0	3	3
Barium	MG/KG	286	100.0%	NA	0	3	3
Beryllium	MG/KG	0.96	100.0%	NA	0	3	3
Cadmium	MG/KG	21	100.0%	NA	0	3	3
Calcium	MG/KG	82600	100.0%	NA	0	3	3
Chromium	MG/KG	94.3	100.0%	NA	0	3	3
Cobalt	MG/KG	12.9	100.0%	NA	0	3	3
Copper	MG/KG	141	100.0%	NA	0	3	3
Iron	MG/KG	157000	100.0%	NA	0	3	3
Lead	MG/KG	1070	100.0%	NA	0	3	3
Magnesium	MG/KG	23500	100.0%	NA	0	3	3
Manganese	MG/KG	833	100.0%	NA	0	3	3
Mercury	MG/KG	0.13	100.0%	NA	0	3	3
Nickel	MG/KG	46.9	100.0%	NA	0	3	3
Potassium	MG/KG	1190	100.0%	NA	0	3	3
Selenium	MG/KG	2.6	100.0%	NA	0	3	3
Silver	MG/KG	0.61	100.0%	NA	0	3	3
Sodium	MG/KG	367	100.0%	NA	0	3	3
Thallium	MG/KG	10.2	100.0%	NA	0	3	3
Vanadium	MG/KG	20	100.0%	NA	0	3	3
Zinc	MG/KG	1210	100.0%	NA	0	3	3
Conventional Analyses							
Nitrate/Nitrite Nitrogen	MG/KG	7.5	100.0%	NA	0	3	3
Percent Solids	% WW	74.3	100.0%	NA	0	3	3

(1) NA = None Available, there are no criteria values established for debris

o:\seneca\scad5745\scad46\scad46jwa.apr



Lead 37
Thallium 1.3 J

Copper 147
Copper 203
Lead 913 J
Lead 810
Mercury 0.11 J
Sodium 230 J
Thallium 1.5 J
Thallium 1.5 J

Thallium 0.91 J

Thallium 1.3 J

Copper 45.5 J
Copper 36.8 J
Lead 46.8
Lead 54.7
Thallium 2.3
Thallium 1.7 J

Thallium 1.6 J

Thallium 1.2 J

Lead 28.1
Manganese 1170 J
Mercury 0.11 J
Thallium 3.3

Mercury 0.12
Thallium 2.3

Beryllium 1.2
Thallium 2.5
Zinc 115 J

Lead 49.7
Thallium 1.7 J

Lead 30.1 J
Mercury 0.15 J
Thallium 1.6 J

Lead 73 J
Mercury 0.13 J
Thallium 1.1 J

Mercury 0.15 J
Thallium 1.4 J

Mercury 0.16 J
Thallium 1.9 J

Copper 39.8
Lead 80.1 J
Mercury 0.11 J
Sodium 203 J
Thallium 1.3 J

Copper 70
Lead 185 J
Mercury 0.14 J
Thallium 1.6 J

Lead 31.6 J
Mercury 0.12 J
Thallium 2 J

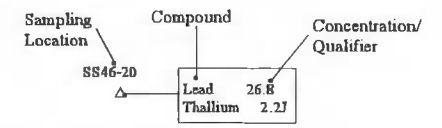
Lead 26.4 J
Mercury 0.17 J
Thallium 1.6 J

Lead 26.8
Thallium 2.2 J

Lead 27.9
Mercury 0.11 J
Thallium 1.9 J

LEGEND

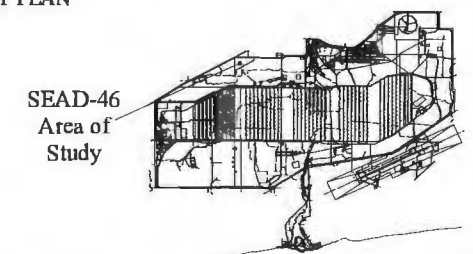
- ▲ Soil Samples
- △ Surface Soil Samples
- △ Berm Soil Samples
- Surface Water/Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊕ GeoProbe Samples



CRITERIA LEVELS (TAGM HWR-4046)

Compound	Value	Units
Beryllium	1.1	mg/Kg
Copper	33	mg/Kg
Lead	24.8	mg/Kg
Manganese	1060	mg/Kg
Mercury	0.1	mg/Kg
Sodium	172	mg/Kg
Thallium	0.7	mg/Kg
Zinc	110	mg/Kg

KEY PLAN



PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

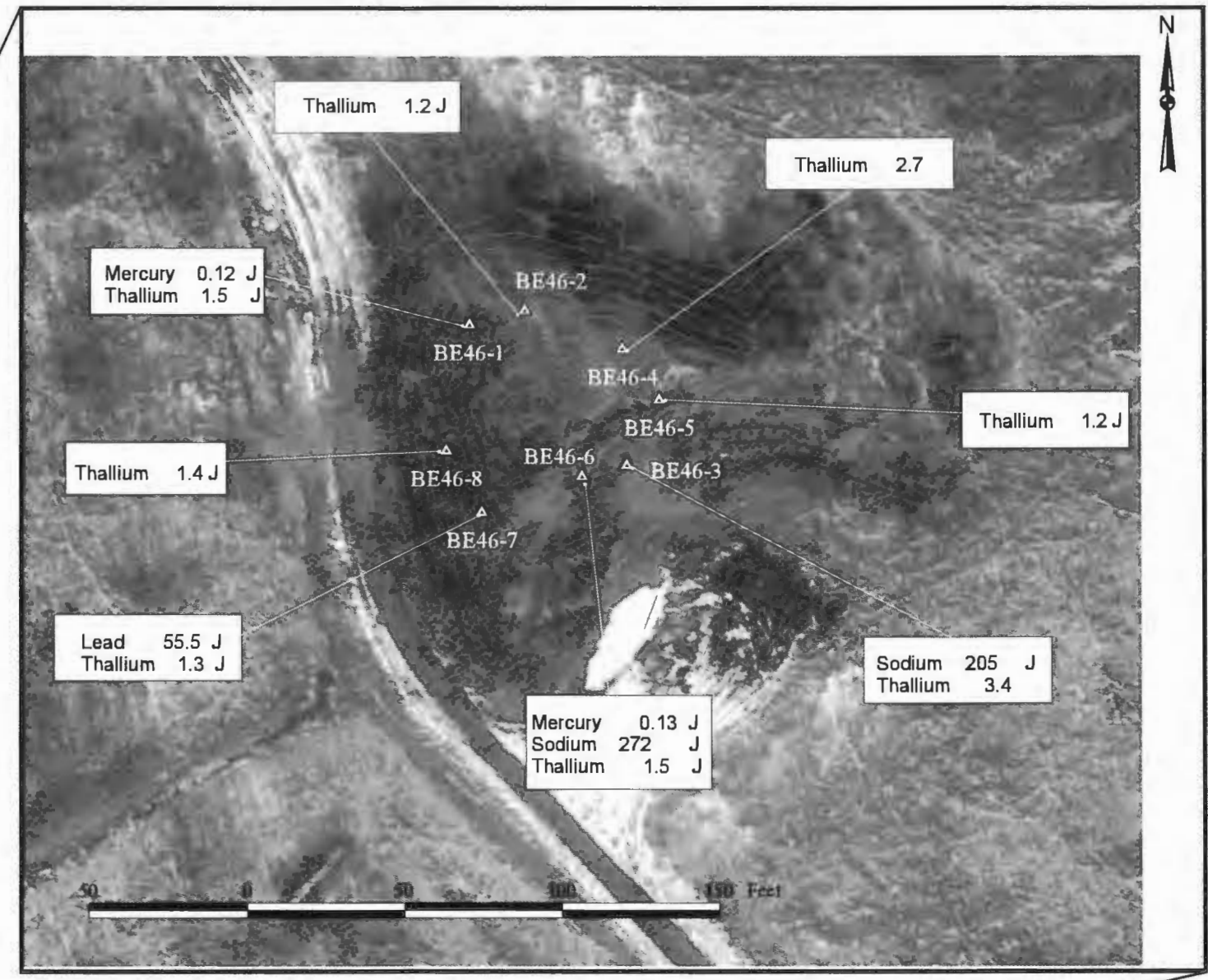
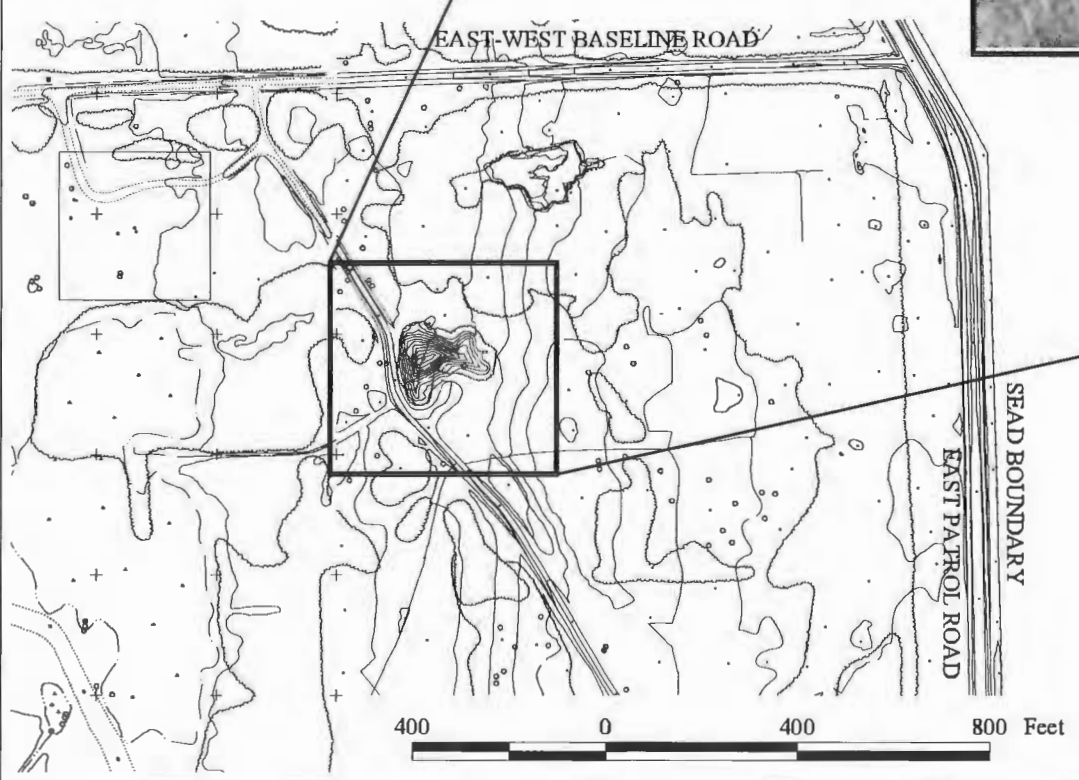
FIGURE 4-1

SEAD-46 SURFACE SOIL
METAL EXCEEDANCES



NOTE: Multiple values for one compound indicate that concentrations measured in multiple samples exceed Criteria Level.

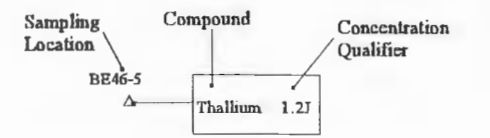
o:\seneca\sead5745\sead46\sead46jwa.apr



Thallium	1.2 J
Mercury	0.12 J
Thallium	1.5 J
Thallium	1.4 J
Lead	55.5 J
Thallium	1.3 J
Mercury	0.13 J
Sodium	272 J
Thallium	1.5 J
Sodium	205 J
Thallium	3.4
Thallium	2.7
Thallium	1.2 J

LEGEND

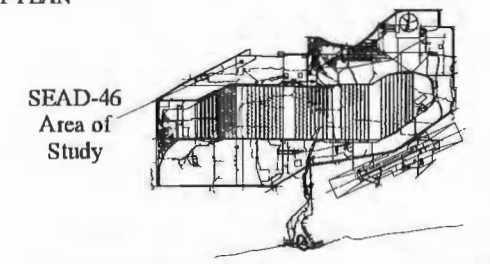
- ▲ Soil Samples
- △ Surface Soil Samples
- △ Berm Soil Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- GeoProbe Samples



CRITERIA LEVELS (TAGM HWR-4046)

Compound	Value	Units
Lead	24.8	mg/Kg
Mercury	0.1	mg/Kg
Sodium	172	mg/Kg
Thallium	0.7	mg/Kg

KEY PLAN

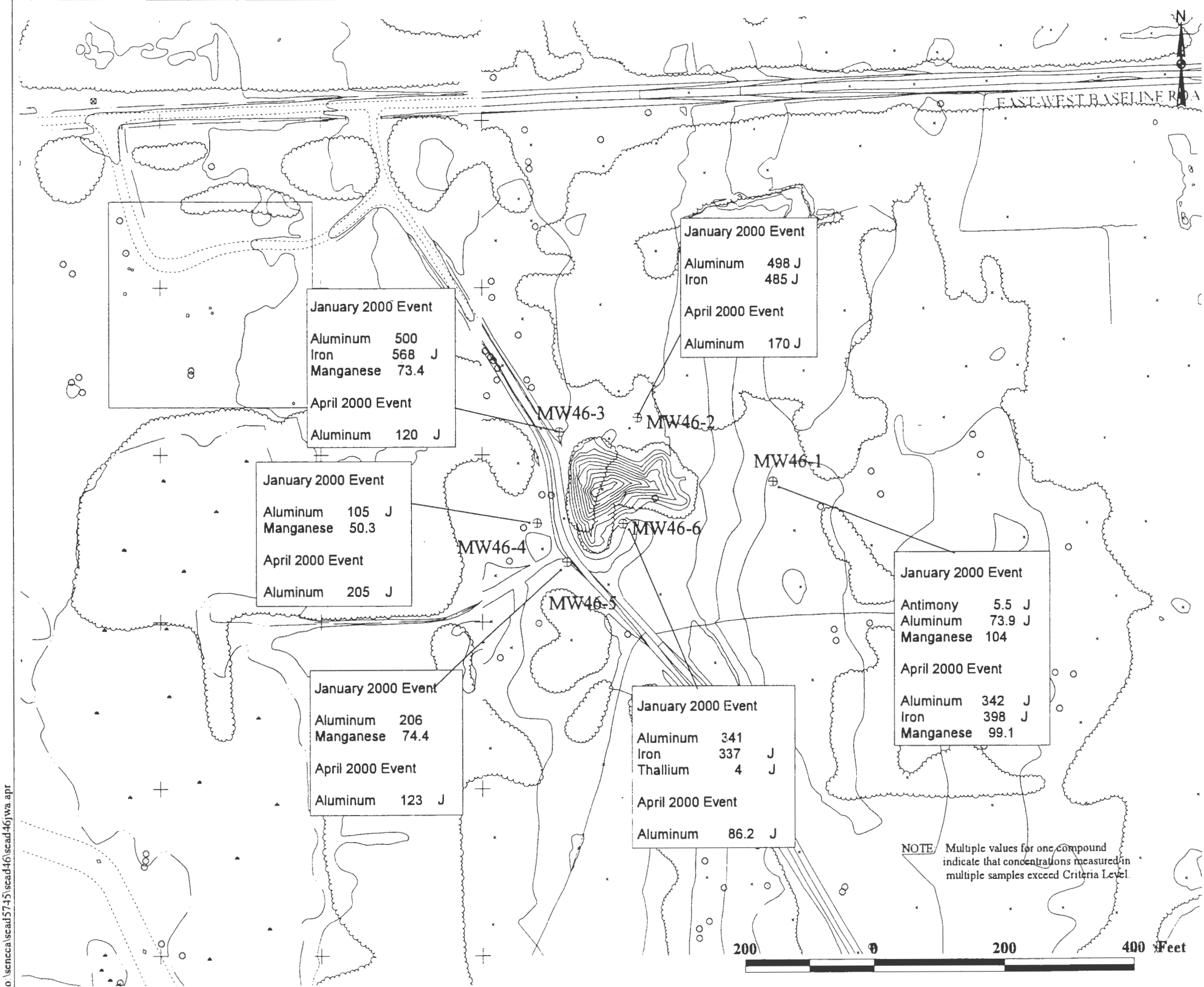


PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

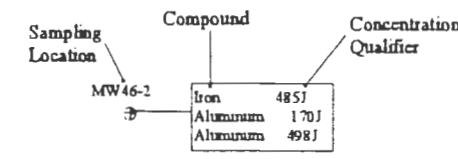
FIGURE 4-2

SEAD-46 BERM AREA SOIL
METAL EXCEEDANCES



LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- ◻ Berm Soil Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples

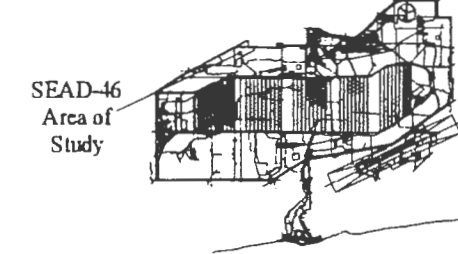


CRITERIA LEVELS

Compound	Value	Units	Type(1)
Aluminum	50	ug/L	MCL
Antimony	3	ug/L	GA
Iron	4	ug/L	GA
Manganese	50	ug/L	SEC
Thallium	2	ug/L	MCL

1 MCL - Maximum Contaminant Level, GA - NYSDEC GA Groundwater Standard, SEC - Secondary MCL

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

**SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57**

FIGURE 4-3

**SEAD-46 GROUNDWATER
 METAL EXCEEDANCES**

o:\seneca\scad\5745\scad46\scad46jwa.apr

NOTE Multiple values for one compound indicate that concentrations measured in multiple samples exceed Criteria Level.

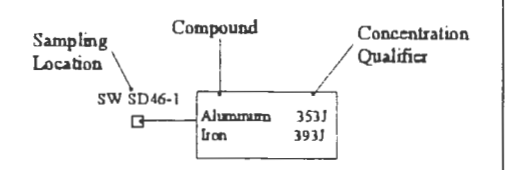


o:\seneca\scad5745\scad46\scad46jwa.apr



LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- ◻ Berm Soil Samples
- Surface Water/Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples

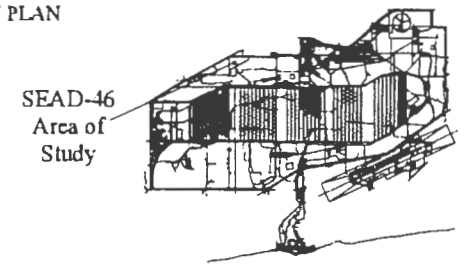


CRITERIA LEVELS(1)

Compound	Value	Units
Aluminum	4	ug/L
Iron	300	ug/L
Lead	1.46	ug/L
Silver	0.1	ug/L

1: NYSDEC Class C Surface Water Criteria

KEY PLAN



PARSONS

PARSONS ENGINEERING SCIENCE, INC.

**SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57**

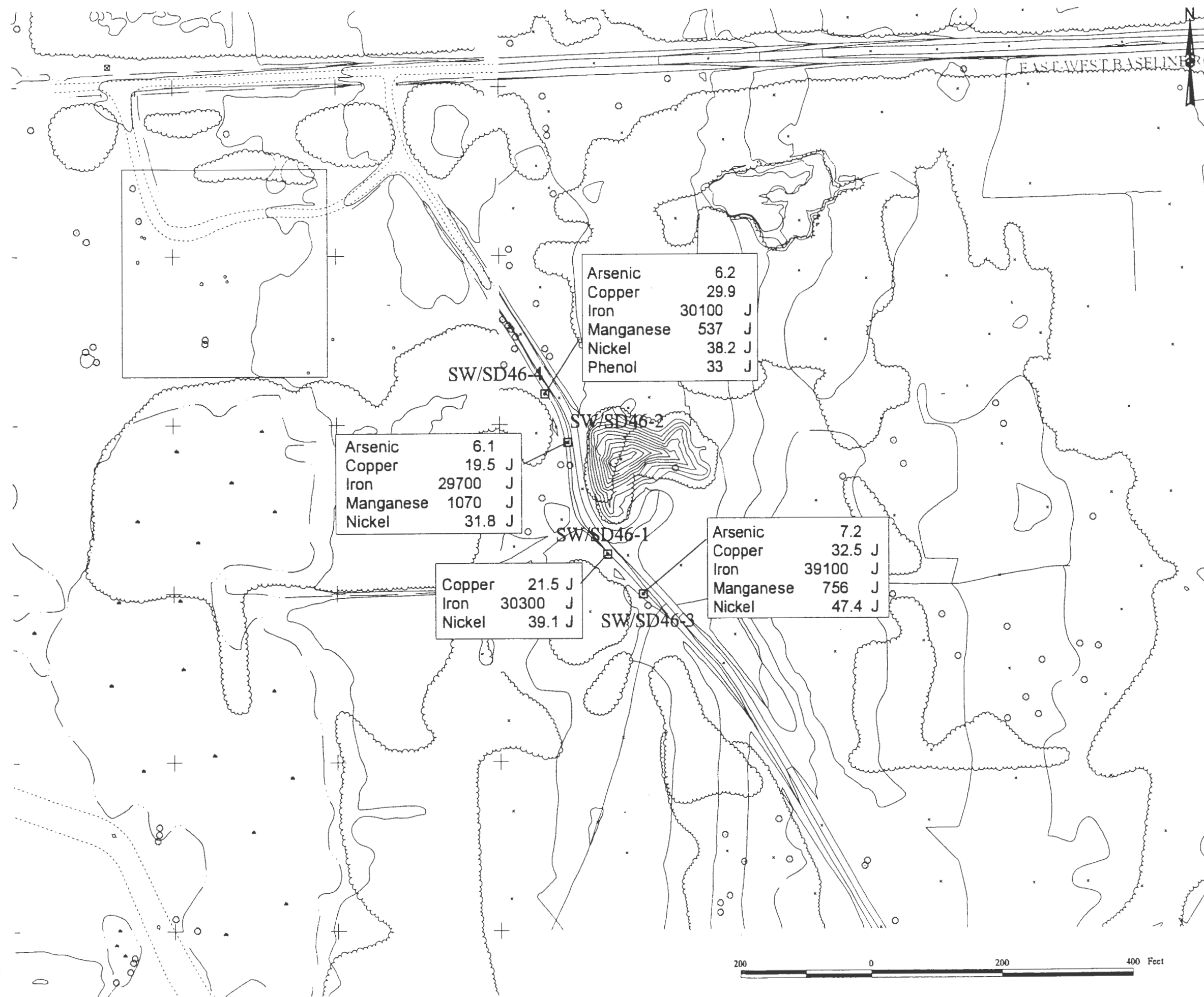
FIGURE 4-4

**SEAD-46 SURFACE WATER
METAL EXCEEDANCES**

JOB NUMBER 736676-01002

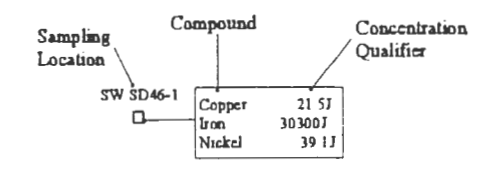
DATE DECEMBER 2001

o:\seneca\scad5745\scad46\scad46jwa.apr



LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- △ Berm Soil Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples

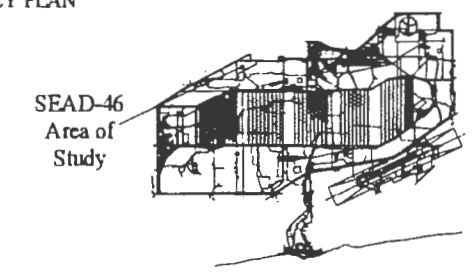


CRITERIA LEVELS

Compound	Value	Units	Type(1)
Arsenic	6	mg/Kg	NYSLEL
Copper	16	mg/Kg	NYSLEL
Iron	20000	mg/Kg	NYSLEL
Lead	31	mg/Kg	NYSLEL
Manganese	460	mg/Kg	NYSLEL
Phenol	19.55	mg/Kg	NYSALC

¹Refer to text for definition of Criteria Type.

KEY PLAN



PARSONS ENGINEERING SCIENCE, INC.

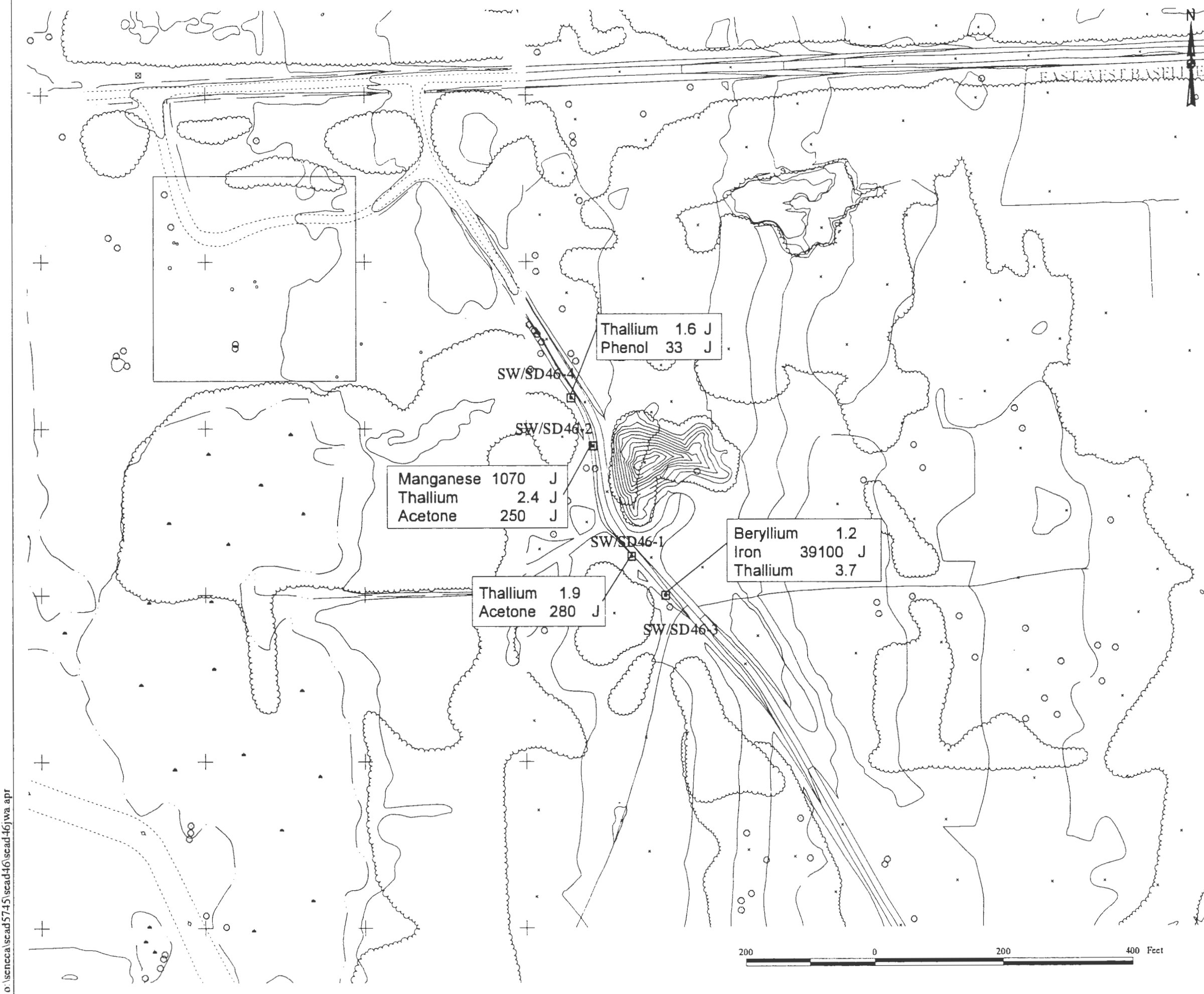
SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

FIGURE 4-5a
SEAD-46 DITCH SOIL EXCEEDANCES
vs SEDIMENT CRITERIA

JOB NUMBER 736676-01002

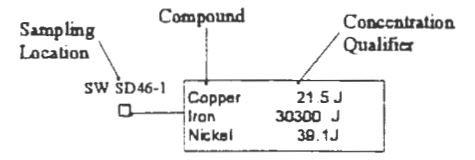
DATE DECEMBER 2001





LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- △ Berm Soil Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- GeoProbe Samples

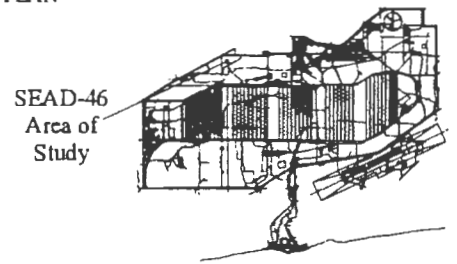


CRITERIA LEVELS

Compound	Value	Units	Type(1)
Acetone	200	mg/Kg	NYS TAGM
Phenol	30	mg/Kg	NYS TAGM
Beryllium	1.1	mg/Kg	NYS TAGM
Iron	36500	mg/Kg	NYS TAGM
Manganese	1060	mg/Kg	NYS TAGM
Thallium	0.7	mg/Kg	NYS TAGM

¹Refer to text for definition of Criteria Type.

KEY PLAN



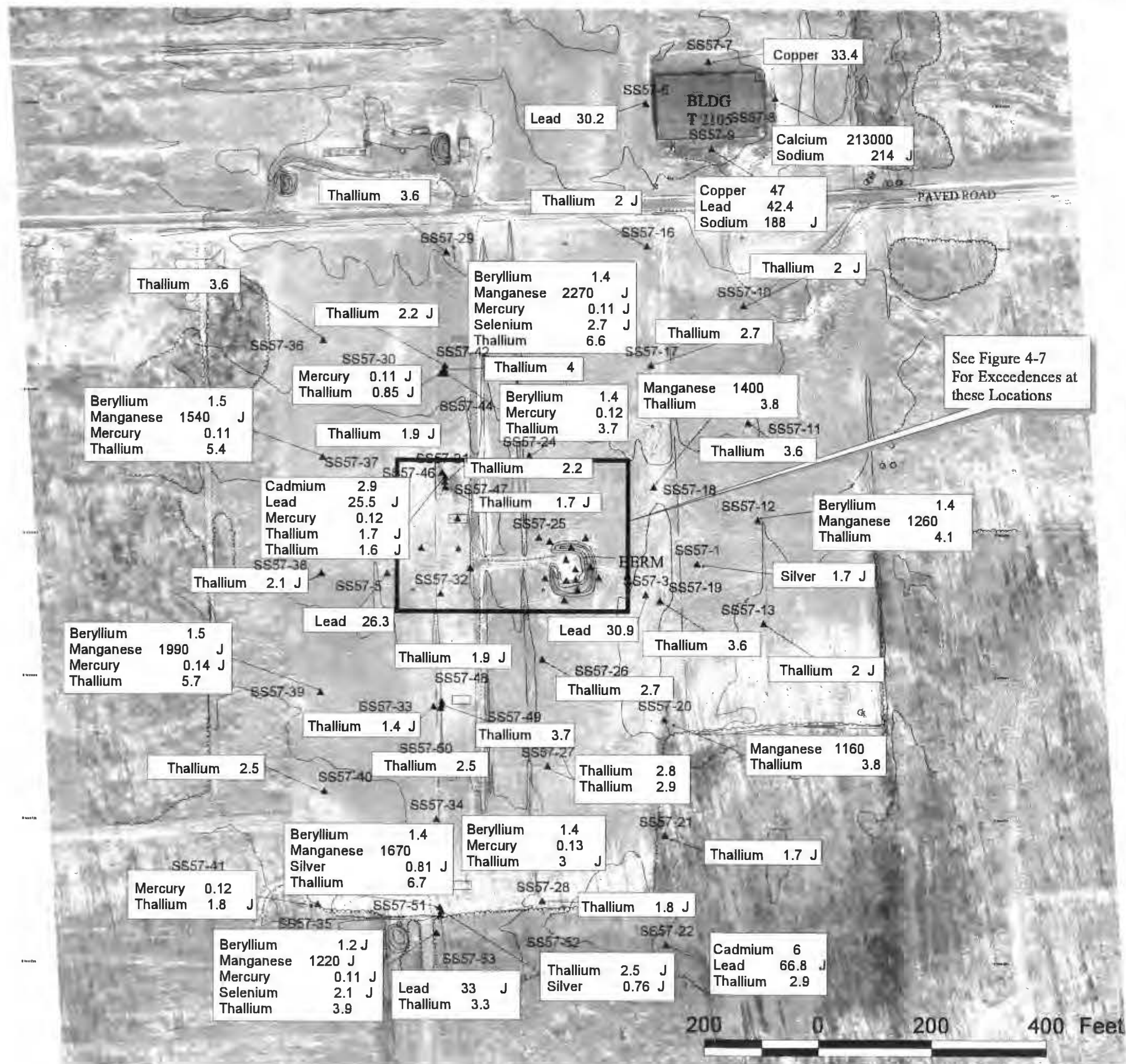
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

FIGURE 4-5b
SEAD-46 DITCH SOIL EXCEEDANCES
vs SOIL CRITERIA

o:\seneca\scad5745\scad46\scad46jwa.apr

o:\scncca\scad5745\scad57457basejwa.apr



See Figure 4-7
For Exceedences at
these Locations



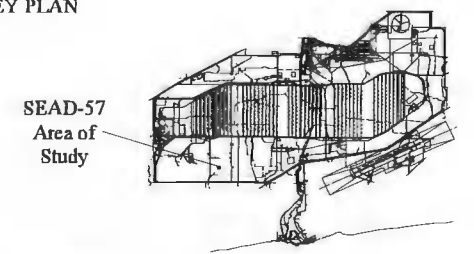
LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- △ Test Pit Samples
- Surface Water/Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples

CRITERIA LEVELS
(TAGM HWR-4046)

Compound	Value	Units
Beryllium	1.1	mg/Kg
Cadmium	2.3	mg/Kg
Calcium	121000	mg/Kg
Copper	33	mg/Kg
Iron	36500	mg/Kg
Manganese	1060	mg/Kg
Mercury	0.1	mg/Kg
Selenium	2	mg/Kg
Silver	0.75	mg/Kg
Sodium	172	mg/Kg
Thallium	0.7	mg/Kg
Zinc	110	mg/Kg

KEY PLAN

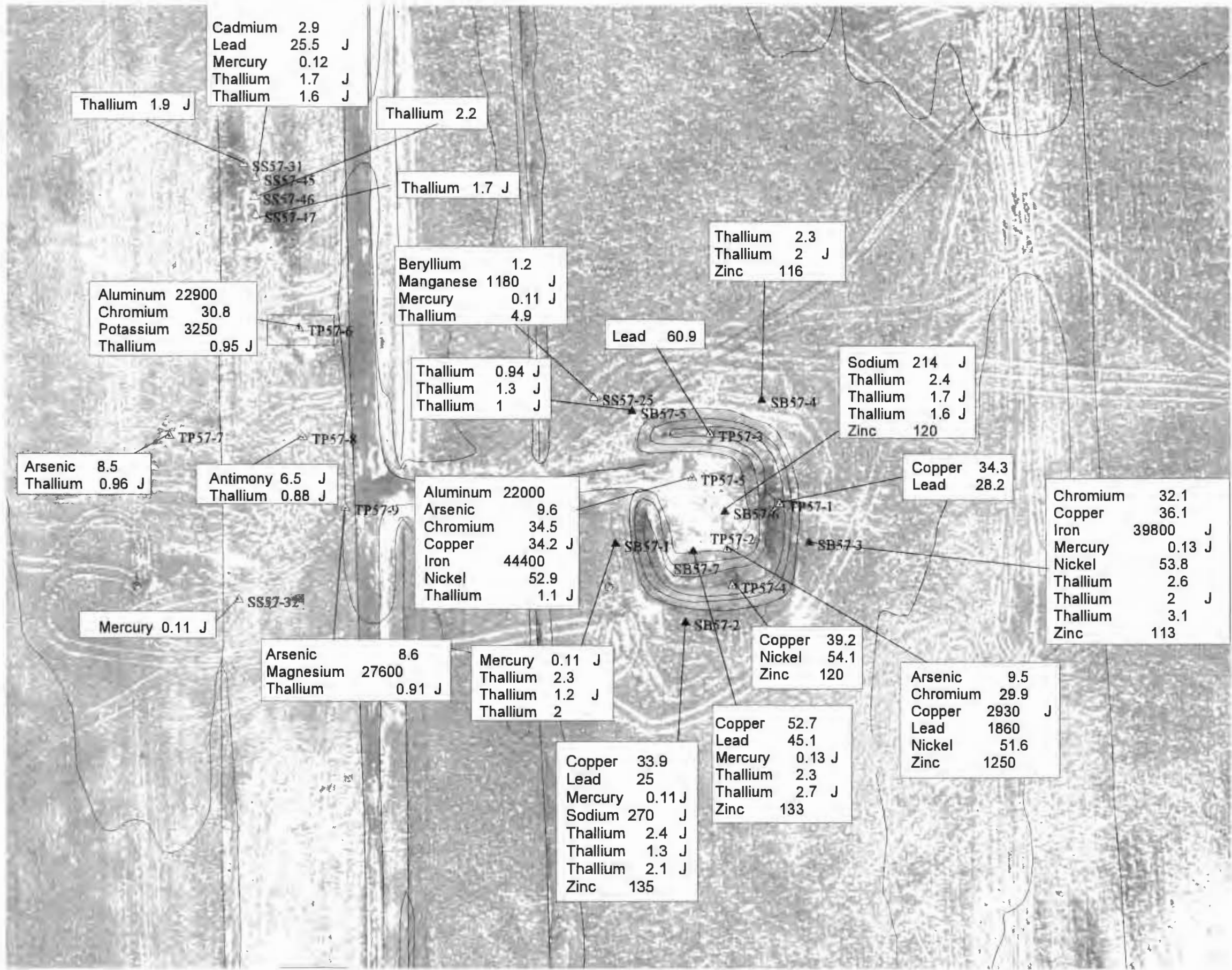


PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

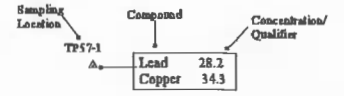
FIGURE 4-6
SEAD-57 SOIL
METAL EXCEEDANCES

o:\seneca\scad5745\scad5757\basctjwa.apr



LEGEND

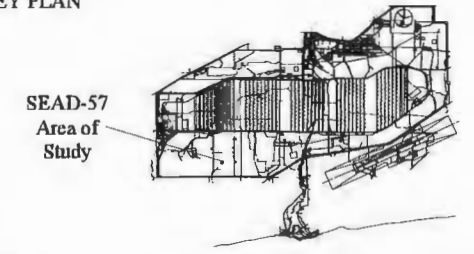
- ▲ Soil Samples
- △ Surface Soil Samples
- △ Test Pit Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples



CRITERIA LEVELS (TAGM HWR-4046)

Compound	Value	Units
Aluminum	19300	mg/Kg
Antimony	5.9	mg/Kg
Arsenic	8.2	mg/Kg
Beryllium	1.1	mg/Kg
Cadmium	2.3	mg/Kg
Chromium	29.6	mg/Kg
Copper	33	mg/Kg
Iron	36500	mg/Kg
Lead	24.8	mg/Kg
Magnesium	21500	mg/Kg
Manganese	1060	mg/Kg
Mercury	0.1	mg/Kg
Nickel	49	mg/Kg
Potassium	2380	mg/Kg
Sodium	172	mg/Kg
Thallium	0.7	mg/Kg
Zinc	110	mg/Kg

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

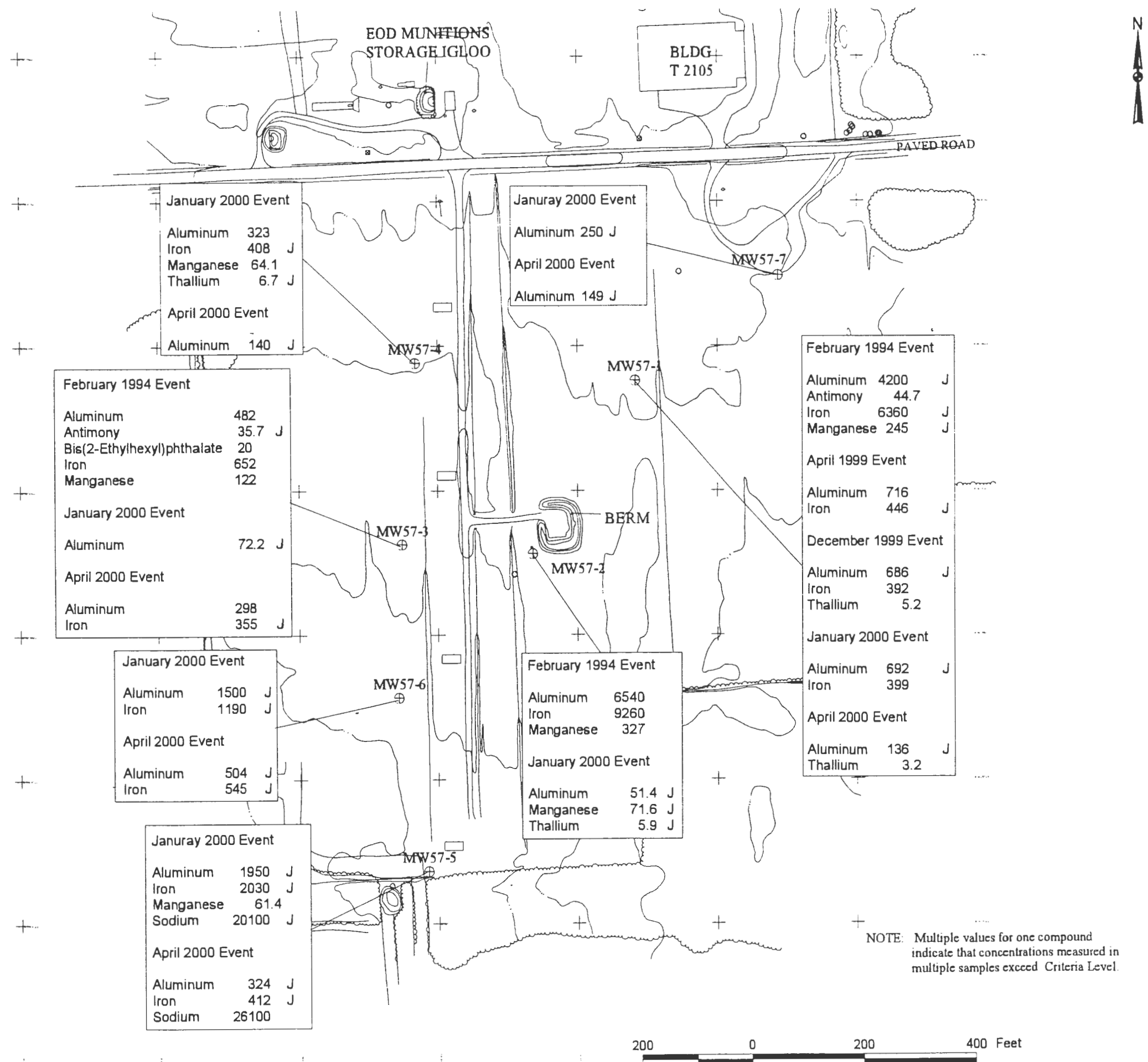
SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57

FIGURE 4-7
 SEAD-57 BERM AREA
 SOIL METAL EXCEEDANCES

NOTE: Multiple values for one compound indicate that concentrations measured in multiple samples exceed Criteria Level.

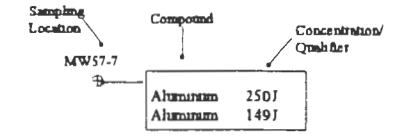


o:\scncca\scad5745\scad57457basjwa.apr



LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- △ Test Pit Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊙ GeoProbe Samples

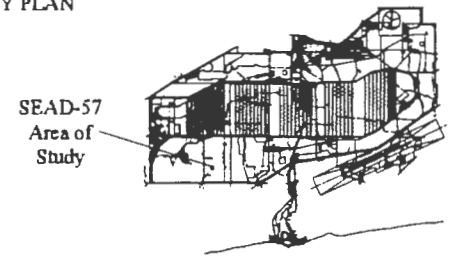


CRITERIA LEVELS

Compound	Value	Units	Type(1)
Aluminum	50	µg/L	MCL
Antimony	3	µg/L	GA
Iron	300	µg/L	GA
Manganese	50	µg/L	SEC
Sodium	20000	µg/L	GA
Thallium	2	µg/L	MCL
Bis(2-EH)phthalate	5	µg/L	GA

1. MCL - Maximum Contaminant Limit; GA - NYSDEC GA Groundwater Standard; SEC/MCL - Secondary MCL

KEY PLAN



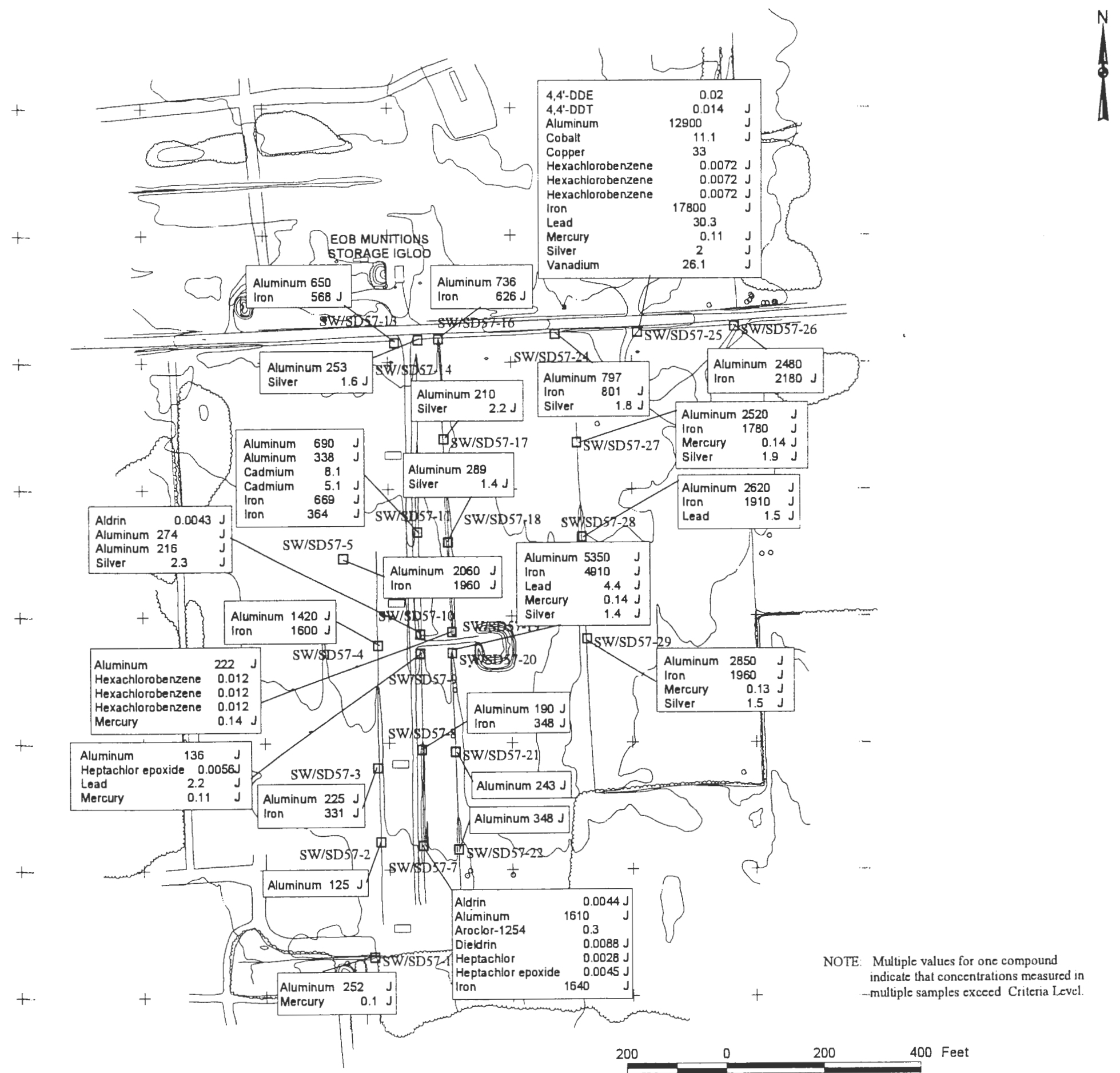
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
DRAFT REMEDIAL INVESTIGATION
REPORT
SEAD-46 and SEAD-57

FIGURE 4-8
SEAD-57 GROUNDWATER
EXCEEDANCES

NOTE: Multiple values for one compound indicate that concentrations measured in multiple samples exceed Criteria Level.

o:\seneca\scad5745\scad57-57ba\scjwa.apr



LEGEND

- ▲ Soil Samples
- △ Surface Soil Samples
- △ Test Pit Samples
- Surface Water Sediment Samples
- Surface Water Samples
- ▣ Sediment Samples
- ⊕ GroundWater Samples
- ⊗ GeoProbe Samples

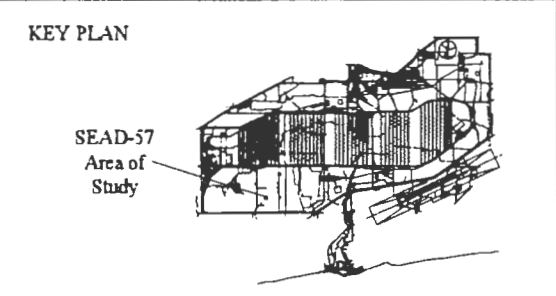
Sampling Location: SW/SD57-28

Compound	Concentration/Qualifier
Lead	1.5 J
Iron	1910 J
Aluminum	2620 J

CRITERIA LEVELS(1)

Compound	Value	Units
4,4'-DDE	0.000007	µg/L
4,4'-DDT	0.00001	µg/L
Aldrin	0.001	µg/L
Aroclor-1254	0.000001	µg/L
Dieldrin	0.0000006	µg/L
Heptachlor	0.0002	µg/L
Heptachlor epoxide	0.0003	µg/L
Hexachlorobenzene	0.00003	µg/L
Aluminum	100	µg/L
Cadmium	3.84	µg/L
Cobalt	5	µg/L
Copper	17.32	µg/L
Iron	300	µg/L
Lead	1.46	µg/L
Mercury	0.0007	µg/L
Silver	0.1	µg/L
Vanadium	14	µg/L

1: NYSDEC Class C Surface Water Criteria



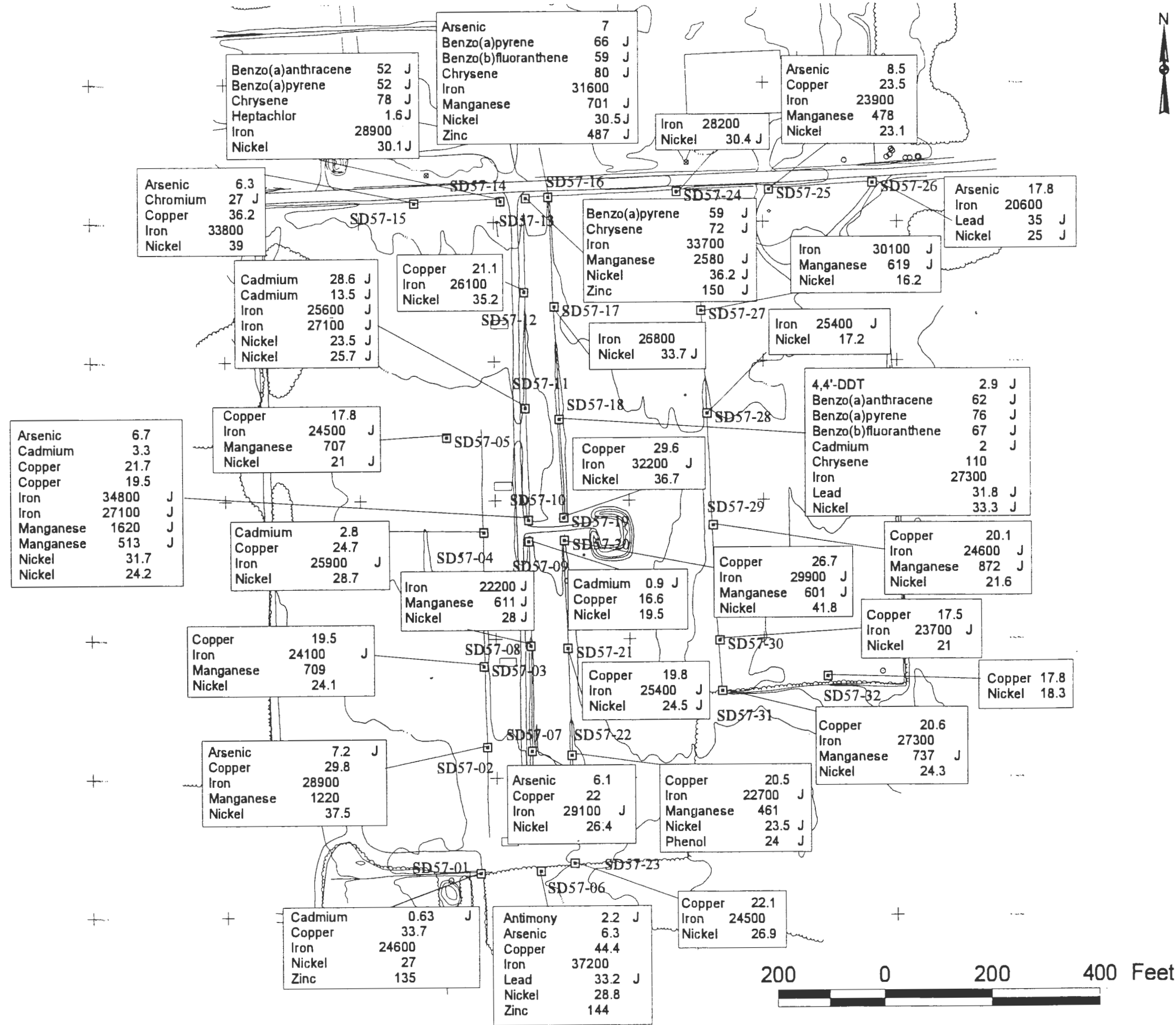
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57

NOTE: Multiple values for one compound indicate that concentrations measured in multiple samples exceed Criteria Level.

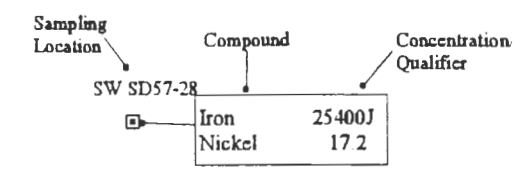
FIGURE 4-9
SEAD-57 SURFACE WATER EXCEEDANCES

o:\sencca\sead5745\sead5757basctjwa.apr



LEGEND

□ Ditch Soil Sediment Samples

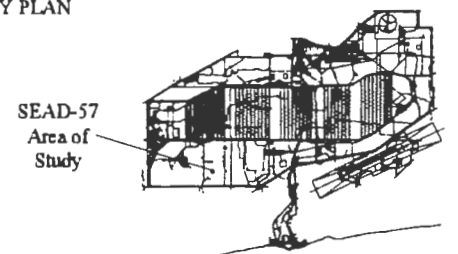


CRITERIA LEVELS

Compound	Value	Unit	Type (1)
4,4'-DDT	0.39	µg/Kg	NYSHHB
Antimony	2	mg/Kg	NYSLEL
Arsenic	6	mg/Kg	NYSLEL
Benzo(a)anthracene	50.84	µg/Kg	NYSHHB
Benzo(a)pyrene	50.84	µg/Kg	NYSHHB
Benzo(b)fluoranthene	50.84	µg/Kg	NYSHHB
Cadmium	0.6	mg/Kg	NYSLEL
Chromium	26	mg/Kg	NYSLEL
Chrysene	50.84	µg/Kg	NYSHHB
Copper	16	mg/Kg	NYSLEL
Heptachlor	0.031	µg/Kg	NYSHHB
Iron	20000	mg/Kg	NYSLEL
Lead	31	mg/Kg	NYSLEL
Manganese	460	mg/Kg	NYSLEL
Nickel	16	mg/Kg	NYSLEL
Phenol	19.55	µg/Kg	NYSALC
Zinc	120	mg/Kg	NYSLEL

¹ Refer to text for definition of Criteria Type

KEY PLAN



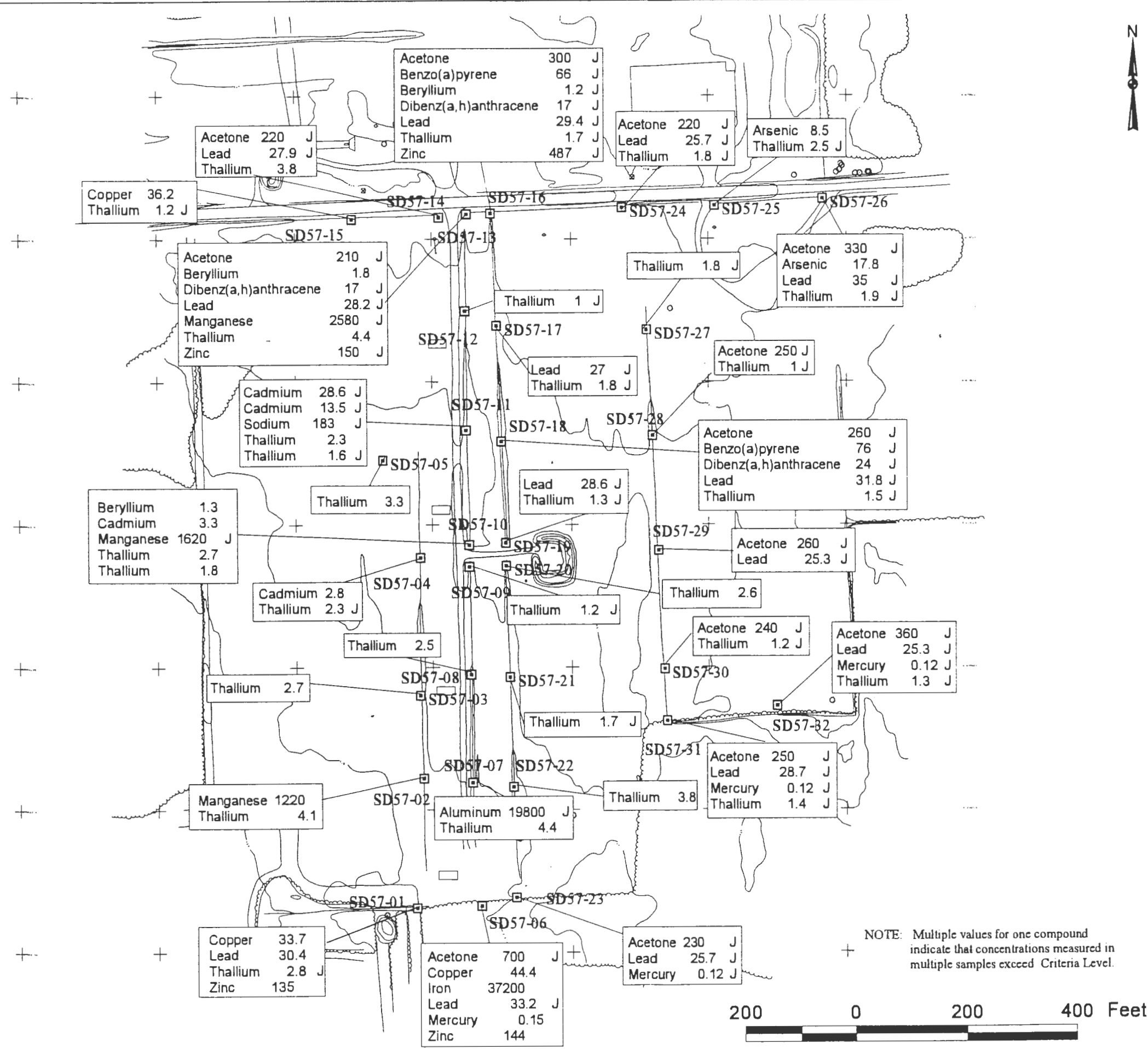
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57

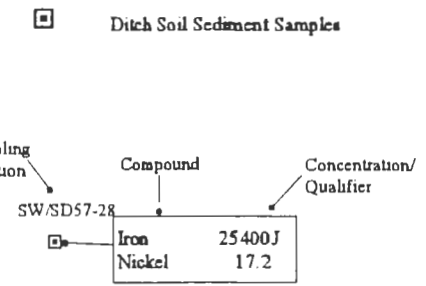
FIGURE 4-10a

SEAD-57 DITCH SOIL EXCEEDANCES
 vs. SEDIMENT CRITERIA

o:\seneca\scad5745\scad5757\basjwa.apr



LEGEND

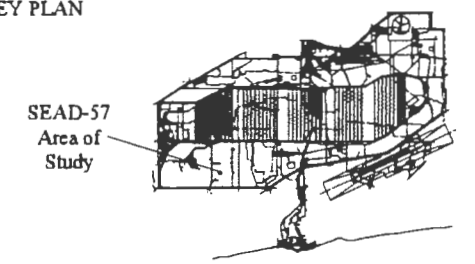


CRITERIA LEVELS (1)

Compound	Value	Unit
Acetone	200	µg/Kg
Aluminum	19300	mg/Kg
Arsenic	8.2	mg/Kg
Benzo(a)pyrene	61	µg/Kg
Beryllium	1.1	mg/Kg
Cadmium	2.3	mg/Kg
Copper	33	mg/Kg
Dibenz(a,h)anthracene	14	µg/Kg
Iron	36500	mg/Kg
Lead	24.8	mg/Kg
Manganese	1060	mg/Kg
Mercury	0.1	mg/Kg
Sodium	172	mg/Kg
Thallium	0.7	mg/Kg
Zinc	110	mg/Kg

1: Technical and Administrative Guidance Memorandum #HWR-92-4046

KEY PLAN



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
 DRAFT REMEDIAL INVESTIGATION
 REPORT
 SEAD-46 and SEAD-57

FIGURE 4-10b
 SEAD-57 DITCH SOIL EXCEEDANCES
 vs. SOIL TAGMs

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II**

**GROUND WATER SAMPLING PROCEDURE
LOW STRESS (Low Flow) PURGING AND SAMPLING**

I. SCOPE & APPLICATION

This Low Stress (or Low-Flow) Purging and Sampling Procedure is the EPA Region II standard method for collecting low stress (low flow) ground water samples from monitoring wells. Low stress Purging and Sampling results in collection of ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by minimizing stress on the geological formation and minimizing disturbance of sediment that has collected in the well. The procedure applies to monitoring wells that have an inner casing with a diameter of 2.0 inches or greater, and maximum screened intervals of ten feet unless multiple intervals are sampled. The procedure is appropriate for collection of ground water samples that will be analyzed for volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, and microbiological and other contaminants in association with all EPA programs.

This procedure does not address the collection of light or dense non- aqueous phase liquids (LNAPL or DNAPL) samples, and should be used for aqueous samples only. For sampling NAPLs, the reader is referred to the following EPA publications: DNAPL Site Evaluation (Cohen & Mercer, 1993) and the RCRA Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001), and references therein.

II. METHOD SUMMARY

The purpose of the low stress purging and sampling procedure is to collect ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate that limits drawdown inside the well casing.

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure minimizes aeration of the ground water during sample collection, which improves the sample quality for VOC analysis. Third, in most cases the procedure significantly reduces the volume of ground water purged from a well and the costs associated with its proper treatment and disposal.

III. ADDRESSING POTENTIAL PROBLEMS

Problems that may be encountered using this technique include a) difficulty in sampling wells with insufficient yield; b) failure of one or more key indicator parameters to stabilize; c) cascading of water and/or formation of air bubbles in the tubing; and d) cross-contamination between wells.

Insufficient Yield

Wells with insufficient yield (i.e., low recharge rate of the well) may dewater during purging. Care

should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of the sand pack. Pumping the well dry should therefore be avoided to the extent possible in all cases. Sampling should commence as soon as the volume in the well has recovered sufficiently to allow collection of samples. Alternatively, ground water samples may be obtained with techniques designed for the unsaturated zone, such as lysimeters.

Failure to Stabilize Key Indicator Parameters

If one or more key indicator parameters fails to stabilize after 4 hours, one of four options should be considered: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) Secure the well, purge and collect samples the next day (preferred). The key indicator parameter for samples to be analyzed for VOCs is dissolved oxygen. The key indicator parameter for all other samples is turbidity.

Cascading

To prevent cascading and/or air bubble formation in the tubing, care should be taken to ensure that the flow rate is sufficient to maintain pump suction. Minimize the length and diameter of tubing (i.e., 1/4 or 3/8 inch ID) to ensure that the tubing remains filled with ground water during sampling.

Cross-Contamination

To prevent cross-contamination between wells, it is strongly recommended that dedicated, in-place pumps be used. As an alternative, the potential for cross-contamination can be reduced by performing the more thorough "daily" decontamination procedures between sampling of each well in addition to the start of each sampling day (see Section VII, below).

Equipment Failure

Adequate equipment should be on-hand so that equipment failures do not adversely impact sampling activities.

IV. PLANNING DOCUMENTATION AND EQUIPMENT

Approved site-specific Field Sampling Plan/Quality Assurance Project Plan (QAPP). This plan must specify the type of pump and other equipment to be used. The QAPP must also specify the depth to which the pump intake should be lowered in each well. Generally, the target depth will correspond to the mid-point of the most permeable zone in the screened interval. Borehole geologic and geophysical logs can be used to help select the most permeable zone. However, in some cases, other criteria may be used to select the target depth for the pump intake. In all cases, the target depth must be approved by the EPA hydrogeologist or EPA project scientist.

- Well construction data, location map, field data from last sampling event.
- Polyethylene sheeting.
- Flame Ionization Detector (FID) and Photo Ionization Detector (PID).

- Adjustable rate, positive displacement ground water sampling pump (e.g., centrifugal or bladder pumps constructed of stainless steel or Teflon). A peristaltic pump may only be used for inorganic sample collection.
- Interface probe or equivalent device for determining the presence or absence of NAPL.
- Teflon or Teflon-lined polyethylene tubing to collect samples for organic analysis. Teflon or Teflon-lined polyethylene, PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.
- Water level measuring device, minimum 0.01 foot accuracy, (electronic preferred for tracking water level drawdown during all pumping operations).
- Flow measurement supplies (e.g., graduated cylinder and stop watch or in-line flow meter).
- Power source (generator, nitrogen tank, etc.).
- Monitoring instruments for indicator parameters. Eh and dissolved oxygen must be monitored in-line using an instrument with a continuous readout display. Specific conductance, pH, and temperature may be monitored either in-line or using separate probes. A nephelometer is used to measure turbidity.
- Decontamination supplies (see Section VII, below).
- Logbook (see Section VIII, below).
- Sample bottles.
- Sample preservation supplies (as required by the analytical methods).
- Sample tags or labels, chain of custody.

V. SAMPLING PROCEDURES

Pre-Sampling Activities

1. Start at the well known or believed to have the least contaminated ground water and proceed systematically to the well with the most contaminated ground water. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations.
2. Lay out sheet of polyethylene for placement of monitoring and sampling equipment.
3. Measure VOCs at the rim of the unopened well with a PID and FID instrument and record the reading in the field log book.
4. Remove well cap.
5. Measure VOCs at the rim of the opened well with a PID and an FID instrument and record the reading in the field log book.
6. If the well casing does not have a reference point (usually a V- cut or indelible mark in the well casing), make one. Note that the reference point should be surveyed for correction of ground water elevations to the mean geodesic datum (MSL).
7. Measure and record the depth to water (to 0.01 ft) in all wells to be sampled prior to purging. Care should be taken to minimize disturbance in the water column and dislodging of any particulate matter attached to the sides or settled at the bottom of the well.

8. If desired, measure and record the depth of any NAPLs using an interface probe. Care should be taken to minimize disturbance of any sediment that has accumulated at the bottom of the well. Record the observations in the log book. If LNAPLs and/or DNAPLs are detected, install the pump at this time, as described in step 9, below. Allow the well to sit for several days between the measurement or sampling of any DNAPLs and the low-stress purging and sampling of the ground water.

Sampling Procedures

9. **Install Pump:** Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified for that well in the EPA-approved QAPP or a depth otherwise approved by the EPA hydrogeologist or EPA project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and resuspension of any sediment or NAPL present in the bottom of the well. Record the depth to which the pump is lowered.
10. **Measure Water Level:** Before starting the pump, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
11. **Purge Well:** Start pumping the well at 200 to 500 milliliters per minute (ml/min). The water level should be monitored approximately every five minutes. Ideally, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 ft or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
12. **Monitor Indicator Parameters:** During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):

- +0.1 for pH
- +3% for specific conductance (conductivity)
- +10 mv for redox potential
- +10% for DO and turbidity

Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. The pump must not be removed from the well between purging and sampling.

13. **Collect Samples:** Collect samples at a flow rate between 100 and 250 ml/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 ft. VOC samples must be collected first and directly into sample containers. All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container.

Ground water samples to be analyzed for volatile organic compounds (VOCs) require pH adjustment. The appropriate EPA Program Guidance should be consulted to determine whether pH adjustment is necessary. If pH adjustment is necessary for VOC sample preservation, the amount of acid to be added to each sample vial prior to sampling should be determined, drop by drop, on a separate and equal volume of water (e.g., 40 ml). Ground water purged from the well prior to sampling can be used for this purpose.

14. Remove Pump and Tubing: After collection of the samples, the tubing, unless permanently installed, must be properly discarded or dedicated to the well for resampling by hanging the tubing inside the well.
15. Measure and record well depth.
16. Close and lock the well.

VI. FIELD QUALITY CONTROL SAMPLES

Quality control samples must be collected to determine if sample collection and handling procedures have adversely affected the quality of the ground water samples. The appropriate EPA Program Guidance should be consulted in preparing the field QC sample requirements of the site-specific QAPP. All field quality control samples must be prepared exactly as regular investigation samples with regard to sample volume, containers, and preservation. The following quality control samples should be collected during the sampling event:

- Field duplicates
- Trip blanks for VOCs only
- Equipment blank (not necessary if equipment is dedicated to the well)

As noted above, ground water samples should be collected systematically from wells with the lowest level of contamination through to wells with highest level of contamination. The equipment blank should be collected after sampling from the most contaminated well.

VII. DECONTAMINATION

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, must be decontaminated thoroughly each day before use ("daily decon") and after each well is sampled ("between-well decon"). Dedicated, in-place pumps and tubing must be thoroughly decontaminated using "daily decon" procedures (see #17, below) prior to their initial use. For centrifugal pumps, it is strongly recommended that non-disposable sampling equipment, including the pump and support cable and electrical wires in contact with the sample, be decontaminated thoroughly each day before use ("daily decon"). EPA's field experience indicates that the life of centrifugal pumps may be extended by removing entrained grit. This also permits inspection and replacement of the cooling water in centrifugal pumps. All non-dedicated sampling equipment (pumps, tubing, etc.) must be decontaminated after each well is sampled ("between-well decon," see #18 below).

17. Daily Decon

- A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.
- B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.
- C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.
- D) Disassemble pump.
- E) Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution. Scrub all pump parts with a test tube brush.
- F) Rinse pump parts with potable water.
- G) Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing.
- H) Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO₃).
- I) Rinse impeller assembly with potable water.
- J) Place impeller assembly in a large glass bleaker and rinse with isopropanol.
- K) Rinse impeller assembly with distilled/deionized water.

18. Between-Well Decon

- A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.
- B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.
- C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.
- D) Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

VIII. FIELD LOG BOOK

A field log book must be kept each time ground water monitoring activities are conducted in the field. The field log book should document the following:

- Well identification number and physical condition.
- Well depth, and measurement technique.
- Static water level depth, date, time, and measurement technique.
- Presence and thickness of immiscible liquid layers and detection method.
- Collection method for immiscible liquid layers.
- Pumping rate, drawdown, indicator parameters values, and clock time, at three to five minute intervals; calculate or measure total volume pumped.
- Well sampling sequence and time of sample collection.
- Types of sample bottles used and sample identification numbers.
- Preservatives used.

- Parameters requested for analysis.
- Field observations of sampling event.
- Name of sample collector(s).
- Weather conditions.
- QA/QC data for field instruments.

IX. REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation, C.K. Smoley Press, Boca Raton, Florida.

Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Ground- water Sampling Procedures, EPA/540/S-95/504.

U.S. EPA, 1993, RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001.

U.S. EPA Region II, 1989, CERCLA Quality Assurance Manual.

LOG OF BORING NO. MW46-1

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-46
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/13/1999
 DATE COMPLETED 12/18/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 24
 DEPTH TO WATER: 13
 BORING LOCATION: 1007209.59
 749701.71
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 679.76
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. Butler
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0		DESCRIPTION	
	2	15	0		0		Dark Brown SILT, trace fine Sand, trace roots and organics, moist.	OL
	5				0.5			
	5				1		Light Brown SILT, trace fine to medium Sand, trace fine Gravel, little highly fractured, moderately weathered Shale fragments, moist.	ML
	10				1.5		No Recovery	
	14	15	0		2		Brown SILT, trace (-)fine to (+)coarse Sand, trace fine Gravel, trace highly fractured, slightly to moderately weathered Shale fragments, very few 1mm-3mm circular iron oxide stains, moist.	ML
	22				3			
	29				3.5		No Recovery	
	38				4			
	15	16	0		4.0		Brown SILT, little (-)fine to (+)coarse Sand, trace fine Gravel, trace highly fractured, slightly to moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
	17				5			
	26				5.6		No Recovery	
	31				6			
	29	19	0		6.0		Light Brown (+)fine to coarse SAND, some Silt, little fine Gravel, little moderately fractured, moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	SM
	35				7			
	34				7.9			
	37				8.0		No Recovery	SM
	12	2	0		8			
	32				9		Light Brown (+)fine to coarse SAND, some Silt, little fine Gravel, little moderately fractured, moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	
	39				9			
	41				10			

NOTES:

UNITED STATES ARMY
CORPS OF ENGINEERS
Seneca Army Depot
Romulus, New York

LOG OF BORING MW46-1

LOG OF BORING NO. MW46-1

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 24
DEPTH TO WATER: 13
BORING LOCATION: 1007209.59
 749701.71
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 679.76
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					10			
	27 64 69 55	2	0		10.0		Light Brown (+)fine to coarse SAND, some Silt, little fine Gravel, little moderately fractured, moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	SM
					11			
					11.0		Light to Dark Gray (+)fine to medium SAND and SHALE, trace Silt, Shale fragments highly fractured and moderately weathered, moist.	GM
					12			
	40 100/4	0.9	0		12.0		Light to Dark Gray (+)fine to medium SAND and SHALE, trace Silt, Shale fragments highly fractured and moderately weathered, moist.	GM
					12.9		Spoon Refusal At 12.9'	WSH
					14			
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-1

LOG OF BORING NO. MW46-1

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-46
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/13/1999
 DATE COMPLETED: 12/18/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 24
 DEPTH TO WATER: 13
 BORING LOCATION: 1007209.59
 749701.71
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 679.76
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. Butler
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					20			
					21			
					22			
					23			
					24	24.0	Competant Shale based on auger response	CSH
					25			
					26			
					27			
					28			
					29			
					30			

NOTES:

UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York

LOG OF BORING MW46-1

LOG OF BORING NO. MW46-2

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.4
DEPTH TO WATER: 8
BORING LOCATION: 1007305.92
 749490.11
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 672.96
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
	2 4 7 30	15	0		1		Light to Dark Brown SILT, trace (-)fine to (+)coarse Sand, trace fine Gravel, trace moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
					1.5		No Recovery	
	11 14 15 16	0.7	0		2		Olive to Dark Gray SILT, little (+)fine to (-)coarse Sand, trace fine Gravel, trace Shale fragments, very few 1mm-2mm spherical iron oxide stains, dry.	ML
					2.7		No Recovery	
	8 12 12 19	0.6	0		4		Olive Gray to Light Brown SILT, little (+)fine to coarse Sand, trace fine Gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, dry.	ML
					4.6		No Recovery	
	13 13 16 32	1.5	0		6		Olive Gray to brown SILT, trace (-)fine to (+)coarse Sand, little fine Gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
					7			
					7.5		No Recovery	
	20 18 64 100/2	1.4	0		8		Olive Gray to Brown SILT, trace (-)fine to (+)coarse Sand, trace fine gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, wet.	ML
					9		Dark Gray, highly weathered SHALE and SILT, wet.	GM
					9.4		No Recovery	
					9.7			WSH
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-2

LOG OF BORING NO. MW46-2

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.4
DEPTH TO WATER: 8
BORING LOCATION: 1007305.92
 749490.11
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 672.96
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
							DESCRIPTION	
					10		Spoon Refusal At 9.7'	
					11			
					12			
					13			
					14			
					14.4		Competant Shale based on auger response	CSH
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

UNITED STATES ARMY
CORPS OF ENGINEERS
Seneca Army Depot
Romulus, New York

LOG OF BORING MW46-2

LOG OF BORING NO. MW46-3

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.5
DEPTH TO WATER: 9.5
BORING LOCATION: 1007284.43
 749368.49
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.94
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
	2 3 7 8	1	0		1.0		Light to Dark Brown SILT, trace (+)fine to (-)coarse Sand, trace fine Gravel, trace roots and organic debris, moist.	ML
							No Recovery	
	7 12 14 14	16	0		2.0		Olive Gray to Brown SILT, trace fine to coarse Sand, trace fine Gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
					3.6		No Recovery	
	7 9 9 11	1	0		4.0		Olive Gray to Brown SILT, little (-)fine to (+)coarse Sand, trace fine Gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
					5.0		No Recovery	
	10 15 13 16	1	0		6.0		Olive Gray to Brown SILT, little (-)fine to (+)coarse Sand, trace fine Gravel, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
					6.5			GM
					7.0		Light to Dark Gray, moderately weathered, moderately fractured SHALE and SILT, moist.	
							No Recovery	
	15 50 100/4	1	0		8.0		Light to Dark Gray SHALE and SILT, moderately weathered and moderately fractured, moist.	GM
					9.0		No Recovery	
					9.4		Spoon Refusal At 9.4'	WSH
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-3

LOG OF BORING NO. MW46-3

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-46
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/13/1999
 DATE COMPLETED: 12/18/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.5
 DEPTH TO WATER: 9.5
 BORING LOCATION: 1007284.43
 749368.49
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 671.94
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. Butler
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	<p style="text-align: center; font-size: small;">This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.</p>	USCS
							DESCRIPTION	
					10			
					11			
					12			
					13			
					14			
					14.5		Competant Shale based on auger response	CSH
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-3

LOG OF BORING NO. MW46-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 12.8
DEPTH TO WATER: 6
BORING LOCATION: 1007148.31
 749334.93
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.87
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					0		SHELBY TUBES TAKEN	
	2 6 8 10		0		1			
	11 12 14 18	—	0		2			
	17 19 21 23	—	0		3			
	23 25 26 38	—	0		4			
	62 100/2	—	0		5			
		1.6	0		6.0	▽	Olive Gray to Brown SILT, trace (+)fine to coarse Sand, trace fine Gravel, 1mm-3mm spherical iron oxide stains, wet.	ML
		—			7.0	○	Light to Dark Gray, moderately weathered, highly fractured SHALE and SILT, wet.	GM
		—			7.6		No Recovery	
		0.6	0		8.0	○	Light to Dark Gray, moderately weathered, highly fractured SHALE and SILT, wet.	GM
		—			8.6		No Recovery	
		—			8.7		Spoon Refusal At 8.7'	WSH
					9			
					10			

This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-4

LOG OF BORING NO. MW46-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 12.8
DEPTH TO WATER: 6
BORING LOCATION: 1007148.31
 749334.93
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.87
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	Description	USCS
					10		This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
					11			
					12			
					12.8		Competant Shale based on auger response	CSH
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:	UNITED STATES ARMY CORPS OF ENGINEERS Seneca Army Depot Romulus, New York	LOG OF BORING MW46-4
--------	--	-----------------------------

LOG OF BORING NO. MW46-5

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 10.8
DEPTH TO WATER: 9
BORING LOCATION: 1007089.51
 749380.07
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.88
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
							DESCRIPTION	
1 3 5 12		1.4	0		0 1 1.4		Light Brown to Brown SILT, trace (+)fine to (-)Sand, trace fine gravel, trace roots and organic matter, moist.	ML
					2.0		No Recovery	
17 34 44 49		2			2 3		SHELBY TUBE TAKEN	
6 14 17 26		1.5	0		4 5 5.5		Olive Gray to Brown SILT, trace (-)fine to (+)coarse Sand, little fine Gravel, some Shale fragments, moderately weathered, very few 1mm-3mm spherical iron oxide stains, moist.	ML
					6.0		No Recovery	
12 20 18 15		2	0		6 7		Olive Gray to Brown SILT, trace (-)fine to (+)coarse Sand, trace fine Gravel, some Shale fragments, slightly weathered, very few 1mm-2mm spherical iron oxide stains, moist.	ML
9 100/4		0.7	0		8 8.7 8.9		Light to Dark Gray, highly fractured, slightly weathered SHALE and SILT, moist.	GM
					8.9		No Recovery Spoon Refusal At 8.9'	WSH

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-5

LOG OF BORING NO. MW46-5

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 10.8
DEPTH TO WATER: 9
BORING LOCATION: 1007089.51
 749380.07
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.88
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					10		This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
					10.8		Competant Shale based on auger response	CSH
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:



**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-5

LOG OF BORING NO. MW46-6

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 15
DEPTH TO WATER: 6
BORING LOCATION: 1007147.06
749467.73
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 673.67
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6')	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					0		SHELBY TUBES TAKEN	
	4 7 8 10				1			
	6 9 9	—			2			
	6 15 14 14	—			4			
					5			
	6 7 7 10	1.6	0		6.0		Light Gray to Brown SILT, trace fine to (+)coarse Sand, little Shale fragments, trace fine gravel, very few 1mm-2mm spherical iron oxide stains, wet.	ML
					7.6		No Recovery	
	35 100/3	0.8	0		8.0		Light to Dark Gray, highly fractured, moderately weathered, SHALE and SILT, wet.	GM
					8.8		Spoon Refusal At 8.8'	WSH
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW46-6

LOG OF BORING NO. MW46-6

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
DATE STARTED: 12/13/1999
DATE COMPLETED: 12/18/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 15
DEPTH TO WATER: 6
BORING LOCATION: 1007147.06
 749467.73
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 673.67
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. Butler
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					10		This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	
					11			
					12			
					13			
					14			
					15	15.0		
					16	Competant Shale based on auger response		SH
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**
LOG OF BORING MW46-6

LOG OF BORING NO. SB57-1

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 8.5
DEPTH TO WATER: 4
BORING LOCATION:
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
							DESCRIPTION	
	1	16	0		0		Light Brown to Brown SILT, trace fine to coarse Sand, trace highly weathered Shale fragments, trace roots and organic matter, moist.	OL
	1				1			
	3							
	5				1.6		No Recovery	
					2.0			
	7	16	0		2		Light to Olive Gray SILT, trace fine to medium Sand, trace highly weathered Shale fragments, very few 1mm-2mm, spherical, iron oxide stains, dry.	ML
	11							
	18							
	19				3			
					3.6		No Recovery	
					4			
	8	19	0		4		Olive Gray SHALE and SILT, highly fractured, moderately weathered Shale fragments, wet.	GM
	9							
	20							
	19				5		Dark Gray, moderately fractured, slightly weathered SHALE, some Silt, wet.	GM
					5.9			
	95	0.7	0		6		No Recovery	GM
	100/2				6.0		Dark Gray, moderately fractured, slightly weathered SHALE, some Silt, wet.	GM
					6.7		Spoon Refusal At 6.7'	WSH
					7			
					8			
					8.5		Competant Shale based on auger response	CSH
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-1

LOG OF BORING NO. SB57-2

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 7.5
DEPTH TO WATER: 6.8
BORING LOCATION:

COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
	1 1 4 7	2	0		1		Olive Gray to Brown SILT, trace fine to coarse Sand, trace Shale fragments, trace roots, moist.	OL
					1.5			
					2		Olive Gray to Brown SILT, little moderately weathered Shale fragments, trace fine to coarse Sand, moist.	ML
	9 17 26 40	2	0		3		Olive Gray SILT, trace fine to coarse Sand, little highly fractured, highly weathered Shale fragments, very few 1mm-2mm, spherical iron oxide stains, moist.	ML
					4			
	24 26 28 31	2	0		5		Olive Gray SILT, trace fine to coarse Sand, trace fine Gravel (Granite and Shale), little highly weathered Shale fragments, dry.	ML
					6			
	15 100/2	0.7	0		6.5		Olive Gray SILT, trace fine to coarse Sand, trace fine Gravel, some moderately fractured Shale fragments, dry.	ML
					6.7		Olive Gray, moderately weathered SHALE and SILT, dry.	WSH
					7		Spoon Refusal At 6.7'	WSH
					7.5		Competant Shale based on auger response	CSH
					8			
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-2

LOG OF BORING NO. SB57-3

PROJECT: SEAD-45,46,57 R/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 9.1
DEPTH TO WATER: 5.1
BORING LOCATION:
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					0		This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	
					0		DESCRIPTION	
	1	11	0		0	[Lithology: SILT]	Olive Gray to Brown SILT, trace fine Gravel, trace roots, moist.	OL
	1				1	[Lithology: SILT]	No Recovery	
	1				11	[Lithology: SILT]	No Recovery	
	4				2	[Lithology: SILT]	No Recovery	
	6	18	0		2.0	[Lithology: SILT]	Olive Gray to Brown SILT, trace fine Sand, trace fine Gravel, trace Shale fragments, dry.	ML
	11				2.0	[Lithology: SILT]		
	28				3	[Lithology: SHALE]	Olive Gray highly weathered SHALE and SILT, trace fine Sand, dry.	GM
	50				3.0	[Lithology: SHALE]		
					3.8	[Lithology: SHALE]	No Recovery	
	46	1	0		4.0	[Lithology: SHALE]	Olive Gray , highly weathered SHALE and SILT, trace fine Sand, dry.	GM
	100/ 5				4.0	[Lithology: SHALE]		
					5.0	[Lithology: SHALE]	Spoon Refusal At 5.0'	WSH
					6	[Lithology: SHALE]		
					7	[Lithology: SHALE]		
					8	[Lithology: SHALE]		
					9	[Lithology: SHALE]		
					9.1	[Lithology: SHALE]	Competant Shale based on auger response	CSH
					10	[Lithology: SHALE]		

NOTES:

UNITED STATES ARMY
CORPS OF ENGINEERS
Seneca Army Depot
Romulus, New York

LOG OF BORING SB57-3

LOG OF BORING NO. SB57-4

PROJECT: SEAD-45,46,57 R/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 10.1
DEPTH TO WATER: 5
BORING LOCATION:
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0		DESCRIPTION	
	1 3 3 4	1.8	0		0 1	Olive Gray to Brown SILT, trace coarse Sand, trace roots, trace highly weathered Shale fragments, moist.		OL
	5 9 12 17	1.5	0		1.8 2.0 3	No Recovery Olive Gray to Brown SILT, little moderately weathered Shale fragments, trace fine Sand, trace fine Gravel, moist.		ML
	7 17 60 85	2	0		3.5 4 5.0	No Recovery Olive Gray to Brown SILT, little fine Sand, trace weathered Shale fragments, wet.		ML
	68 100/4	0.9	0		6.0 6.9	Dark Gray to Brownish, moderately weathered SHALE and SILT, wet. Dark Gray moderately weathered SHALE and SILT, wet.		GM WSH
					7	Spoon Refusal At 6.9'		WSH
					8 9 10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-4

LOG OF BORING NO. SB57-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 10.1
DEPTH TO WATER: 5
BORING LOCATION:

COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	<p style="text-align: center; font-size: small;">This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.</p>	USCS
							DESCRIPTION	
					10 10.1		Competant Shale based on auger response	CSH
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-4

LOG OF BORING NO. SB57-5

PROJECT: SEAD-45,46,57 R/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 5.2
DEPTH TO WATER: 4.3
BORING LOCATION:

COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
	4	0.6	0		0		Olive Gray to Brown SILT, trace roots and organic matter, moist.	OL
	3	—			0.6		No Recovery	
	3	—			1			
	6	—			1			
	10	1	0		2		Olive Gray to Brown SILT, trace fine Sand, trace Shale fragments, dry.	ML
	15	—			2.0			
	19	—			3			
	20	—			3		No Recovery	
	25	12	0		4		Olive Gray to Brown SILT, trace Shale fragments, wet.	ML
	63	—			4.2		Olive Gray SHALE and SILT, wet.	GM
	50/3	—			4.2			
		—			5			
		—			5.2		No Recovery	
		—			5.3		Competant Shale based on auger response	CSH
					6			
					7			
					8			
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-5

LOG OF BORING NO. SB57-6

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 9.2
DEPTH TO WATER: 6.8
BORING LOCATION:

COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
							DESCRIPTION	
1	17	0			0		Olive Gray to Brown SILT, trace fine to coarse Sand, trace highly fractured, moderately weathered Shale fragments, trace roots and organic debris, wet.	OL
1					1			
4					1.7			
5					2.0		No Recovery	
11	2	0			2.0			
14					3		Olive Gray to Brown SILT, trace fine to coarse Sand, trace fine Gravel, trace highly fractured, highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, moist.	ML
16					3.5		Dark Gray, moderately weathered, moderately fractured SHALE and SILT, dry.	GM
18					4		Dark Gray SHALE and SILT, moderately fractured, slightly to moderately weathered with very few 1mm-3mm spherical iron oxide stains, dry.	GM
12	2	0			4.0			
14					5			
18					6			
30					6.0		Dark Gray, highly fractured and moderately weathered SHALE and SILT, dry.	GM
64	07	0			6.0			
100/2					6.7		Spoon Refusal At 6.7'	WSH
					7			
					8			
					9			
					9.2		Competant Shale based on auger response	CSH
					10			

NOTES:

UNITED STATES ARMY
CORPS OF ENGINEERS
Seneca Army Depot
Romulus, New York

LOG OF BORING SB57-6

LOG OF BORING NO. SB57-7

PROJECT: SEAD-45,46,57 R/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 8.8
DEPTH TO WATER: 3
BORING LOCATION:

COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION:
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
1		0.6	0				Olive Gray SILT, trace fine to coarse Sand, some highly fractured Shale fragments, moist.	ML
2					0.6			
5							No Recovery	
6					1			
					2			
5		2	0		2.0		Olive Gray SILT, trace fine to coarse Sand, little highly fractured, moderately weathered Shale fragments, trace fine Gravel, very few 1mm-2mm spherical iron oxide stains, wet.	ML
3								
10								
19								
					4			
12		2	0		4.0		Olive Gray SILT, trace fine to medium Sand, some highly fractured, moderately weathered Shale fragments, trace fine Gravel, dry.	ML
18								
33								
84					5			
					5.5		Dark Gray, highly fractured, slightly weathered SHALE, some Silt, dry.	GM
					6		Dark Gray SHALE, highly fractured, slightly weathered, some Silt, dry.	GM
95		0.8	0		6.0			
100/3					6.8		Spoon Refusal At 6.8'	WSH
					8			
					9		Competant Shale based on auger response	CSH
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING SB57-7

LOG OF BORING NO. MW57-4

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.5
 DEPTH TO WATER: 5
 BORING LOCATION: 1009471
 738710.72
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 629.31
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0		Olive Gray to Brown SILT, trace fine Sand, trace roots and organic matter, moist.	OL
	1 3 5 7	1.4	0		0.7 1		Olive Gray to Brown SILT, trace fine to coarse Sand, trace fine Gravel, trace moderately weathered Shale fragments, dry to moist.	ML
					1.4		No Recovery	
	9 11 16 17	1	0		2 2.0 3		Olive Gray to Brown SILT, trace fine Sand, some fractured, moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, dry.	ML
					3.0		No Recovery	
	15 16 16 18	1	0		4 4.0 5.0		Olive Gray to Brown SILT, trace fine Sand, some fractured, moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, wet.	ML
					5.0		No Recovery	
	21 29 38 50/2	1.5	0		6 6.0 6.6		Olive Gray to Brown SILT, trace fine Sand, trace moderately weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, wet.	CL
					6.6		Light Gray, moderately weathered, highly fractured SHALE and SILT, dry.	GM
					7 7.5		No Recovery	
	50/1	0.1	0		8 8.0 8.1		Light Gray, moderately fractured, slightly weathered SHALE FRAGMENTS, some Silt, dry. Spoon Refusal At 8.1'	WSH WSH
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-4

LOG OF BORING NO. MW57-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.5
DEPTH TO WATER: 5
BORING LOCATION: 1009471
738710.72
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 629.31
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
							DESCRIPTION	
					10			
					11			
					12			
					13			
					14			
					14.5			
					15	Competant Shale based on auger response		CSH
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-4

LOG OF BORING NO. MW57-5

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED: 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
 DEPTH TO WATER: 5
 BORING LOCATION: 1008592.2
 738731.78
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 623.31
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
					0			
1	1	0.7	0		0.7		Olive Gray to Brown SILT, trace fine Sand, trace roots and organic matter, moist.	OL
2	5	—			1		No Recovery	
7	9	1.8	0		2		Olive Gray to Brown SILT, trace fine to coarse Sand, trace roots, trace Shale fragments, highly weathered and highly fractured with some mottling of color, very few 1mm-3mm spherical iron oxide stains, dry.	ML
11	21	—			3			
					3.2		Olive Gray, moderately weathered and highly fractured SHALE and SILT, dry.	GM
					3.8			
32	100/4	0.9	0		4		No Recovery	
					4.0		Light to Olive Gray, moderately weathered, highly fractured SHALE and SILT, dry.	WSH
					4.9		Spoon Refusal At 4.9'	WSH
					6			
					7			
					8			
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-5

LOG OF BORING NO. MW57-5

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED: 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
 DEPTH TO WATER: 5
 BORING LOCATION: 1008592.2
 738731.78
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 623.31
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	<p>This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.</p>	USCS
DESCRIPTION								
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-5

LOG OF BORING NO. MW57-5

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED: 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
 DEPTH TO WATER: 5
 BORING LOCATION: 1008592.2
 738731.78
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 623.31
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6')	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	<p>This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.</p>	USCS
					20		DESCRIPTION	
					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			
					29			
					30			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-5

LOG OF BORING NO. MW57-5

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
DEPTH TO WATER: 5
BORING LOCATION: 1008592.2
 738731.78
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 623.31
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
							DESCRIPTION	
					30 30.0		Competant Shale based on auger response	CSH
					31			
					32			
					33			
					34			
					35			
					36			
					37			
					38			
					39			
					40			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-5

LOG OF BORING NO. MW57-6

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED: 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14
 DEPTH TO WATER: 6.4
 BORING LOCATION: 1008892.47
 738679.09
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 625.17
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 5")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
					0		This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	
							DESCRIPTION	
	1 2 4 6	14	0		1		Yellowish Brown to Light Brown SILT, trace fine to coarse Sand, trace fine Gravel, trace roots and organics, moist.	OL
					1.4		No recovery	
	7 9 14 21	13	0		2		Olive Gray to Brown SILT, trace fine to medium Sand, trace highly weathered Shale fragments, very few 1mm-2mm spherical iron oxide stains, dry.	ML
					3		No Recovery	
					3.3		No Recovery	
	10 8 7 12	0	0		4		No Recovery	
					5			
	28 24 49 100/1	12	0		6		Light to dark Gray, highly fractured and highly weathered, SHALE and SILT, saturated 6.4-7.2.	GM
					7		No Recovery	
					7.2		No Recovery	
					7.6		Spoon Refusal At 7.6'	WSH
					8			
					9			
					10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-6

LOG OF BORING NO. MW57-6

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot, Romulus, New York
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
DATE STARTED: 12/01/1999
DATE COMPLETED: 12/06/1999
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25" HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14
DEPTH TO WATER: 6.4
BORING LOCATION: 1008892.47
 738679.09
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 625.17
ELEVATION DATUM: NGVD 29
INSPECTOR: R.F. BUTLER
CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.	USCS
							DESCRIPTION	
					10			
					11			
					12			
					13			
					14	14.0	Competant Shale based on auger response	CSH
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

UNITED STATES ARMY
CORPS OF ENGINEERS
Seneca Army Depot
Romulus, New York

LOG OF BORING MW57-6

LOG OF BORING NO. MW57-7

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.2
 DEPTH TO WATER: 4.8
 BORING LOCATION: 1009621.61
 739359.27
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 631.10
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	DESCRIPTION	USCS
This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.								
							DESCRIPTION	
	2 4 7	0.8	0		0		Brown SILT, trace fine to medium Sand, trace fine Gravel, trace roots and organics, moist.	OL
	7	—			0.8 1		No Recovery	
	7 5 11 19	—	0		2 3		No Recovery	
	17 100/4	—	0.9		4		Dark Gray, highly fractured and highly weathered SHALE and SILT, dry.	GM
		—			4.9		Spoon Refusal At 4.9'	WSH
					6 7 8 9 10			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-7

LOG OF BORING NO. MW57-7

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot, Romulus, New York
 ASSOCIATED AREA/UNIT: SEAD-57
 PROJECT NO.: 736676-01001
 DATE STARTED: 12/01/1999
 DATE COMPLETED: 12/06/1999
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25" HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.2
 DEPTH TO WATER: 4.8
 BORING LOCATION: 1009621.61
 739359.27
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 631.10
 ELEVATION DATUM: NGVD 29
 INSPECTOR: R.F. BUTLER
 CHECKED BY: DRG

Sample Number	Blow Counts (# Blows per 6")	Sample Recovery	VOC Screen-PID (ppm)	Rad Screen (cps)	Depth (ft)	Macro Lithology	<p style="text-align: center; font-size: small;">This log is part of a report prepared by Parsons Engineering-Science, Inc. for the named company and should be read together with the report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations.</p>	USCS
					10		DESCRIPTION	
					11			
					12			
					13			
					14			
					14.2		Competant Shale based on auger response	CSH
					15			
					16			
					17			
					18			
					19			
					20			

NOTES:

**UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York**

LOG OF BORING MW57-7

Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029

ETR(s) #: 76375

Client Code: ENGSC2

Job No.: SA4657

SDG(s): 76351

Date Received: 20-Dec-99

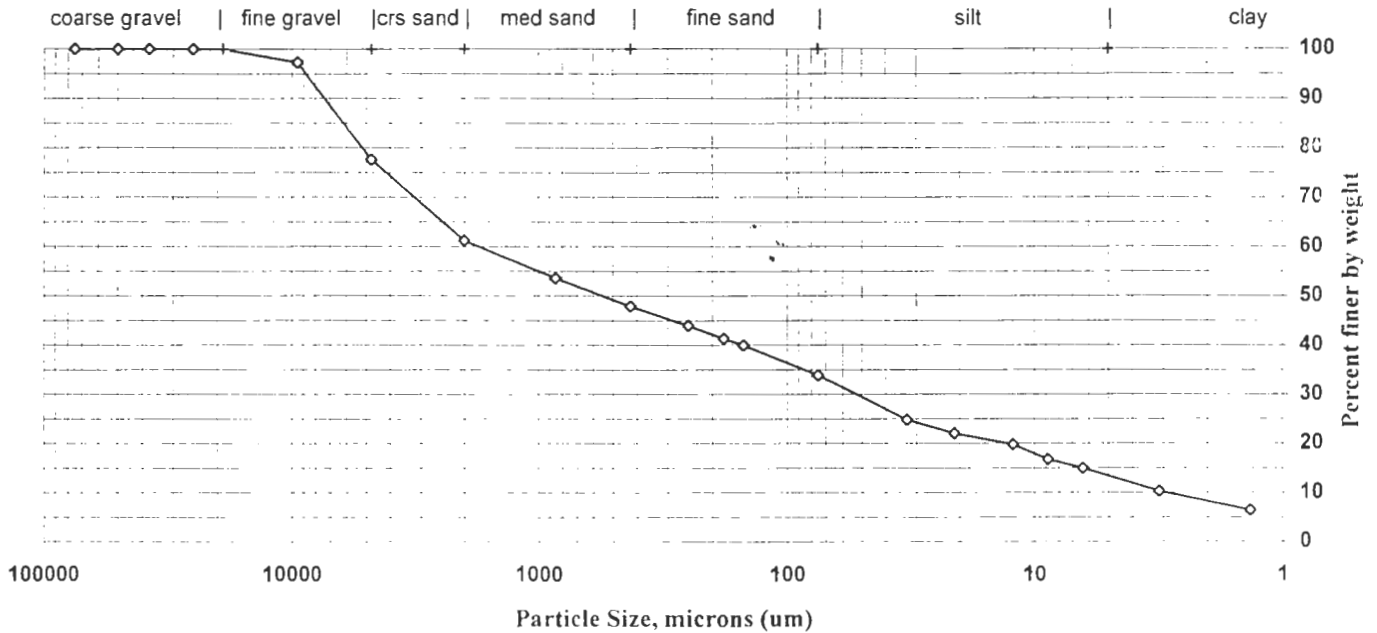
Start Date: 21-Dec-99

End Date: 13-Jan-00

Lab ID: 405259	Sample ID: 463000
----------------	-------------------

Percent Solids: 81.3%
Specific Gravity: 2.65

Maximum Particle Size: 19 mm
Shape (> #10): Subangular
Hardness (> #10): Brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.3	2.7
#4	4750	77.6	19.7
#10	2000	61.2	16.4
#20A	850	53.6	7.6
#40A	425	48.0	5.7
#60A	250	44.0	3.9
#80A	180	41.4	2.6
#100A	150	40.0	1.4
#200A	75	33.9	6.2
Hydrometer	32.8	24.8	9.0
	21.1	22.1	2.8
	12.2	19.8	2.3
	8.8	16.8	3.0
	6.4	15.0	1.8
	3.1	10.4	4.6
V	1.4	6.4	3.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: *[Signature]*

Date: 1/14/00

STB - Burlington 76375DC client Report

Particle Size of Soils by ASTM D422

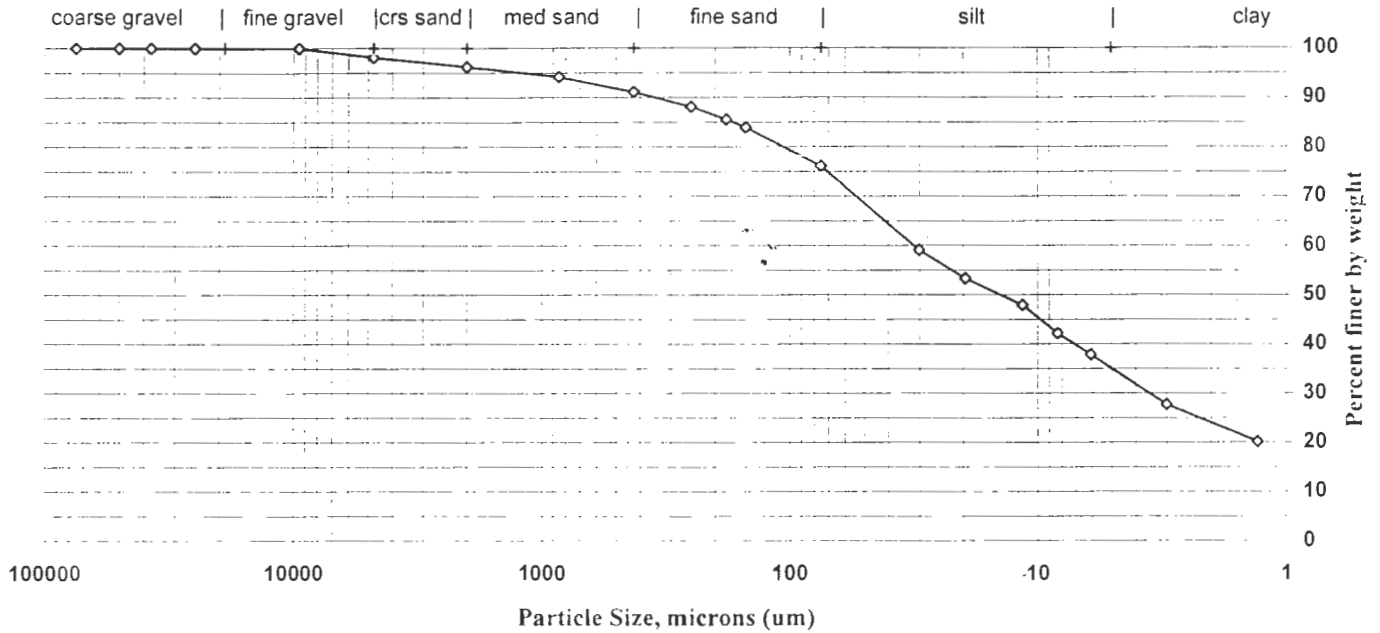
Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76375
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76351
 Date Received: 20-Dec-99 Start Date: 21-Dec-99 End Date: 13-Jan-00

Lab ID: 405260	Sample ID: 463001
----------------	-------------------

Percent Solids: 71.4%
 Specific Gravity: 2.65

Maximum Particle Size: 9.5 mm
 Shape (> #10): Subangular
 Hardness (> #10): Brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.1	1.9
#10	2000	96.3	1.9
#20A	850	94.2	2.1
#40A	425	91.2	3.0
#60A	250	88.1	3.1
#80A	180	85.5	2.6
#100A	150	83.9	1.6
#200A	75	76.2	7.8
Hydrometer	30.1	59.1	17.0
	19.5	53.4	5.8
	11.5	47.9	5.4
	8.3	42.2	5.8
	6.1	37.9	4.3
	3.0	27.8	10.1
V	1.3	20.2	7.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Particle Size of Soils by ASTM D422

Sample preparation by: D2217

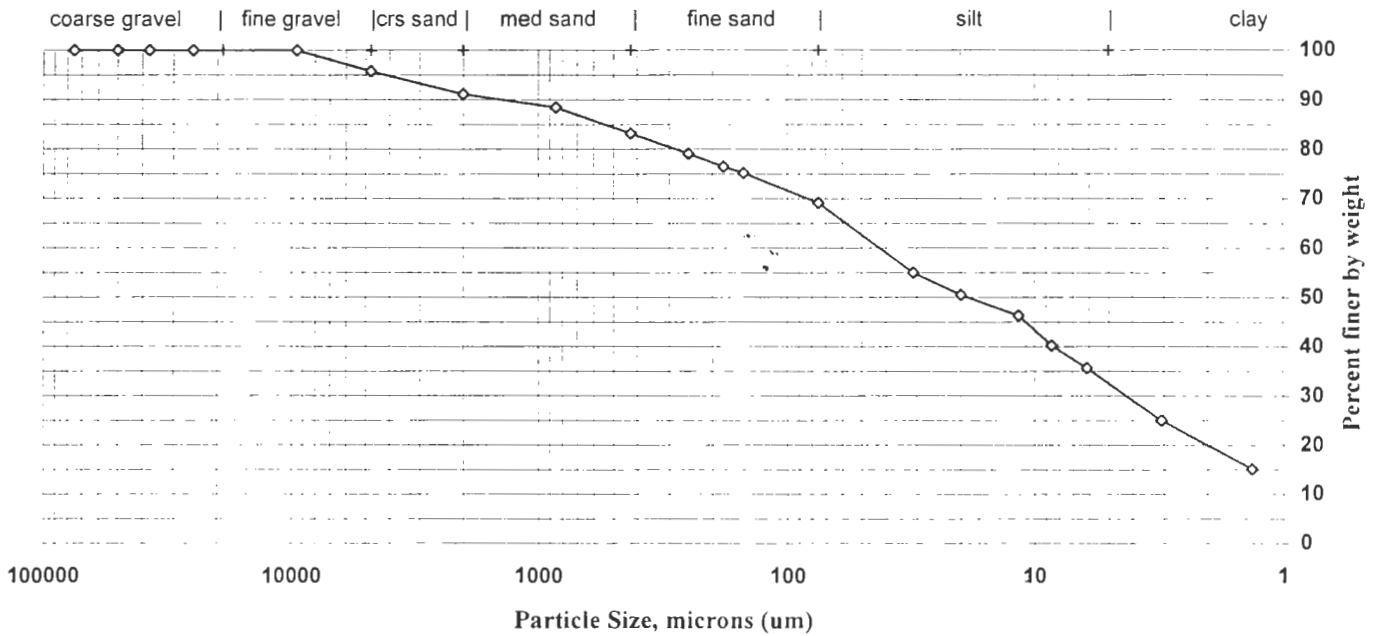
Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76375

Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76351

Date Received: 20-Dec-99 Start Date: 21-Dec-99 End Date: 13-Jan-00

Lab ID: 405261 Sample ID: 463002

Percent Solids: 64.1% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subangular
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	95.8	4.2
#10	2000	91.1	4.6
#20A	850	88.5	2.7
#40A	425	83.2	5.3
#60A	250	79.1	4.1
#80A	180	76.5	2.6
#100A	150	75.2	1.3
#200A	75	69.1	6.1
Hydrometer	30.9	55.1	14.1
	19.9	50.5	4.6
	11.6	46.3	4.2
	8.5	40.5	6.1
	6.1	35.7	4.6
	3.1	25.1	10.6
V	1.3	15.2	9.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

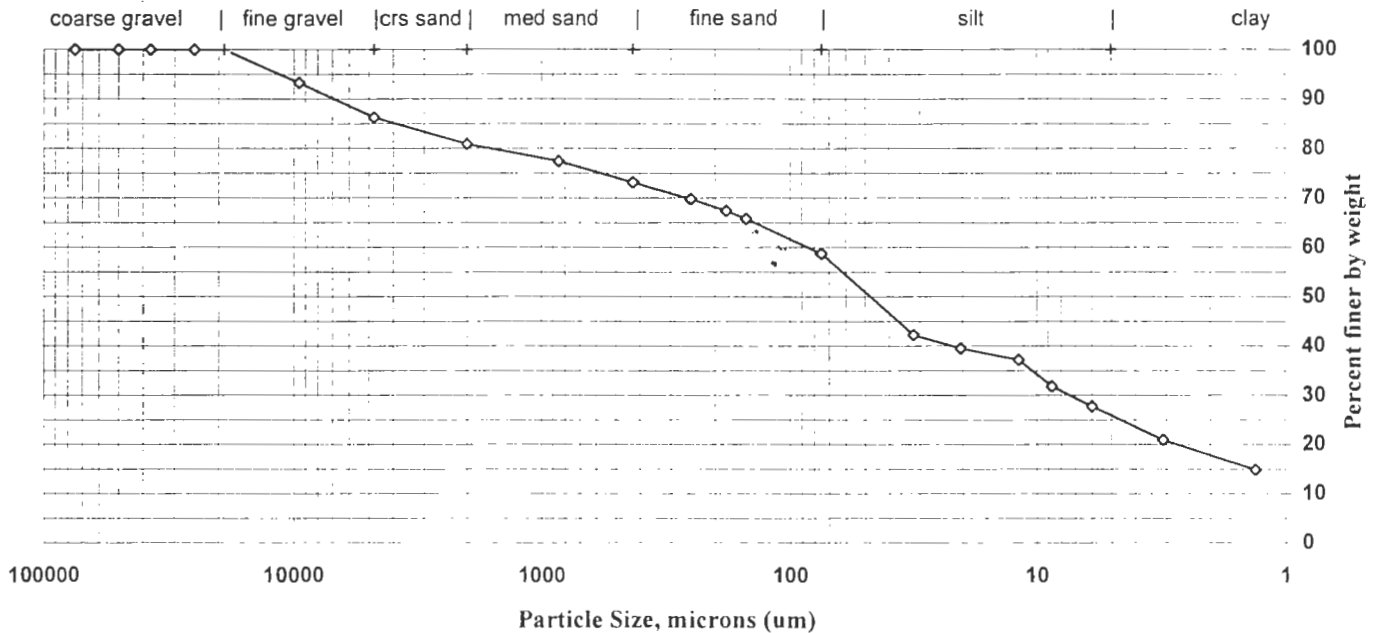
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76375
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76351
 Date Received: 20-Dec-99 Start Date: 21-Dec-99 End Date: 13-Jan-00

Lab ID: 405262 Sample ID: 463003

Percent Solids: 71.6% Maximum Particle Size: 19 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	93.3	6.7
#4	4750	86.3	7.0
#10	2000	80.9	5.4
#20A	850	77.4	3.5
#40A	425	73.1	4.3
#60A	250	69.8	3.3
#80A	180	67.4	2.4
#100A	150	65.8	1.6
#200A	75	58.8	7.1
Hydrometer	31.8	42.3	16.5
	20.4	39.6	2.7
	11.8	37.2	2.4
	8.7	31.8	5.4
	6.0	27.7	4.1
	3.1	21.0	6.8
V	1.3	14.9	6.1

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

-105-

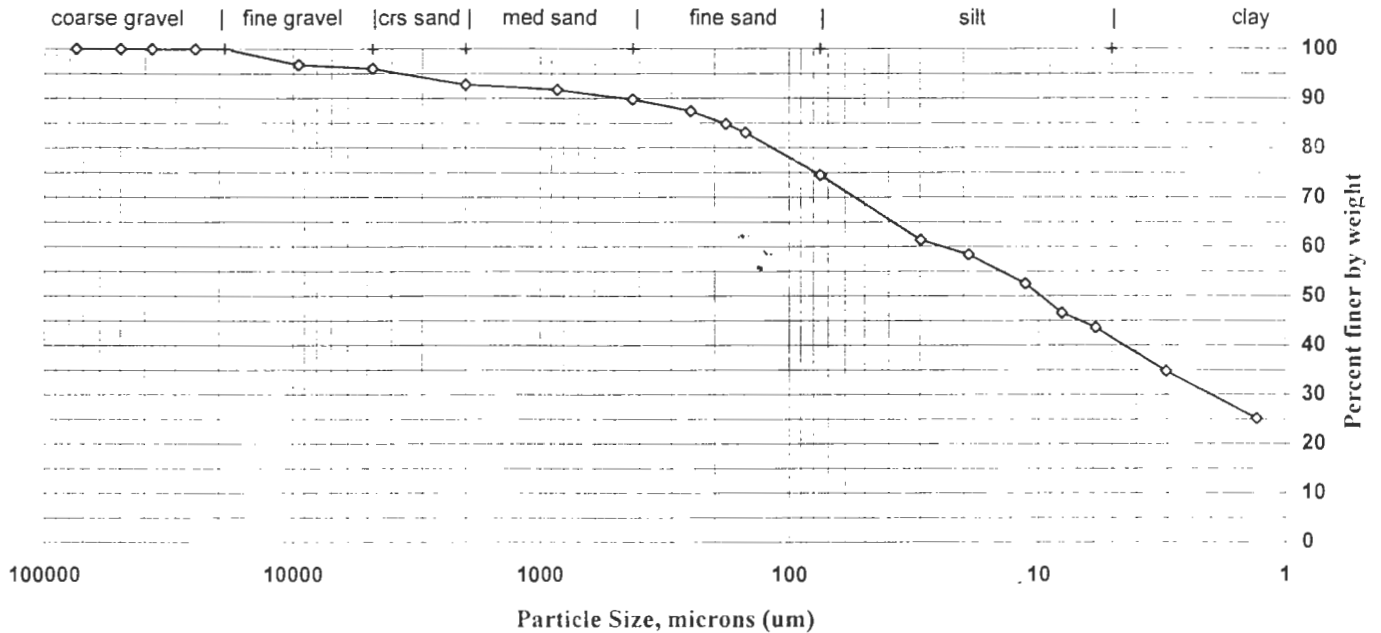
Particle Size of Soils by ASTM D422

Sample preparation by: **D2217**

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76388
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76388
 Date Received: 21-Dec-99 Start Date: 22-Dec-99 End Date: 13-Jan-00

Lab ID: 405380 Sample ID: 469000

Percent Solids: 79.0% Maximum Particle Size: 19 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	96.8	3.2
#4	4750	96.0	0.7
#10	2000	92.7	3.3
#20A	850	91.7	1.0
#40A	425	89.8	1.9
#60A	250	87.4	2.4
#80A	180	84.9	2.5
#100A	150	83.1	1.8
#200A	75	74.5	8.5
Hydrometer	29.7	61.4	13.2
	19.0	58.4	3.0
	11.3	52.5	5.9
	8.0	46.6	5.9
	5.8	43.6	3.0
	3.0	34.8	8.9
V	1.3	25.1	9.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.Als.:Report

Particle Size of Soils by ASTM D422

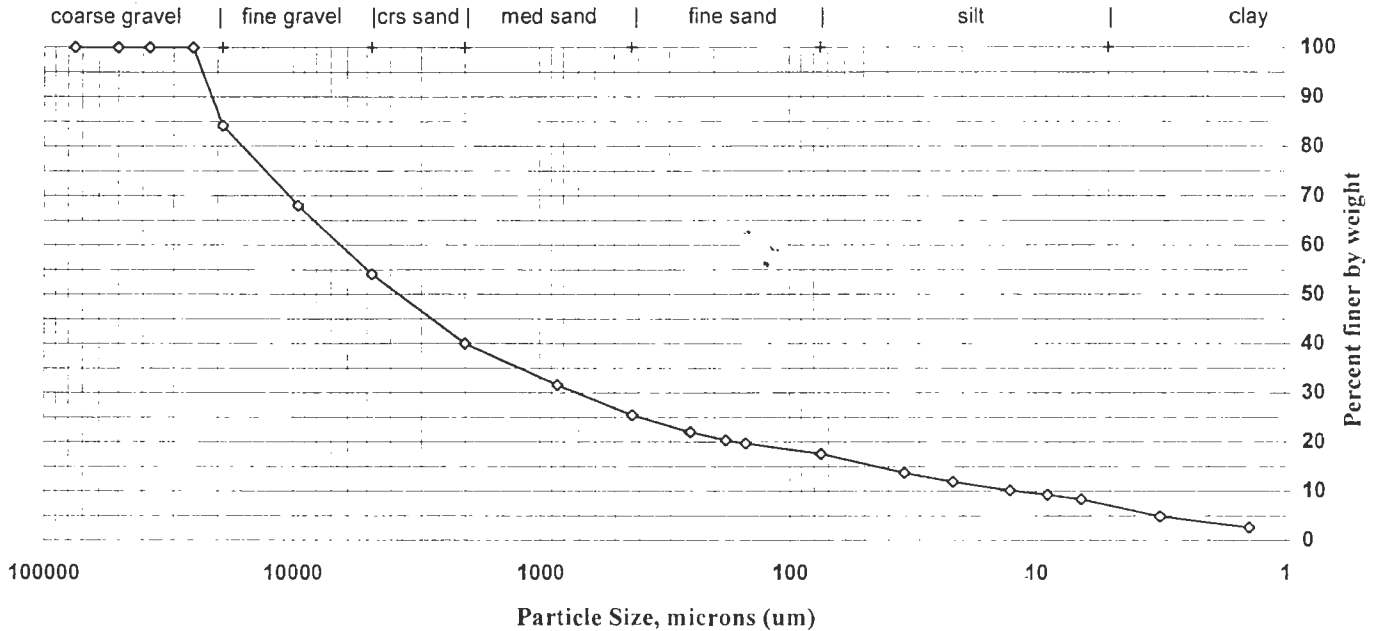
Sample preparation by: D2217

Client: <u>Parsons Engineering Science</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76388</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76388</u>
Date Received: <u>21-Dec-99</u>	Start Date: <u>22-Dec-99</u>	End Date: <u>13-Jan-00</u>

Lab ID: 405382	Sample ID: 469002
----------------	-------------------

Percent Solids: 93.0%
 Specific Gravity: 2.65

Maximum Particle Size: 25 mm
 Shape (> #10): Subangular
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	84.2	15.8
3/8 inch	9500	68.0	16.2
#4	4750	54.1	13.8
#10	2000	40.0	14.1
#20A	850	31.6	8.4
#40A	425	25.5	6.1
#60A	250	22.1	3.4
#80A	180	20.4	1.7
#100A	150	19.7	0.7
#200A	75	17.6	2.1
Hydrometer	34.4	13.7	3.8
	22.0	12.0	1.8
	12.8	10.2	1.8
	9.0	9.3	0.9
	6.5	8.4	0.9
	3.1	4.9	3.5
V	1.4	2.7	2.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.xls::Report

Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Engineering Science</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76388</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76388</u>
Date Received: <u>21-Dec-99</u>	Start Date: <u>22-Dec-99</u>	End Date: <u>13-Jan-00</u>

Lab ID: 405384	Sample ID: 469004
----------------	-------------------

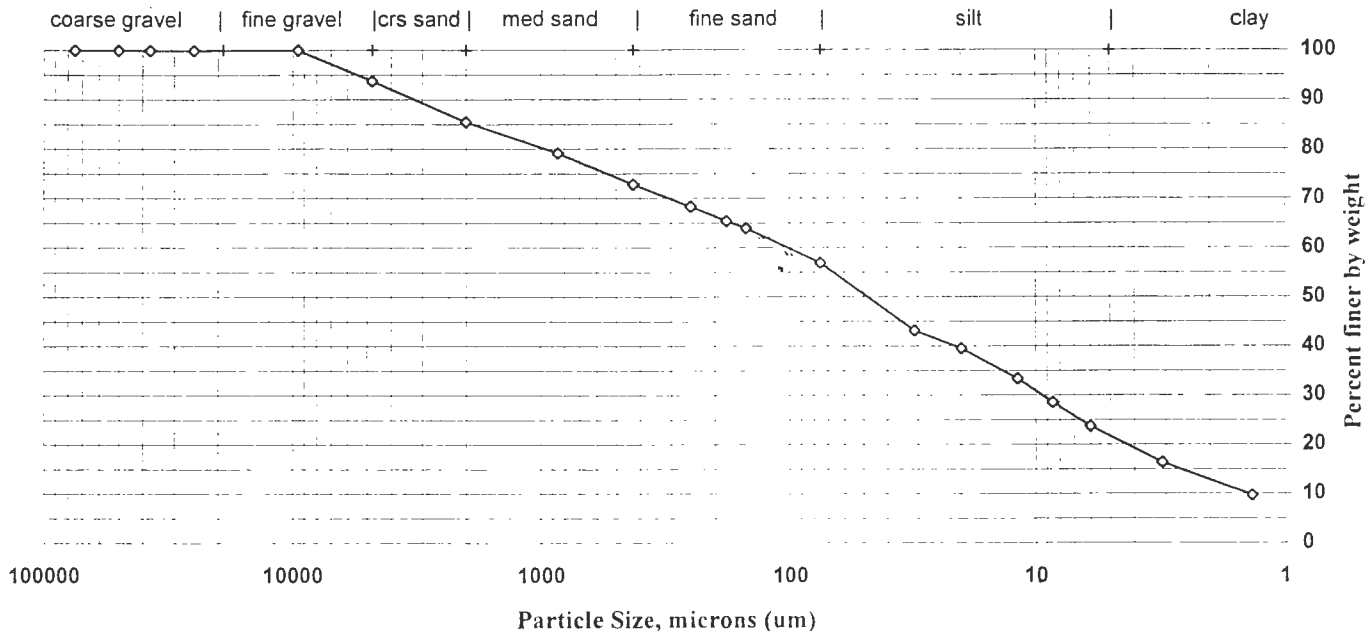
Percent Solids: 90.9%

Specific Gravity: 2.65

Maximum Particle Size: 9.5 mm

Shape (> #10): Subangular

Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	93.8	6.2
#10	2000	85.5	8.3
#20A	850	79.2	6.3
#40A	425	72.8	6.3
#60A	250	68.3	4.5
#80A	180	65.4	2.9
#100A	150	63.9	1.5
#200A	75	56.9	7.0
Hydrometer	30.9	43.2	13.7
	19.9	39.5	3.6
	11.8	33.4	6.1
	8.5	28.6	4.9
	6.0	23.7	4.9
	3.1	16.4	7.3
V	1.4	9.7	6.7

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.XLS::Report

Particle Size of Soils by ASTM D422

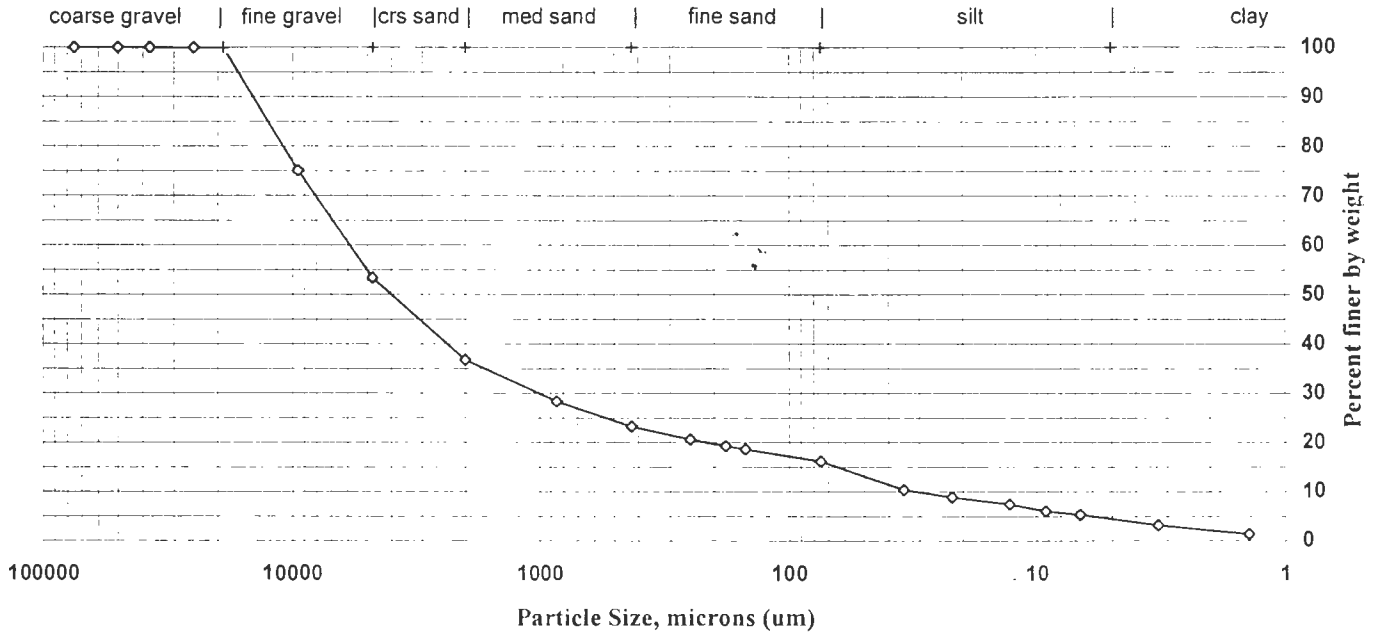
Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76388
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76388
 Date Received: 21-Dec-99 Start Date: 22-Dec-99 End Date: 13-Jan-00

Lab ID: 405385 Sample ID: 469005

Percent Solids: 90.0%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): Subangular
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	75.1	24.9
#4	4750	53.4	21.7
#10	2000	36.7	16.7
#20A	850	28.4	8.4
#40A	425	23.3	5.1
#60A	250	20.6	2.7
#80A	180	19.3	1.3
#100A	150	18.6	0.6
#200A	75	16.2	2.5
Hydrometer	34.6	10.4	5.8
	22.1	8.9	1.4
	12.9	7.5	1.4
	9.2	6.1	1.4
	6.7	5.4	0.7
	3.3	3.2	2.1
V	1.4	1.4	1.8

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

7857

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.xls::Report

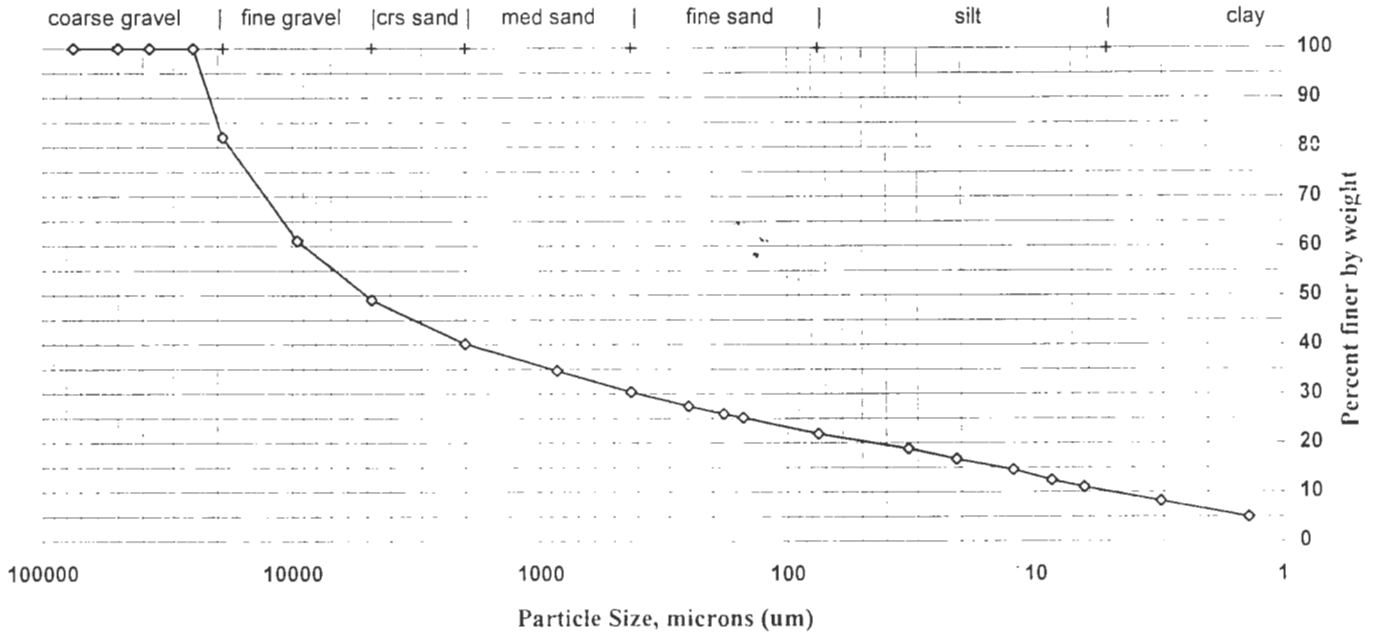
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76388
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76388
 Date Received: 21-Dec-99 Start Date: 22-Dec-99 End Date: 13-Jan-00

Lab ID: 405383 Sample ID: 469003

Percent Solids: 85.4% Maximum Particle Size: 25 mm
 Specific Gravity: 2.65 Shape (> #10): Subangular
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	82.0	18.0
3/8 inch	9500	61.1	20.9
#4	4750	49.1	12.0
#10	2000	40.2	8.9
#20A	850	34.7	5.5
#40A	425	30.4	4.4
#60A	250	27.5	2.9
#80A	180	25.9	1.6
#100A	150	25.2	0.8
#200A	75	21.9	3.3
Hydrometer	32.5	18.8	3.0
	20.9	16.7	2.1
	12.3	14.6	2.1
	8.5	12.4	2.1
	6.3	11.0	1.4
	3.1	8.2	2.8
V	1.4	5.0	3.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.xls::Report

Particle Size of Soils by ASTM D422

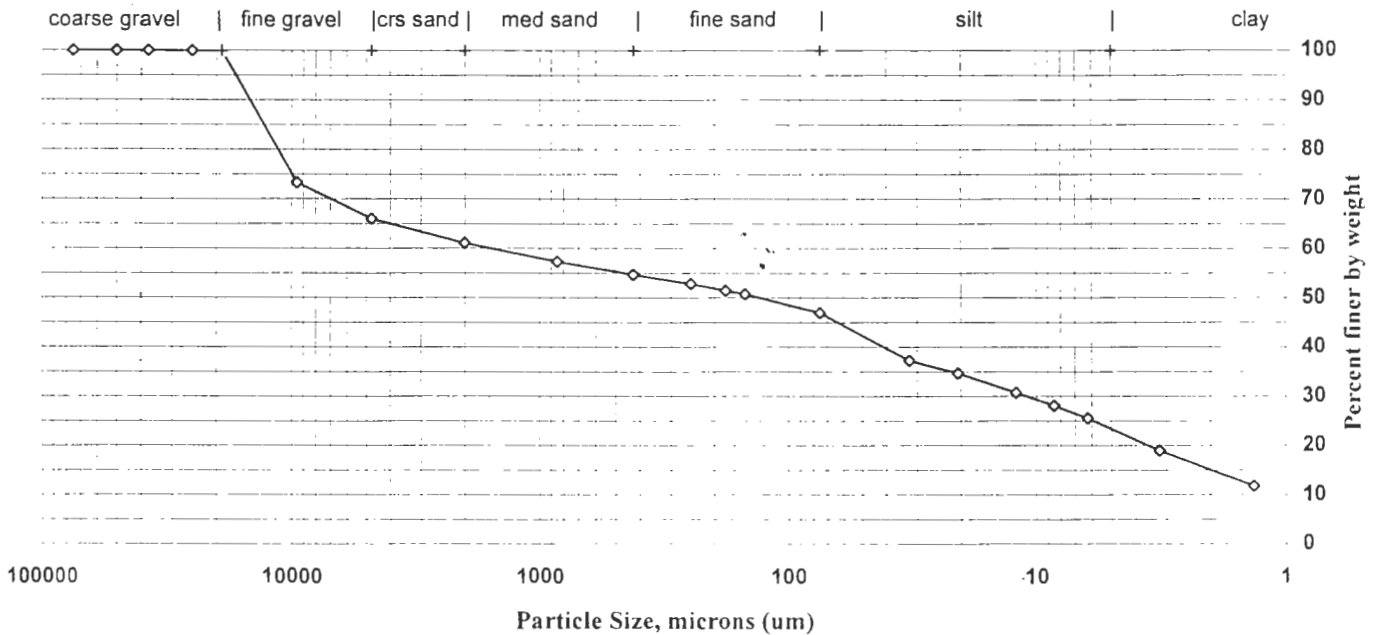
Sample preparation by: D2217

Client: <u>Parsons Engineering Science</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76388</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76388</u>
Date Received: <u>21-Dec-99</u>	Start Date: <u>22-Dec-99</u>	End Date: <u>13-Jan-00</u>

Lab ID: <u>405381</u>	Sample ID: <u>469001</u>
-----------------------	--------------------------

Percent Solids: 89.7%
Specific Gravity: 2.65

Maximum Particle Size: 19 mm
Shape (> #10): Subangular
Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	73.3	26.7
#4	4750	66.0	7.3
#10	2000	61.1	4.9
#20A	850	57.4	3.7
#40A	425	54.7	2.6
#60A	250	52.8	1.9
#80A	180	51.5	1.4
#100A	150	50.8	0.7
#200A	75	47.0	3.8
Hydrometer	32.2	37.3	9.7
	20.6	34.7	2.6
	12.1	30.8	3.9
	8.5	28.1	2.6
	6.2	25.5	2.6
	3.2	19.0	6.5
V	1.3	11.8	7.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/14/00

STL - Burlington 76388PS.xls:Report

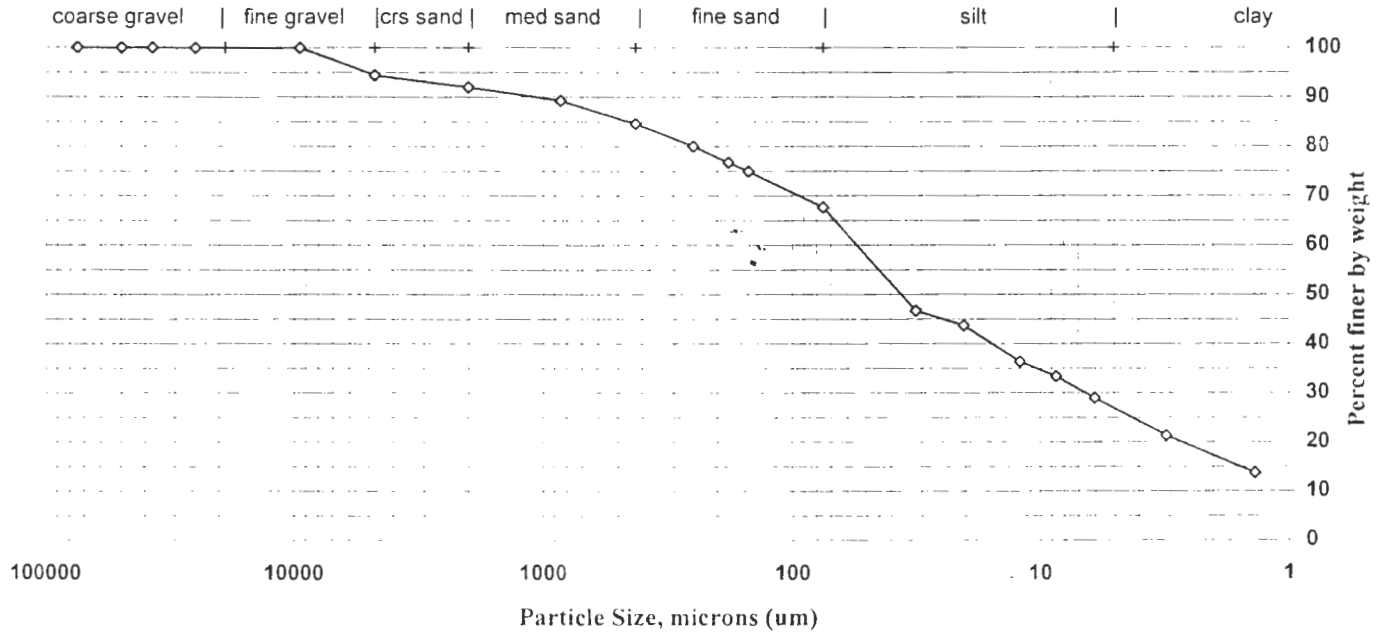
Particle Size of Soils by ASTM D422

Sample preparation by: **D2217**

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76516
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76516
 Date Received: 05-Jan-00 Start Date: 06-Jan-00 End Date: 17-Jan-00

Lab ID: 406239 Sample ID: 573000

Percent Solids: 70.6% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	94.5	5.5
#10	2000	92.0	2.5
#20	850	89.3	2.7
#40	425	84.7	4.6
#60	250	80.0	4.6
#80	180	76.7	3.3
#100	150	74.9	1.8
#200	75	67.7	7.3
Hydrometer	31.6	46.7	21.0
	20.2	43.7	2.9
	12.0	36.4	7.4
	8.6	33.4	2.9
	6.0	29.0	4.4
	3.1	21.4	7.6
V	1.4	13.8	7.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4156

Submitted By: [Signature]

Date: 1/19/00

STL - Burlington 76516PS.xls::Report

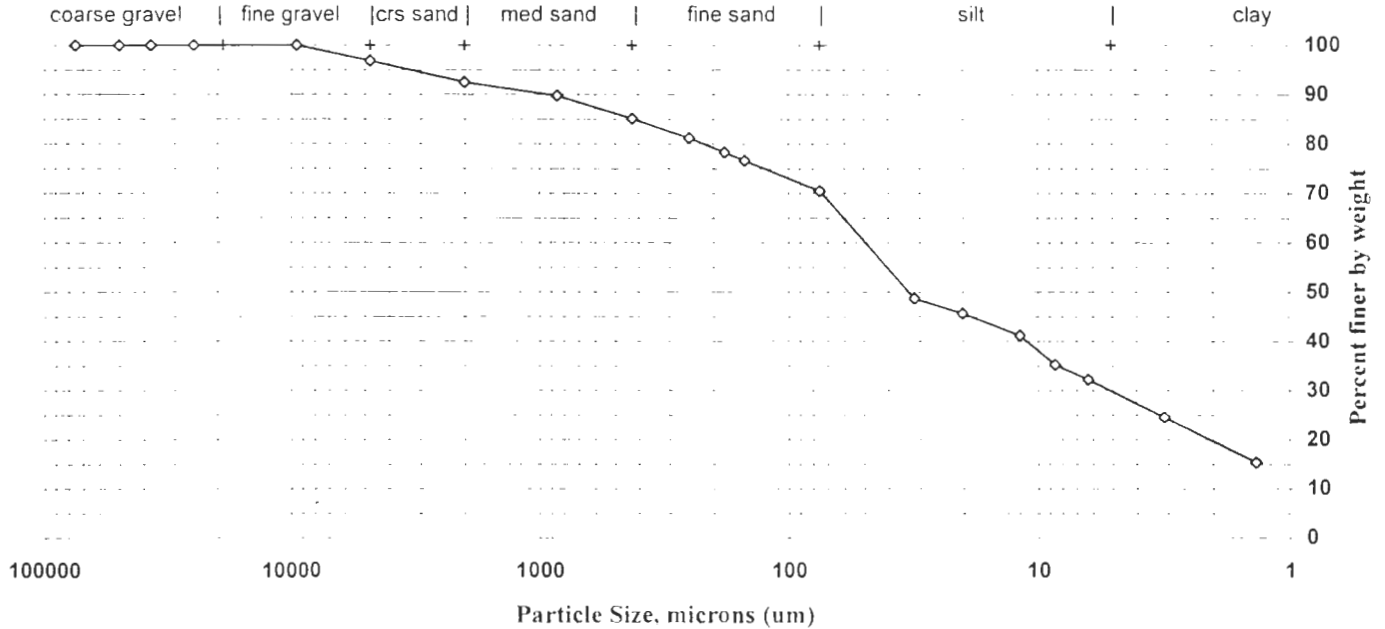
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76516
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76516
 Date Received: 05-Jan-00 Start Date: 06-Jan-00 End Date: 17-Jan-00

Lab ID: 406240 Sample ID: 573001

Percent Solids: 70.2% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	96.8	3.2
#10	2000	92.5	4.3
#20	850	89.8	2.7
#40	425	85.2	4.6
#60	250	81.2	4.0
#80	180	78.3	2.9
#100	150	76.7	1.7
#200	75	70.5	6.2
Hydrometer	31.4	48.7	21.8
	20.1	45.7	3.0
	11.8	41.2	4.5
	8.5	35.3	6.0
	6.3	32.3	3.0
	3.1	24.6	7.7
V	1.4	15.4	9.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4157

Submitted By: [Signature]

Date: 1/19/00

STL - Burlington 76516PS.xls::Report

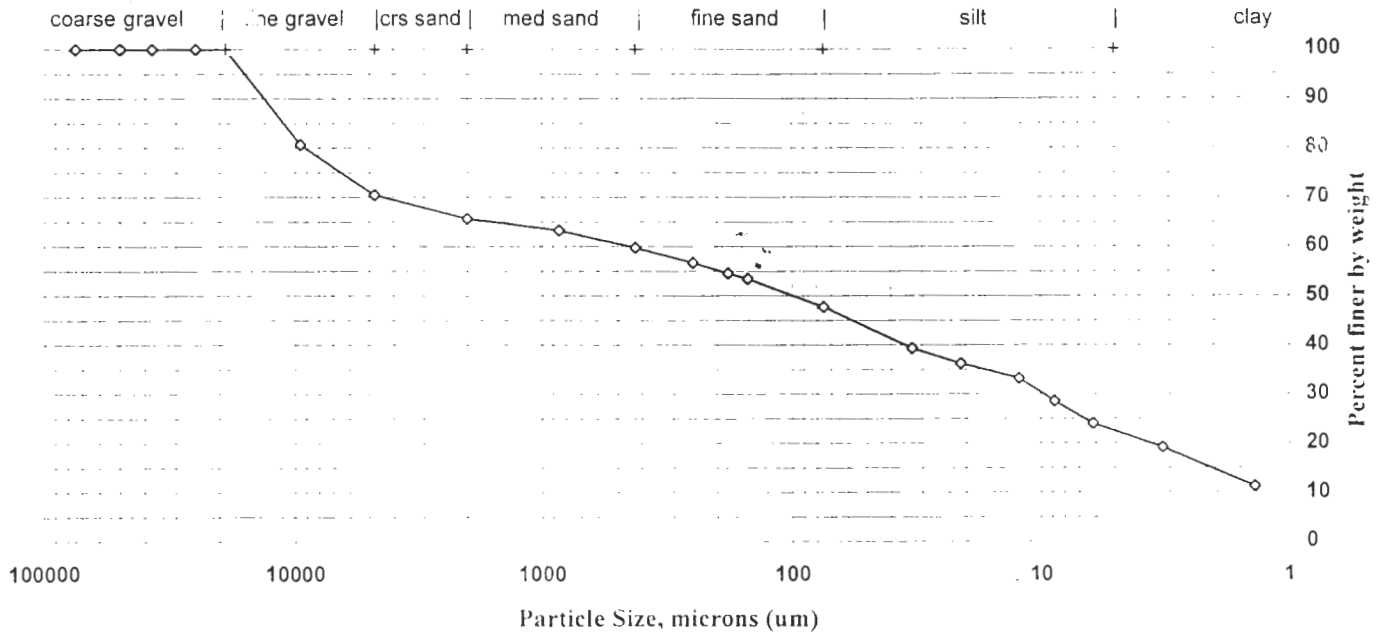
Particle Size of Soils by ASTM D422

Sample preparation by: **D2217**

Client: Parsons Engineering Science Project No.: 99029 ETR(s) #: 76516
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76516
 Date Received: 05-Jan-00 Start Date: 06-Jan-00 End Date: 17-Jan-00

Lab ID: 406241 Sample ID: 573002

Percent Solids: 73.0% Maximum Particle Size: 19 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	80.7	19.3
#4	4750	70.5	10.2
#10	2000	65.7	4.8
#20	850	63.3	2.4
#40	425	59.8	3.5
#60	250	56.7	3.1
#80	180	54.6	2.2
#100	150	53.5	1.1
#200	75	47.8	5.7
Hydrometer	32.7	39.3	8.4
	20.9	36.3	3.1
	12.2	33.2	3.1
	8.8	28.6	4.6
	6.1	24.0	4.6
	3.2	19.2	4.9
N	1.4	11.2	7.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4156

Submitted By: [Signature]

Date: 1/19/00

STL - Burlington 76516PS.xls::Report

Particle Size of Soils by ASTM D422

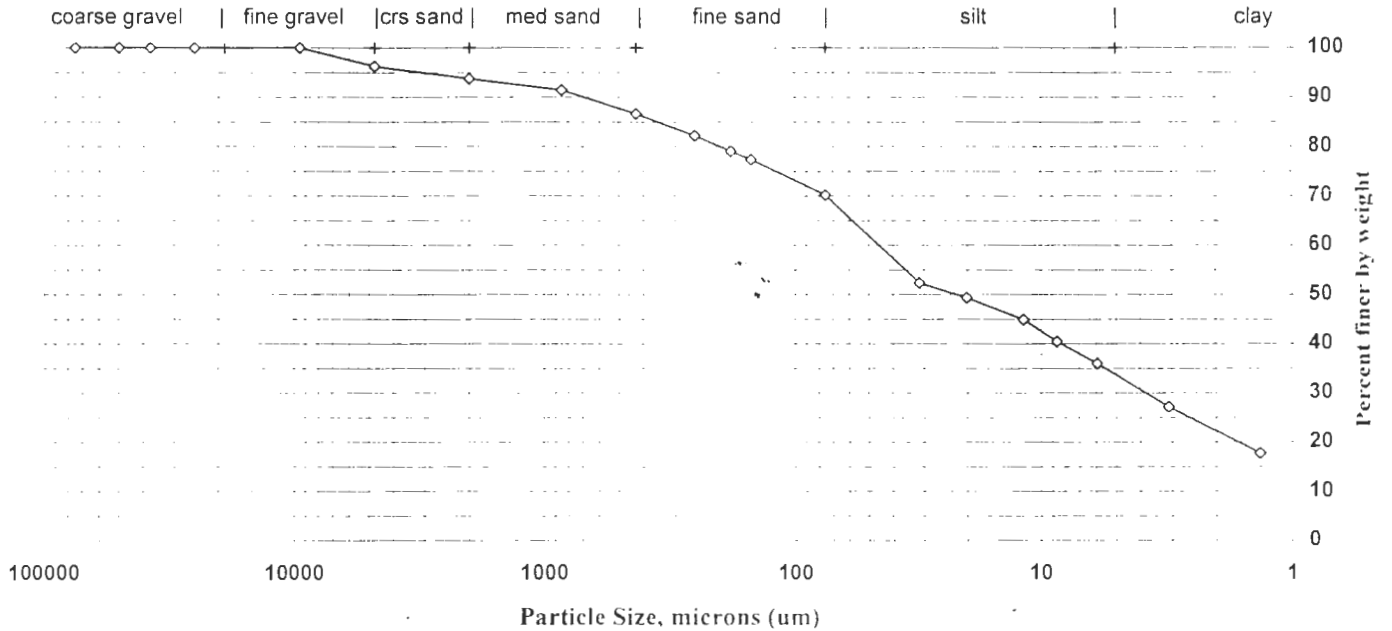
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76531</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>06-Jan-00</u>	Start Date: <u>07-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: 406442	Sample ID: 573003
----------------	-------------------

Percent Solids: 69.0%
 Specific Gravity: 2.65

Maximum Particle Size: 9.5 mm
 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	96.3	3.7
#10	2000	93.8	2.5
#20A	850	91.4	2.4
#40A	425	86.6	4.8
#60A	250	82.2	4.4
#80A	180	79.1	3.2
#100A	150	77.3	1.7
#200A	75	70.2	7.1
Hydrometer	31.3	52.3	17.9
	20.0	49.4	3.0
	11.8	44.9	4.4
	8.6	40.5	4.4
	5.9	36.0	4.4
	3.1	27.1	8.9
v	1.3	17.8	9.4

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature] Date: 1/20/00

STL - Burlington 76531ps::Report

Particle Size of Soils by ASTM D422

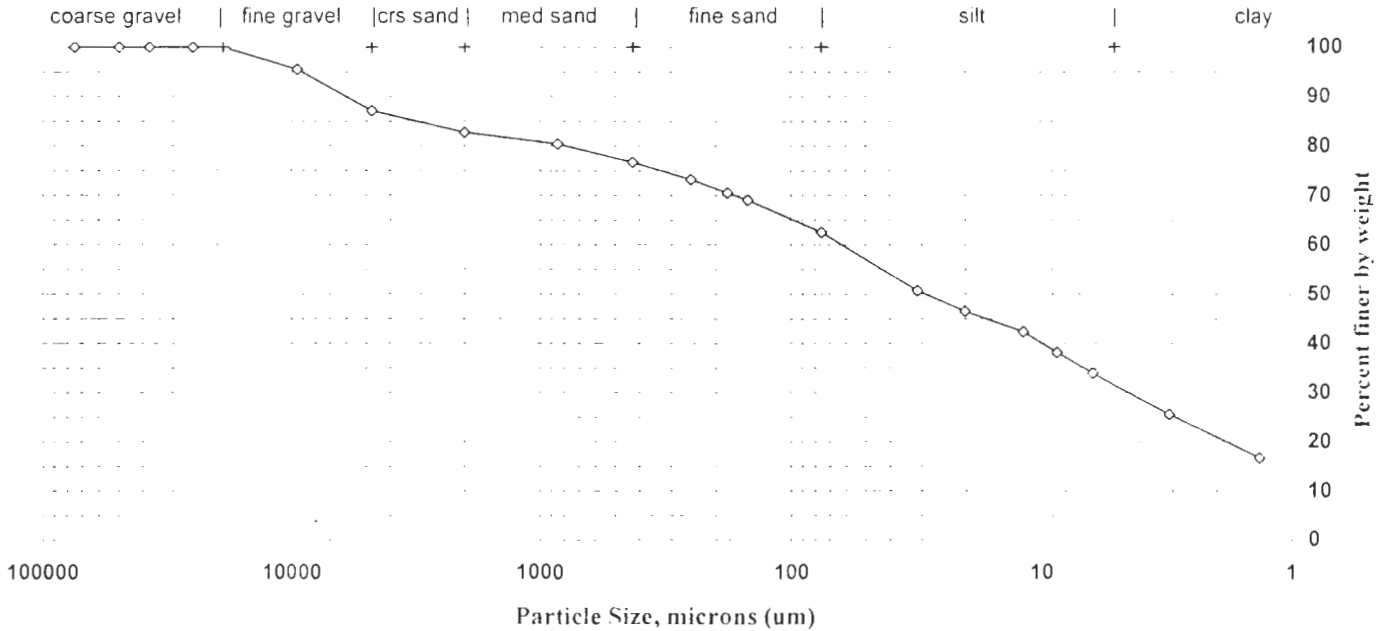
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76531</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>06-Jan-00</u>	Start Date: <u>07-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: <u>406440</u>	Sample ID: <u>573004</u>
-----------------------	--------------------------

Percent Solids: 71.8%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	95.5	4.5
#4	4750	87.1	8.4
#10	2000	82.7	4.4
#20A	850	80.4	2.3
#40A	425	76.7	3.7
#60A	250	73.2	3.5
#80A	180	70.5	2.7
#100A	150	69.1	1.5
#200A	75	62.5	6.6
Hydrometer	31.1	50.7	11.8
	20.0	46.5	4.2
	11.8	42.3	4.2
	8.6	38.2	4.2
	6.2	34.0	4.2
	3.1	25.6	8.4
V	1.3	16.7	8.8

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4161

Submitted By: *[Signature]*

Date: 1/20/00

STL - Burlington 76531ps::Report

Particle Size of Soils by ASTM D422

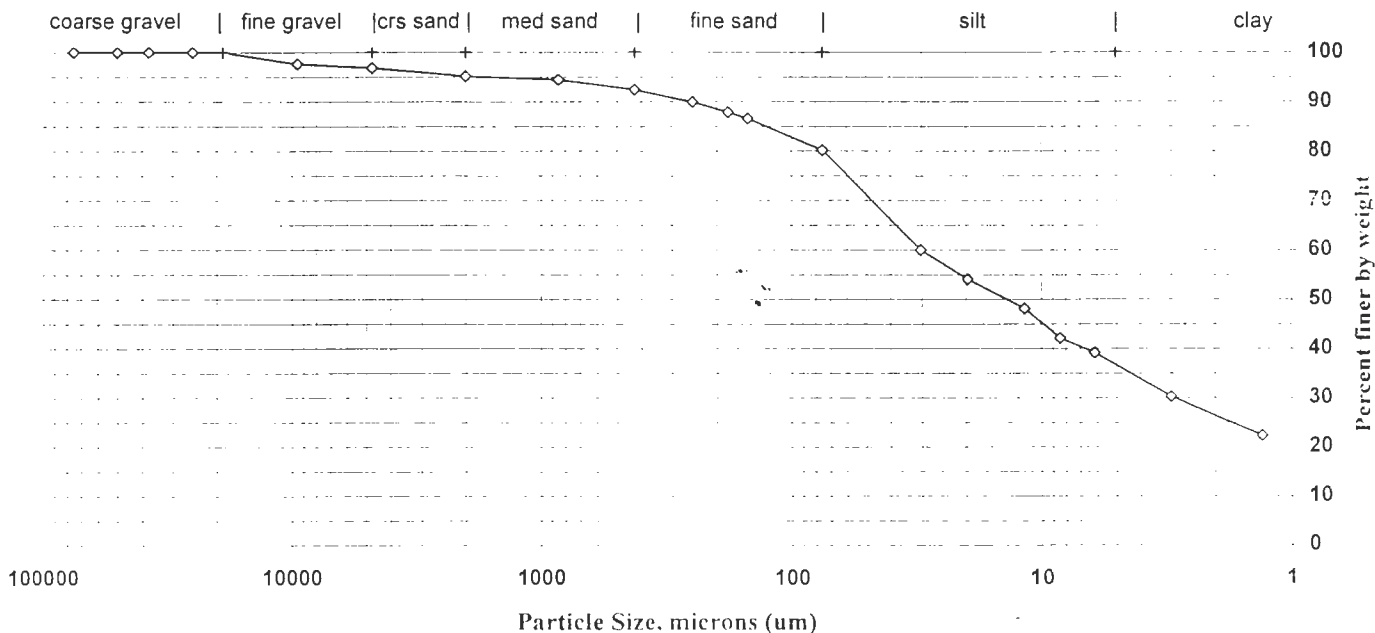
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76531</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>06-Jan-00</u>	Start Date: <u>07-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: 406438	Sample ID: 573005
----------------	-------------------

Percent Solids: 77.4%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.7	2.3
#4	4750	96.9	0.8
#10	2000	95.2	1.7
#20A	850	94.4	0.8
#40A	425	92.5	1.9
#60A	250	89.9	2.5
#80A	180	87.8	2.1
#100A	150	86.6	1.3
#200A	75	80.2	6.4
Hydrometer	30.3	60.0	20.2
	19.6	54.1	6.0
	11.6	48.1	6.0
	8.4	42.1	6.0
	6.1	39.2	3.0
	3.0	30.2	8.9
V	1.3	22.3	7.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Particle Size of Soils by ASTM D422

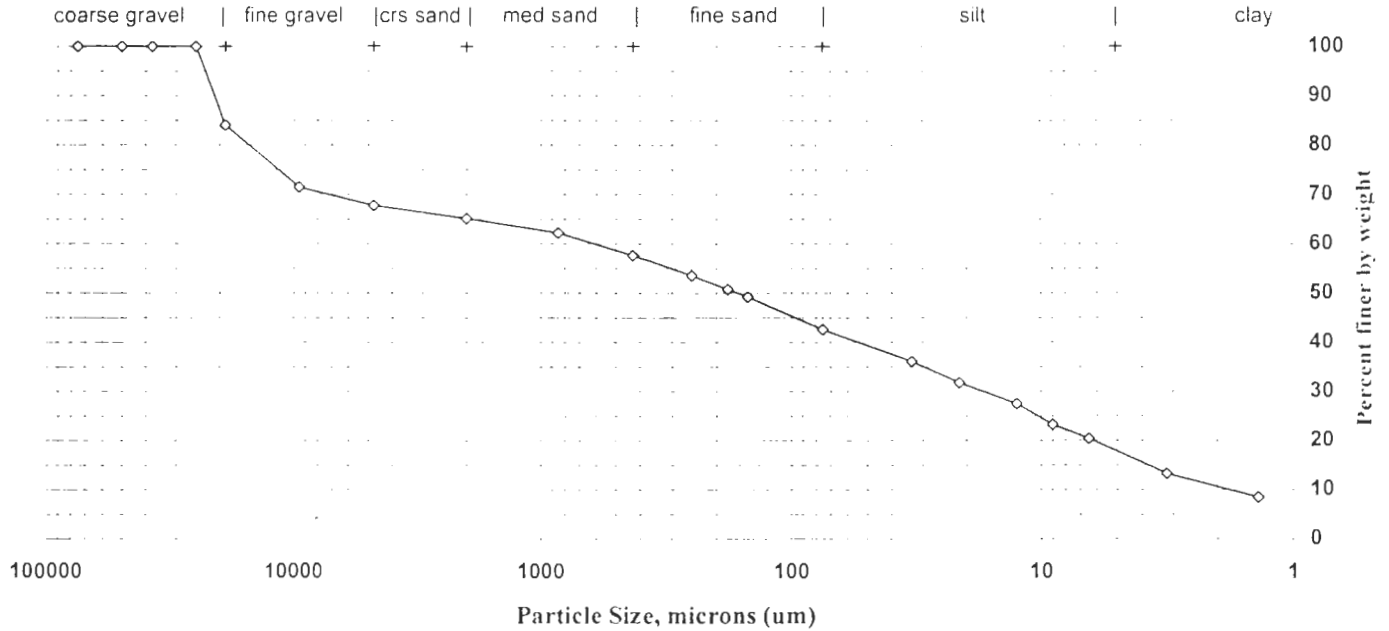
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76531</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>06-Jan-00</u>	Start Date: <u>07-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: <u>406436</u>	Sample ID: <u>573006</u>
-----------------------	--------------------------

Percent Solids: 65.8%
 Specific Gravity: 2.65

Maximum Particle Size: 25 mm
 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	84.0	16.0
3/8 inch	9500	71.4	12.6
#4	4750	67.7	3.6
#10	2000	65.1	2.7
#20A	850	62.2	2.9
#40A	425	57.6	4.6
#60A	250	53.6	4.0
#80A	180	50.8	2.8
#100A	150	49.2	1.6
#200A	75	42.6	6.6
Hydrometer	33.1	36.0	6.6
	21.3	31.8	4.3
	12.5	27.5	4.3
	9.0	23.2	4.3
	6.5	20.4	2.8
	3.2	13.3	7.1
V	1.4	8.5	4.7

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: *[Signature]*

Date: 1/20/00

STL - Burlington 76531ps::Report

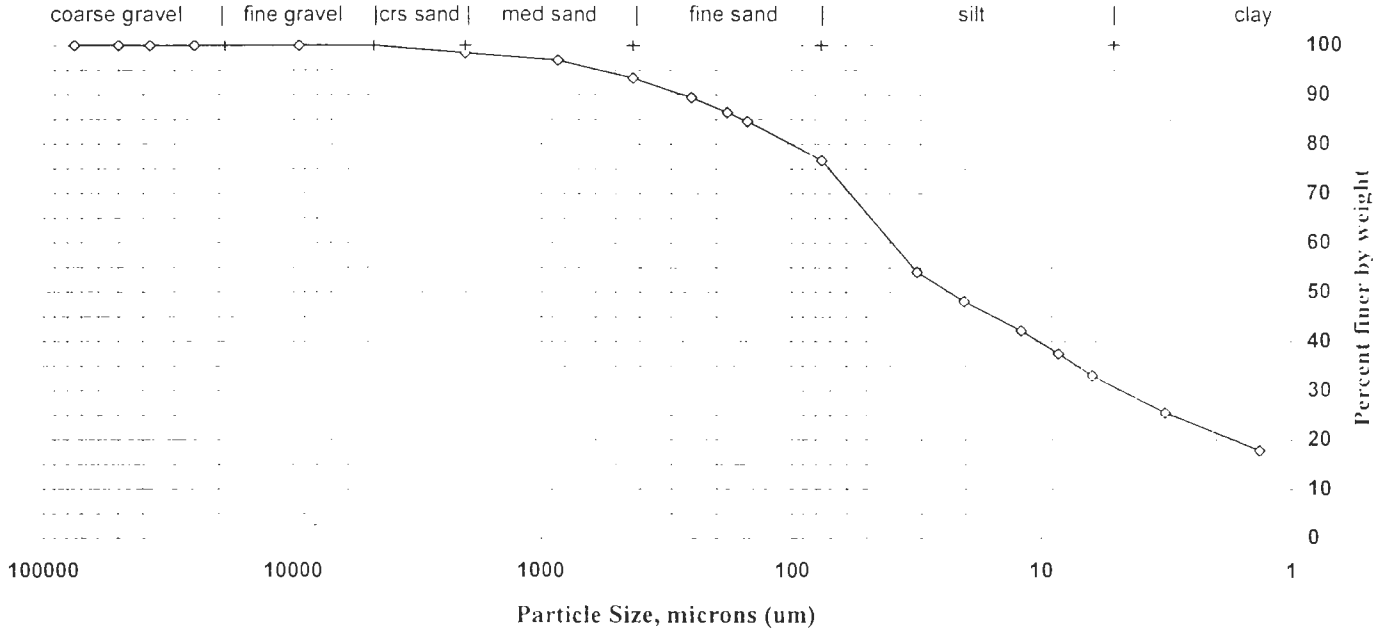
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76542</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>07-Jan-99</u>	Start Date: <u>10-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: <u>406499</u>	Sample ID: <u>573007</u>
-----------------------	--------------------------

Percent Solids: 70.8% Maximum Particle Size: Crs sand
 Specific Gravity: 2.65 Chape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.5	1.5
#20A	850	97.0	1.5
#40A	425	93.4	3.5
#60A	250	89.4	4.0
#80A	180	86.4	3.0
#100A	150	84.6	1.8
#200A	75	76.7	7.9
Hydrometer	31.1	54.1	22.6
	20.1	48.1	6.0
	11.9	42.2	6.0
	8.5	37.5	4.7
	6.2	33.0	4.5
	3.2	25.6	7.4
V	1.3	17.9	7.7

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4163

Submitted By:

Date: 1/20/00

STL - Burlington 76542ps::Report

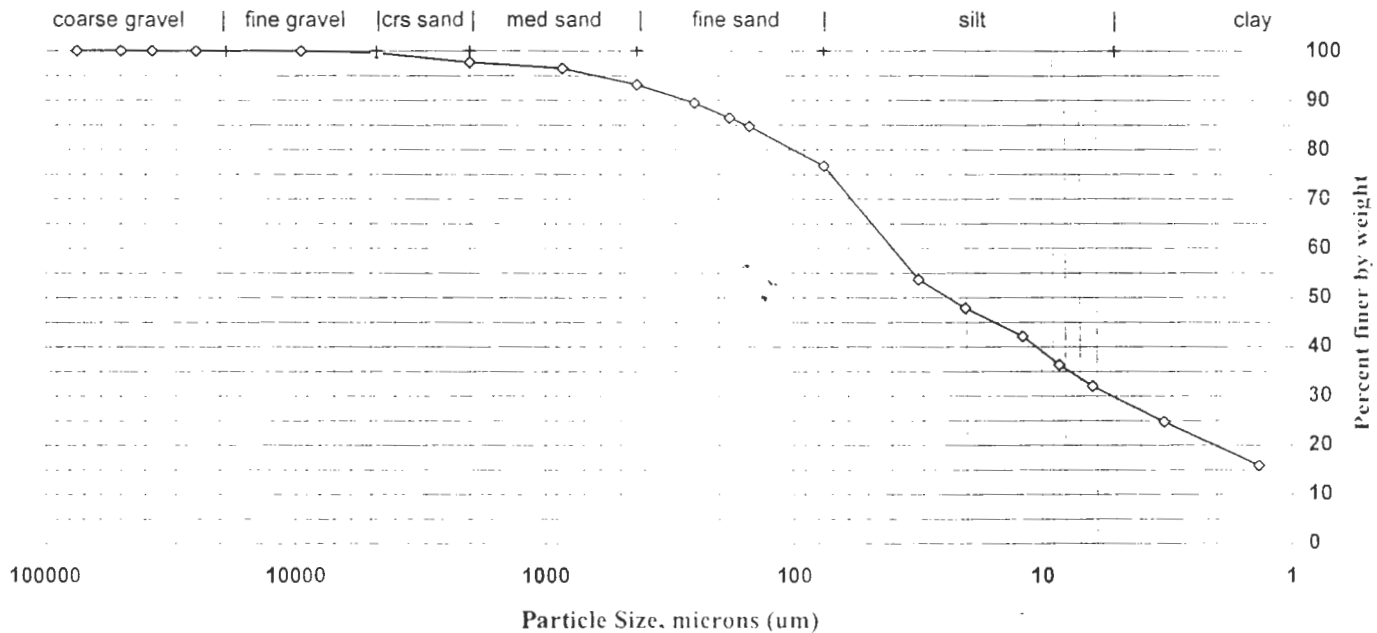
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76542
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76516
 Date Received: 07-Jan-99 Start Date: 10-Jan-00 End Date: 19-Jan-00

Lab ID: 406500 Sample ID: 573008

Percent Solids: 71.4% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	97.7	1.9
#20A	850	96.5	1.2
#40A	425	93.2	3.3
#60A	250	89.4	3.8
#80A	180	86.4	2.9
#100A	150	84.7	1.7
#200A	75	76.7	8.0
Hydrometer	31.1	53.7	23.0
	20.1	47.9	5.8
	11.9	42.1	5.8
	8.5	36.3	5.8
	6.2	32.0	4.3
	3.2	24.8	7.2
V	1.4	15.9	8.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/20/00

STL - Burlington 76542ps::Report

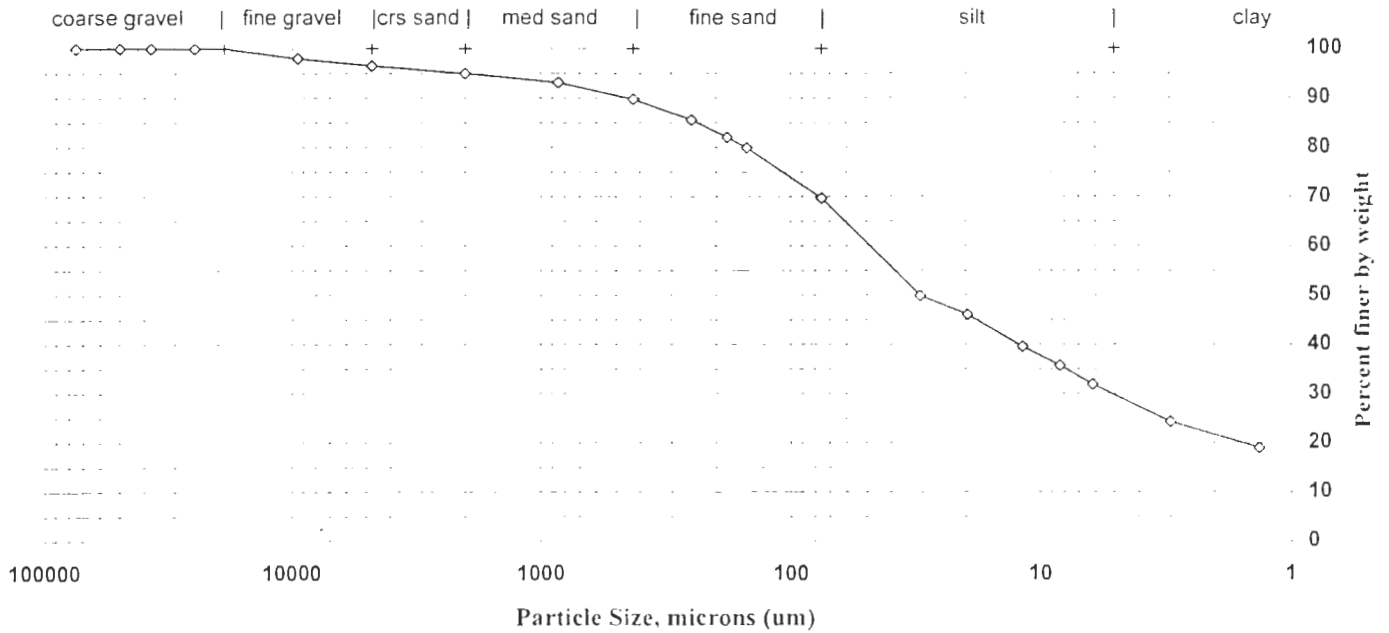
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76542</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76516</u>
Date Received: <u>07-Jan-99</u>	Start Date: <u>10-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: 406501	Sample ID: 573009
----------------	-------------------

Percent Solids: <u>80.9%</u>	Maximum Particle Size: <u>19 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>Rounded</u>
	Hardness (> #10): <u>Hard</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.0	2.0
#4	4750	96.5	1.5
#10	2000	95.0	1.6
#20A	850	93.1	1.8
#40A	425	89.7	3.4
#60A	250	85.5	4.2
#80A	180	82.0	3.5
#100A	150	79.9	2.1
#200A	75	69.7	10.2
Hydrometer	30.5	49.8	19.9
	19.6	46.0	3.8
	11.8	39.5	6.5
	8.3	35.7	3.8
	6.1	31.9	3.8
	3.0	24.3	7.6
V	1.3	19.0	5.3

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

4165

Submitted By:

Date: 1/20/00

STL - Burlington 76542ps::Report

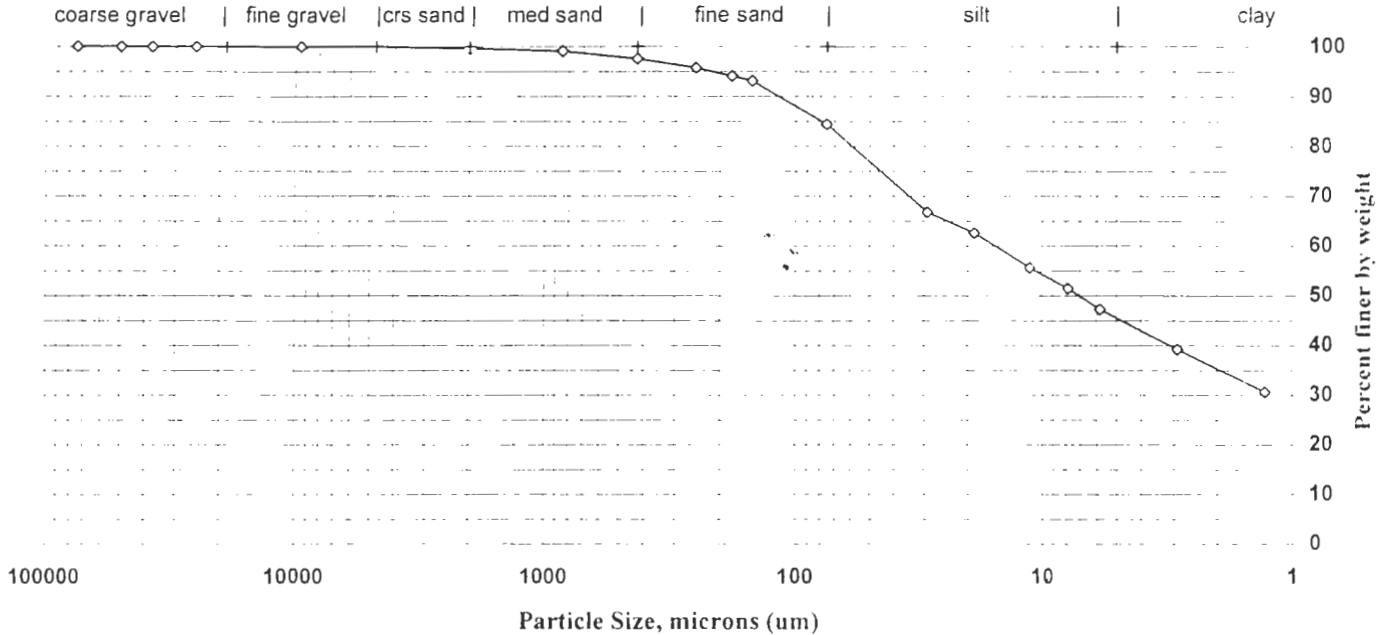
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76547</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547</u>
Date Received: <u>07-Jan-00</u>	Start Date: <u>10-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: <u>406521</u>	Sample ID: <u>573010</u>
-----------------------	--------------------------

Percent Solids: 76.2% Maximum Particle Size: Crs sand
 Specific Gravity: 2.65 Shape (> #10): Subrounded
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.6	0.4
#20A	850	99.1	0.5
#40A	425	97.6	1.6
#60A	250	95.7	1.8
#80A	180	94.1	1.6
#100A	150	93.1	1.0
#200A	75	84.4	8.6
Hydrometer	29.0	66.8	17.6
	18.7	62.6	4.2
	11.2	55.7	7.0
	7.8	51.5	4.2
	5.8	47.3	4.2
	2.9	39.2	8.1
V	1.3	30.6	8.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/20/00

STL - Burlington 76547ps::Report

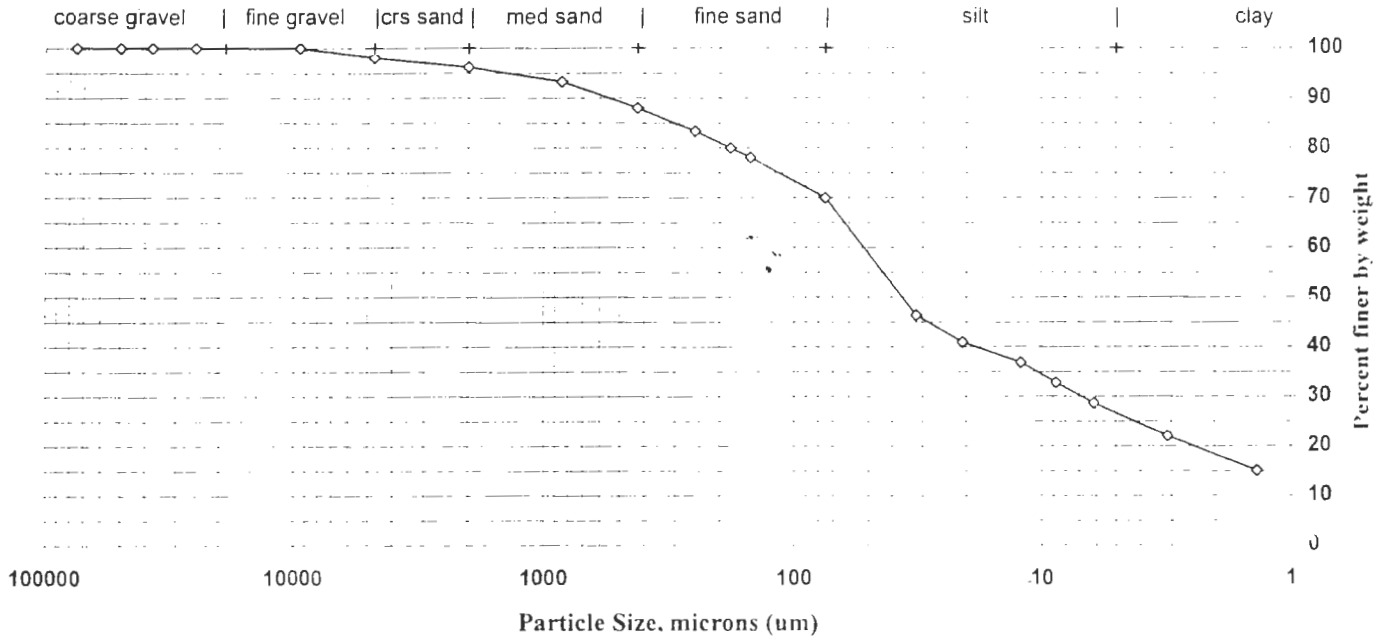
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76547</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547</u>
Date Received: <u>07-Jan-00</u>	Start Date: <u>10-Jan-00</u>	End Date: <u>19-Jan-00</u>

Lab ID: 406522	Sample ID: 573011
----------------	-------------------

Percent Solids: <u>69.9%</u>	Maximum Particle Size: <u>9.5 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>Subrounded</u>
	Hardness (> #10): <u>Hard</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.1	1.9
#10	2000	96.2	2.0
#20A	850	93.3	2.9
#40A	425	88.0	5.3
#60A	250	83.3	4.7
#80A	180	80.0	3.4
#100A	150	78.1	1.9
#200A	75	69.9	8.1
Hydrometer	31.8	46.4	23.5
	20.6	40.9	5.5
	12.1	36.8	4.1
	8.7	32.8	4.1
	6.1	28.7	4.1
	3.1	22.1	6.6
N	1.4	15.0	7.1

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 1/20/00

SFL - Burlington 76547 ps::Report

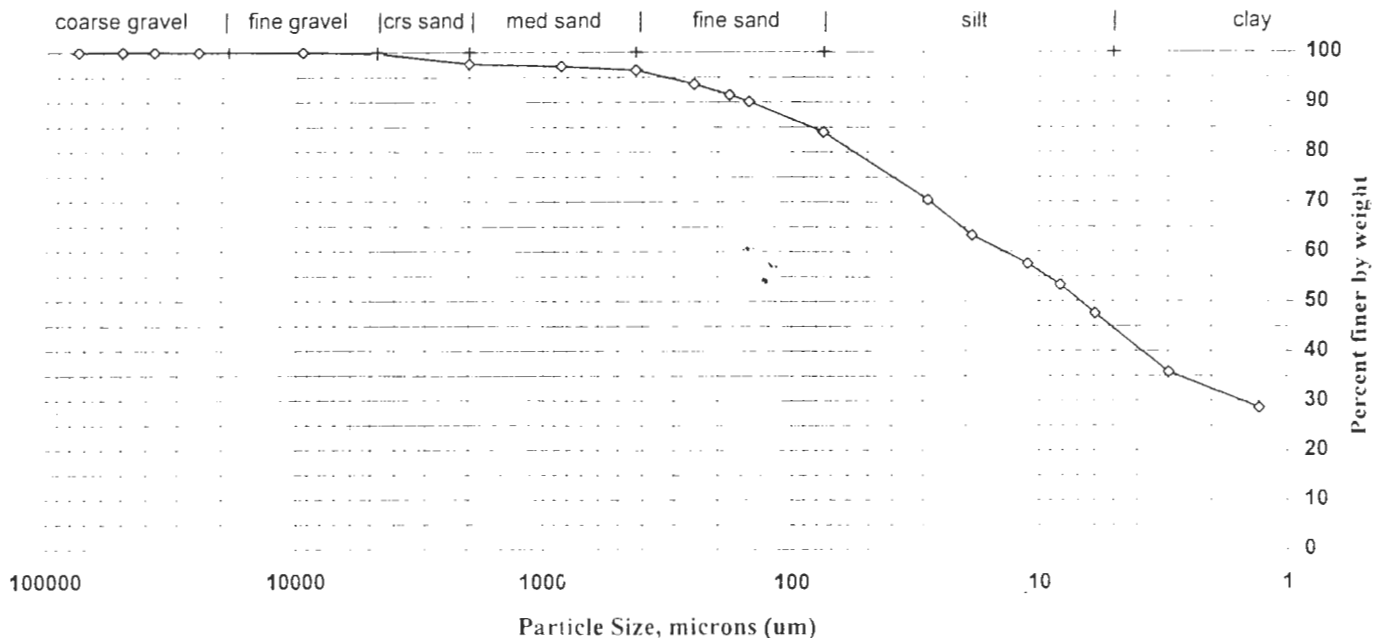
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76560,61
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76547,61
 Date Received: 08-Jan-00 Start Date: 13-Jan-00 End Date: 11-Feb-00

Lab ID: 406640 Sample ID: 573012

Percent Solids: 77.0% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.7	0.3
#10	2000	97.7	2.0
#20B	850	97.2	0.5
#40B	425	96.4	0.8
#60B	250	93.6	2.8
#80B	180	91.4	2.1
#100B	150	90.1	1.3
#200B	75	84.0	6.1
Hydrometer	28.6	70.5	13.5
	18.8	63.3	7.2
	11.1	57.6	5.7
	8.2	53.3	4.3
	5.9	47.5	5.7
	3.0	35.8	11.7
V	1.3	28.7	7.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

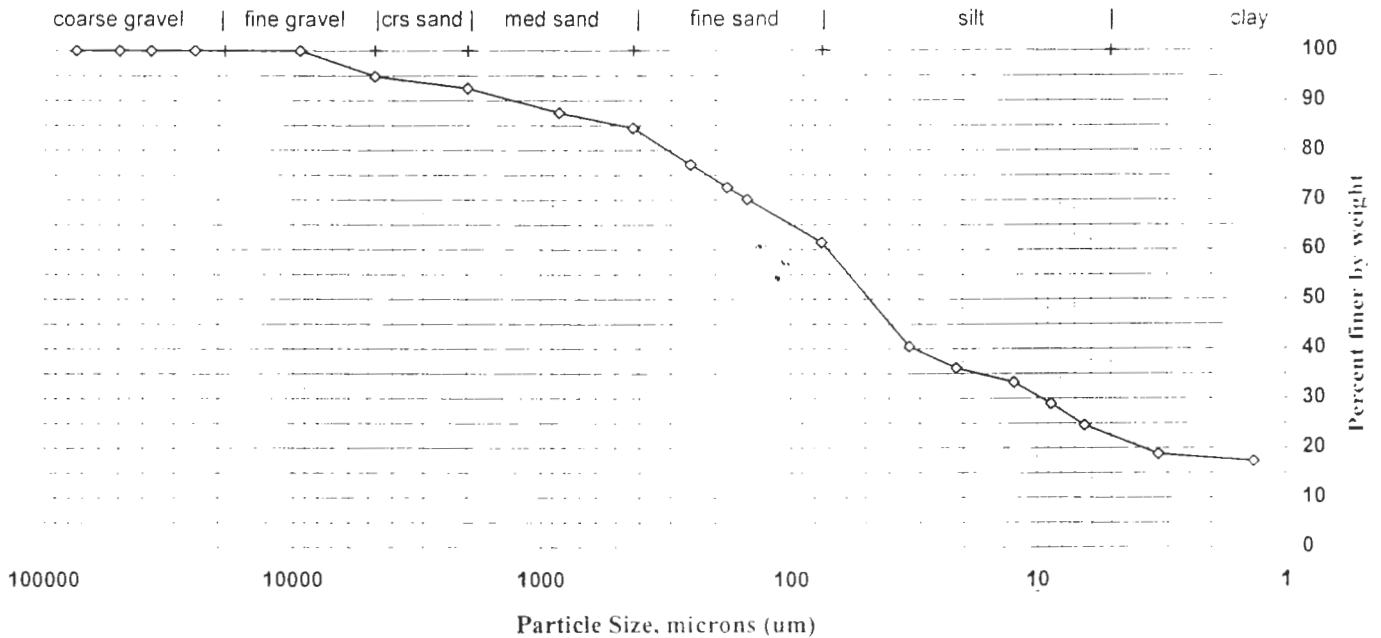
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76560,61
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76547,61
 Date Received: 08-Jan-00 Start Date: 13-Jan-00 End Date: 11-Feb-00

Lab ID: 406644 Sample ID: 5730i3

Percent Solids: 74.2% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	94.9	5.1
#10	2000	92.5	2.4
#20B	850	87.5	4.9
#40B	425	84.4	3.1
#60B	250	77.1	7.3
#80B	180	72.5	4.6
#100B	150	70.1	2.4
#200B	75	61.4	8.7
Hydrometer	33.0	40.5	20.9
	21.2	36.1	4.3
	12.4	33.2	2.9
	8.7	28.9	4.3
	6.4	24.6	4.3
	3.2	18.8	5.8
V	1.3	17.3	1.4

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 2/11/00

STL - Burlington 76560ps::Report

Particle Size of Soils by ASTM D422

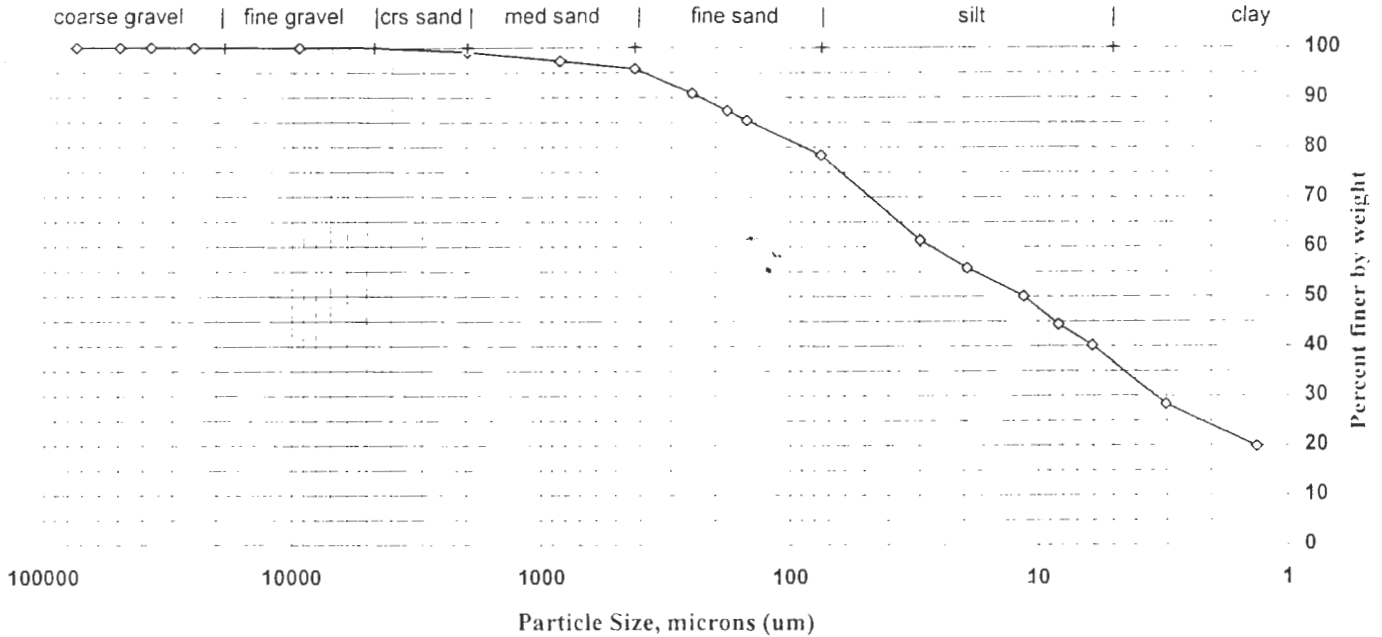
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: <u>406638</u>	Sample ID: <u>573014</u>
-----------------------	--------------------------

Percent Solids: 79.1%
 Specific Gravity: 2.65

Maximum Particle Size: Crs sand
 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.2	0.8
#20B	850	97.3	1.9
#40B	425	95.7	1.6
#60B	250	90.8	4.9
#80B	180	87.4	3.5
#100B	150	85.4	2.0
#200B	75	78.3	7.1
Hydrometer	29.7	61.4	16.9
	19.3	55.7	5.7
	11.4	50.0	5.7
	8.3	44.4	5.7
	6.0	40.1	4.2
	3.0	28.3	11.8
V	1.3	19.8	8.5

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: B. J. [Signature]

Date: 2-11-00

STL - Burlington 76560ps::Report

Particle Size of Soils by ASTM D422

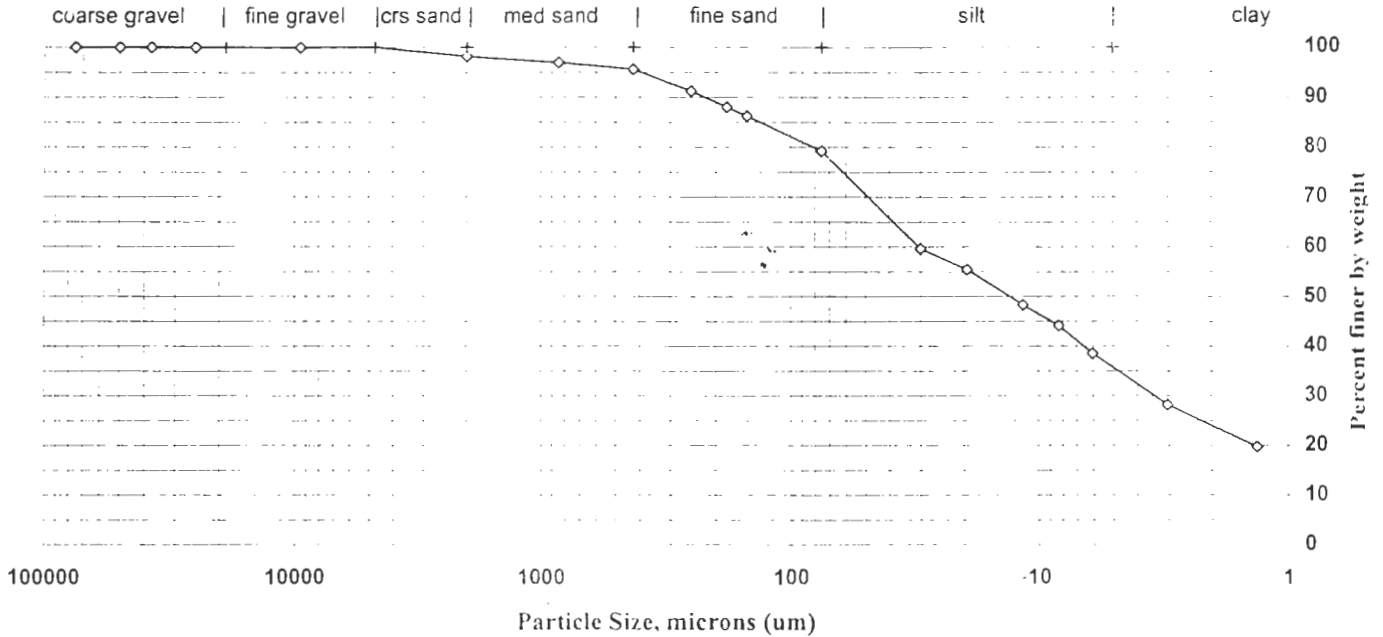
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: 406636	Sample ID: 573015
----------------	-------------------

Percent Solids: 70.2%
Specific Gravity: 2.65

Maximum Particle Size: Crs sand
Shape (> #10): Subround
Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.2	1.8
#20B	850	97.0	1.2
#40B	425	95.6	1.4
#60B	250	91.2	4.4
#80B	180	88.0	3.2
#100B	150	86.2	1.8
#200B	75	79.3	6.9
Hydrometer	29.9	59.6	19.6
	19.3	55.4	4.2
	11.5	48.3	7.0
	8.3	44.1	4.2
	6.0	38.5	5.6
	3.0	28.2	10.3
V	1.3	19.7	8.4

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 2/11/00

STI - Burlington 76560ps::Report

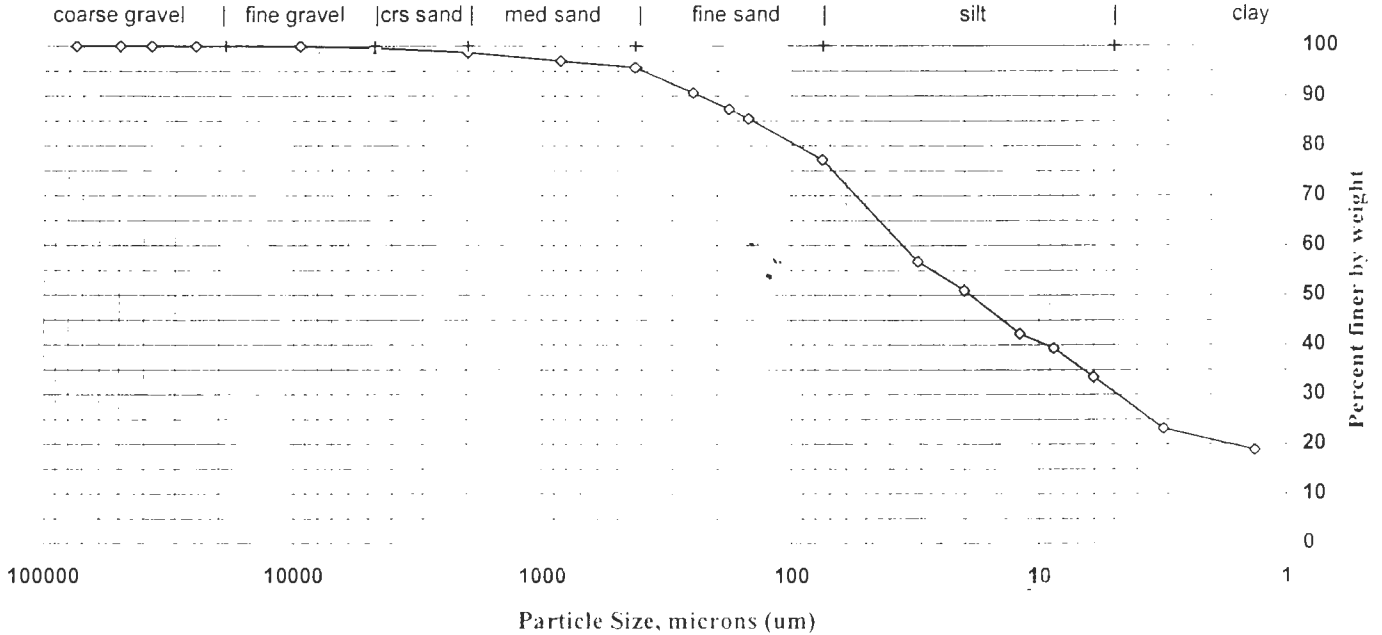
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: <u>406642</u>	Sample ID: <u>573016</u>
-----------------------	--------------------------

Percent Solids: <u>71.7%</u>	Maximum Particle Size: <u>9.5 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>Subround</u>
	Hardness (> #10): <u>Hard</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	98.7	0.9
#20B	850	97.0	1.7
#40B	425	95.6	1.4
#60B	250	90.7	5.0
#80B	180	87.4	3.3
#100B	150	85.4	2.0
#200B	75	77.2	8.2
Hydrometer	30.7	56.8	20.4
	19.9	51.0	5.8
	11.9	42.3	8.7
	8.7	39.4	2.9
	6.0	33.6	5.8
	3.1	23.2	10.4
V	1.3	18.8	4.3

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By: [Signature]

Date: 2/11/00

STL - Burlington 76560ps::Report

Particle Size of Soils by ASTM D422

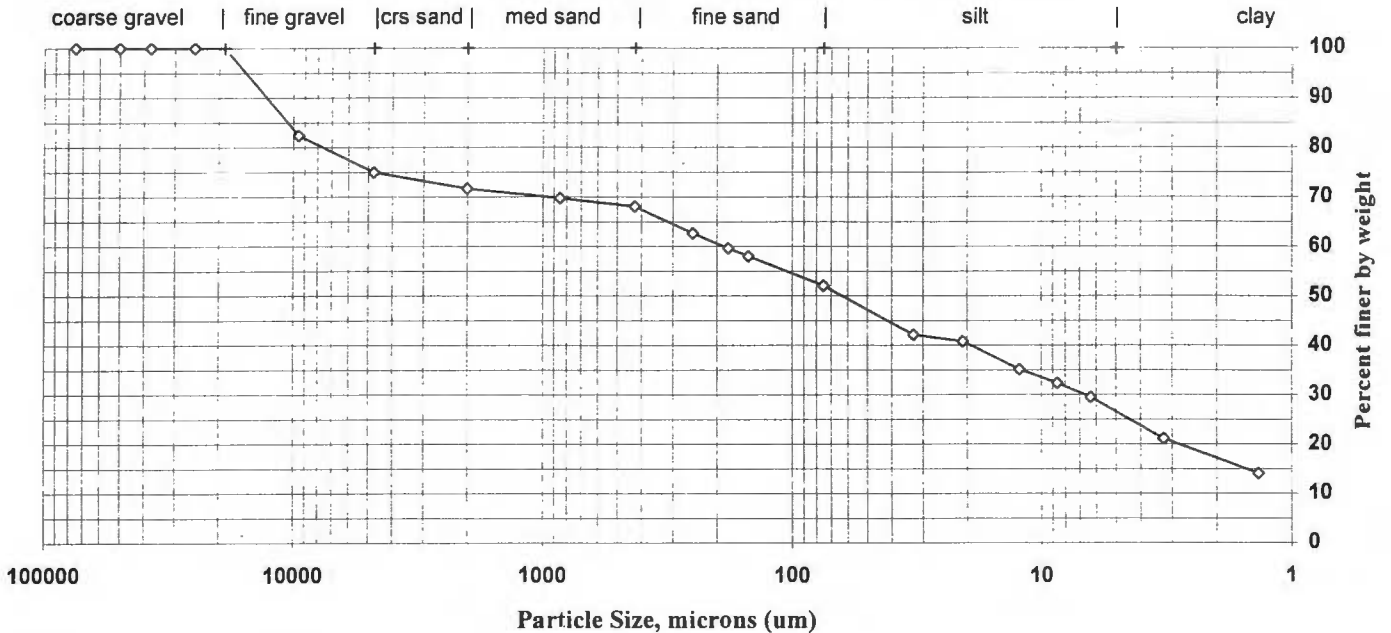
Sample preparation by: D2217

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76560,61
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76547,61
 Date Received: 08-Jan-00 Start Date: 13-Jan-00 End Date: 11-Feb-00

Lab ID: 406652 Sample ID: 573017

Percent Solids: 74.7%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	82.4	17.6
#4	4750	74.9	7.4
#10	2000	71.7	3.3
#20B	850	69.7	2.0
#40B	425	68.0	1.7
#60B	250	62.7	5.4
#80B	180	59.6	3.0
#100B	150	58.0	1.6
#200B	75	52.1	5.9
Hydrometer	32.6	42.2	9.9
	20.7	40.7	1.4
	12.2	35.1	5.6
	8.6	32.3	2.8
	6.3	29.5	2.8
	3.2	21.1	8.4
V	1.4	14.1	7.0

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3233

Submitted By: [Signature]

Date: 2/11/00

STL - Burlington 76560ps::Report

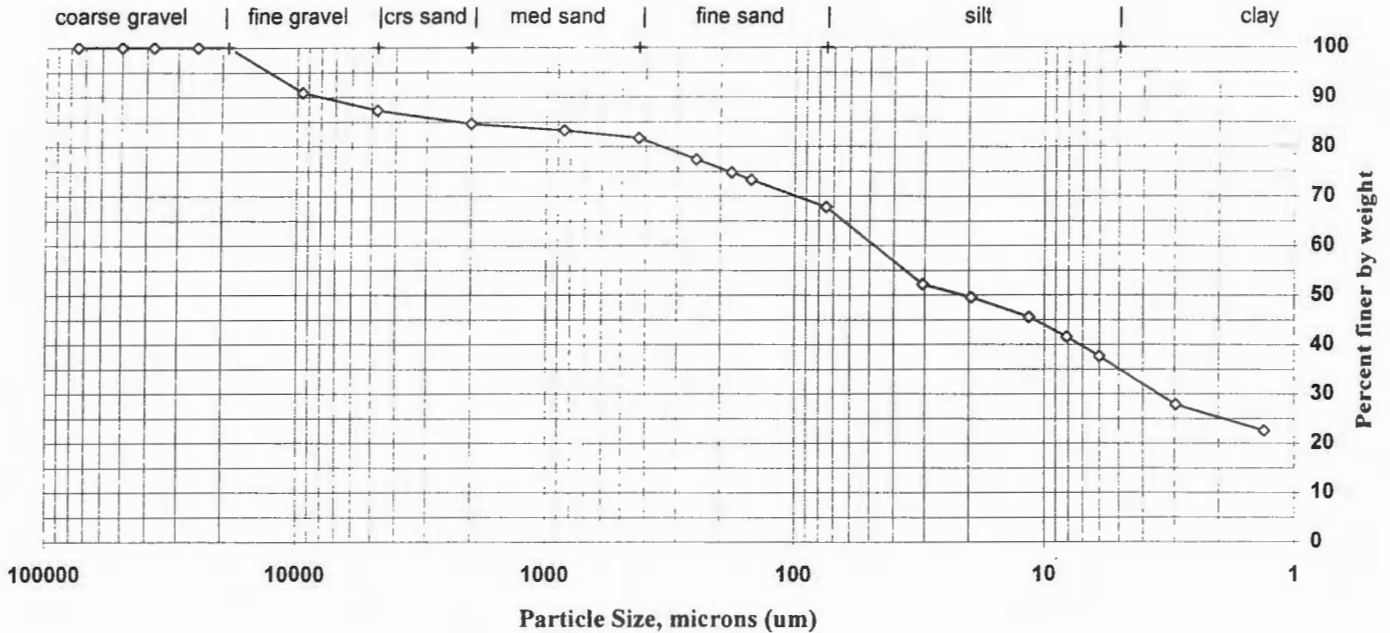
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: 406653	Sample ID: 573018
----------------	-------------------

Percent Solids: <u>77.7%</u>	Maximum Particle Size: <u>19 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>Subround</u>
	Hardness (> #10): <u>Hard</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	90.9	9.1
#4	4750	87.3	3.6
#10	2000	84.6	2.7
#20B	850	83.3	1.3
#40B	425	81.7	1.6
#60B	250	77.4	4.3
#80B	180	74.8	2.6
#100B	150	73.3	1.4
#200B	75	67.8	5.5
Hydrometer	30.5	52.2	15.6
	19.5	49.5	2.7
	11.5	45.6	4.0
	8.1	41.6	4.0
	6.0	37.6	4.0
	3.0	27.9	9.7
V	1.3	22.6	5.3

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3234

Submitted By:

Date: 2/11/00

STL - Burlington 76560ps::Report

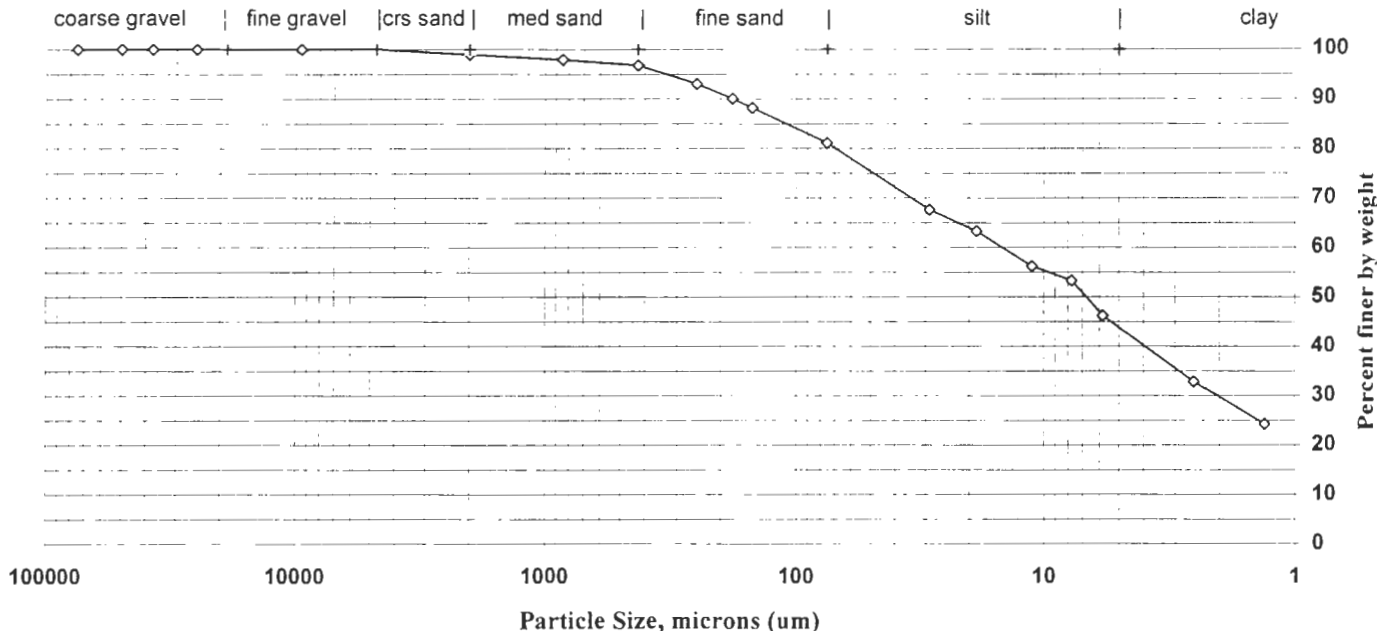
Particle Size of Soils by ASTM D422

Sample preparation by: **D2217**

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76560,61
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76547,61
 Date Received: 08-Jan-00 Start Date: 13-Jan-00 End Date: 11-Feb-00

Lab ID: 406654 Sample ID: 573019

Percent Solids: 67.1% Maximum Particle Size: Crs sand
 Specific Gravity: 2.65 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.0	1.0
#20B	850	98.0	1.0
#40B	425	96.8	1.2
#60B	250	93.0	3.7
#80B	180	90.0	3.0
#100B	150	88.2	1.8
#200B	75	81.1	7.1
Hydrometer	28.8	67.6	13.5
	18.6	63.3	4.3
	11.1	56.2	7.1
	7.7	53.3	2.9
	5.8	46.2	7.1
	2.5	32.9	13.3
V	1.3	24.3	8.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3235

Submitted By: *[Signature]*

Date: 2/11/00

STL - Burlington 76560ps::Report

Particle Size of Soils by ASTM D422

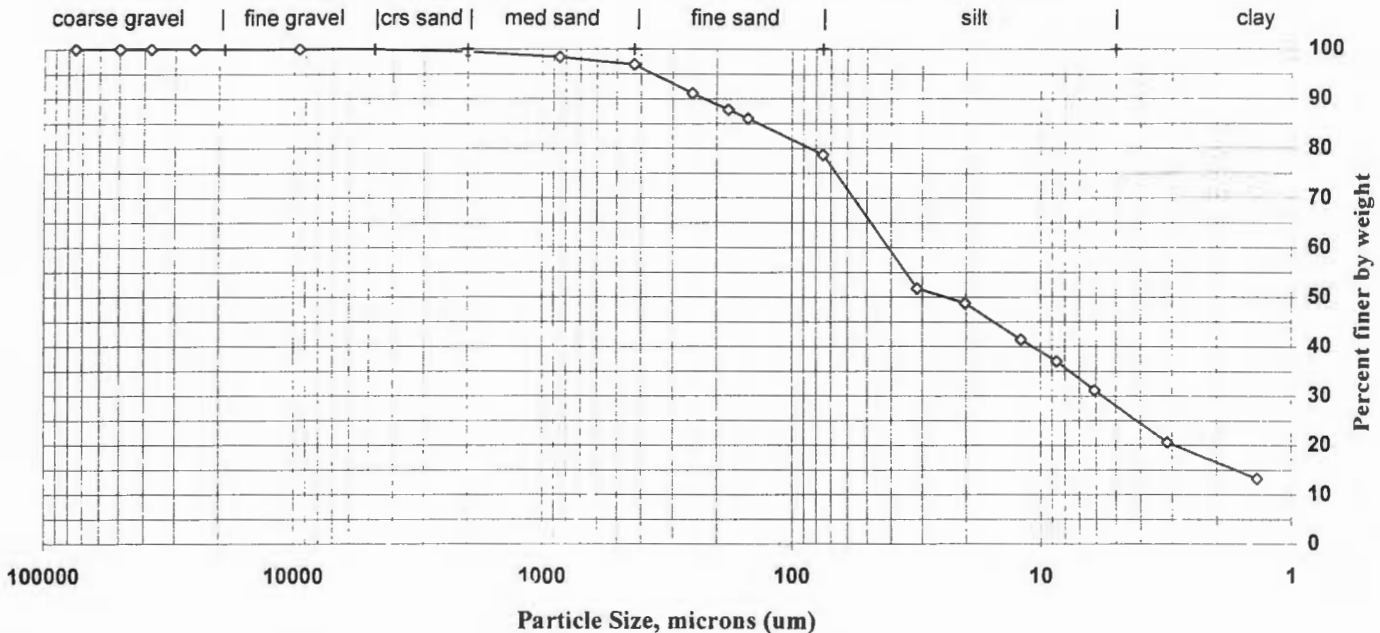
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: 406655	Sample ID: 573020
----------------	-------------------

Percent Solids: 56.2%
 Specific Gravity: 2.65

Maximum Particle Size: Crs sand
 Shape (> #10): Subround
 Hardness (> #10): Hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.5	0.5
#20B	850	98.4	1.1
#40B	425	96.9	1.5
#60B	250	91.1	5.8
#80B	180	87.8	3.3
#100B	150	86.0	1.9
#200B	75	78.7	7.3
Hydrometer	31.4	51.7	27.0
	20.1	48.8	2.9
	12.0	41.4	7.4
	8.6	37.0	4.4
	6.1	31.1	5.9
	3.1	20.6	10.5
V	1.4	13.2	7.4

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3236

Submitted By: *[Signature]*

Date: 2/11/00

STL - Burlington 76560ps::Report

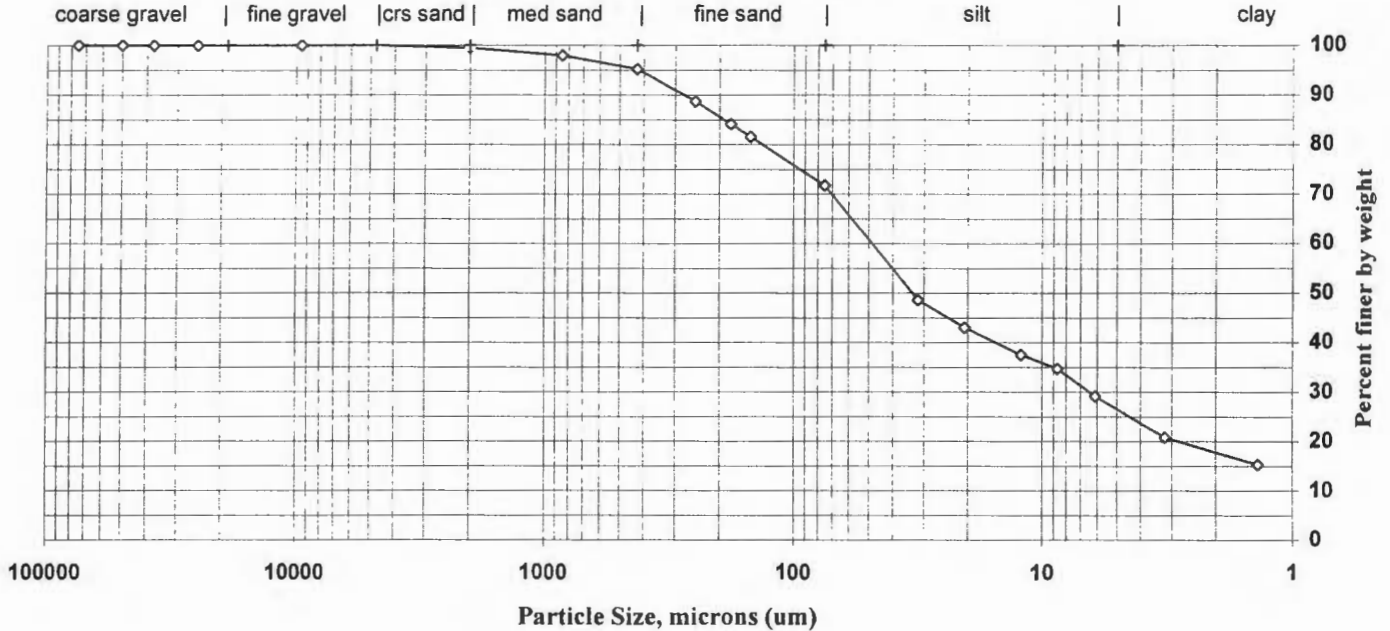
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76560,61</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76547,61</u>
Date Received: <u>08-Jan-00</u>	Start Date: <u>13-Jan-00</u>	End Date: <u>11-Feb-00</u>

Lab ID: <u>406657</u>	Sample ID: <u>573022</u>
-----------------------	--------------------------

Percent Solids: <u>59.9%</u>	Maximum Particle Size: <u>Crs sand</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>Subround</u>
	Hardness (> #10): <u>Hard</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.5	0.5
#20B	850	97.9	1.6
#40B	425	95.2	2.7
#60B	250	88.7	6.5
#80B	180	84.1	4.6
#100B	150	81.5	2.6
#200B	75	71.7	9.8
Hydrometer	31.6	48.6	23.2
	20.5	43.0	5.6
	12.1	37.5	5.6
	8.7	34.7	2.8
	6.1	29.1	5.6
	3.2	20.8	8.3
V	1.4	15.3	5.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3238

Submitted By: *[Signature]*

Date: 2/11/00

STL - Burlington 76560ps::Report

Particle Size of Soils by ASTM D422

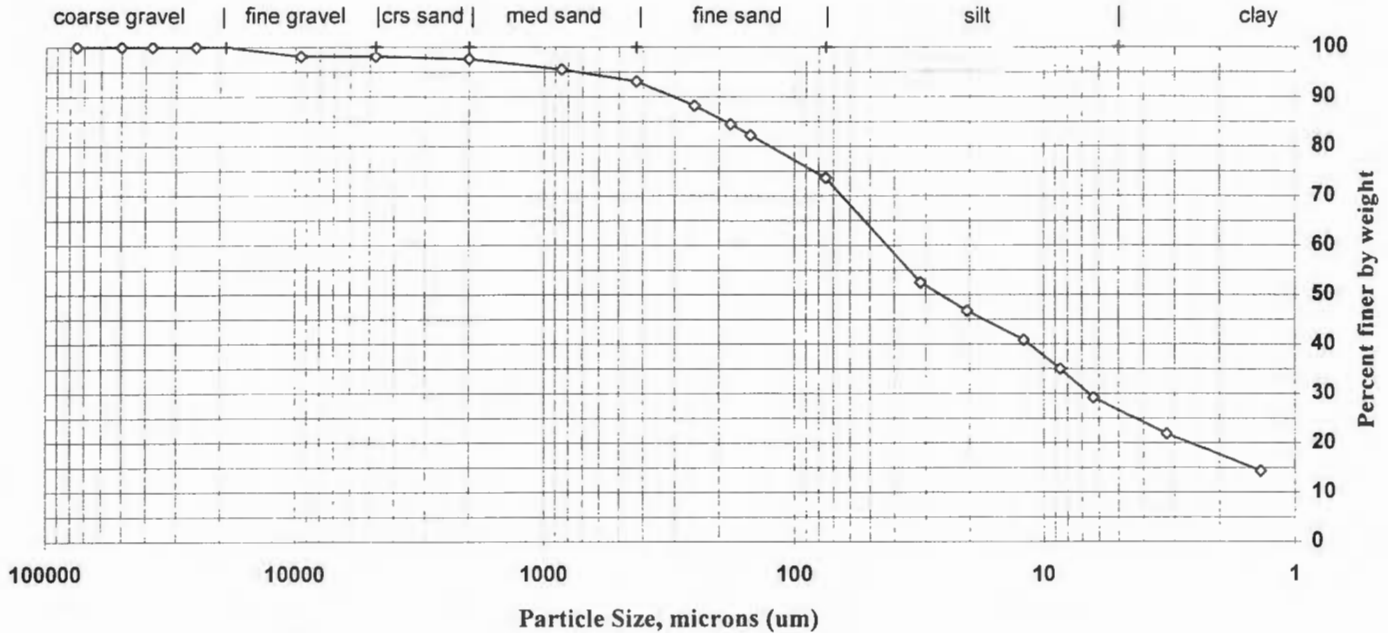
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 406875	Sample ID: 573023
----------------	-------------------

Percent Solids: 65.8%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): N/A
 Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.1	1.9
#4	4750	98.1	0.0
#10	2000	97.6	0.5
#20B	850	95.5	2.1
#40B	425	93.1	2.4
#60B	250	88.2	4.9
#80B	180	84.5	3.7
#100B	150	82.2	2.3
#200B	75	73.6	8.6
Hydrometer	31.4	52.5	21.2
	20.4	46.7	5.8
	12.0	40.8	5.9
	8.6	35.0	5.8
	6.3	29.2	5.8
	3.2	21.9	7.3
V	1.4	14.3	7.5

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3243

Submitted By: *[Signature]*

Date: 2/10/00

STL - Burlington 76582ps::Report

Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: <u>406876</u>	Sample ID: <u>573024</u>
-----------------------	--------------------------

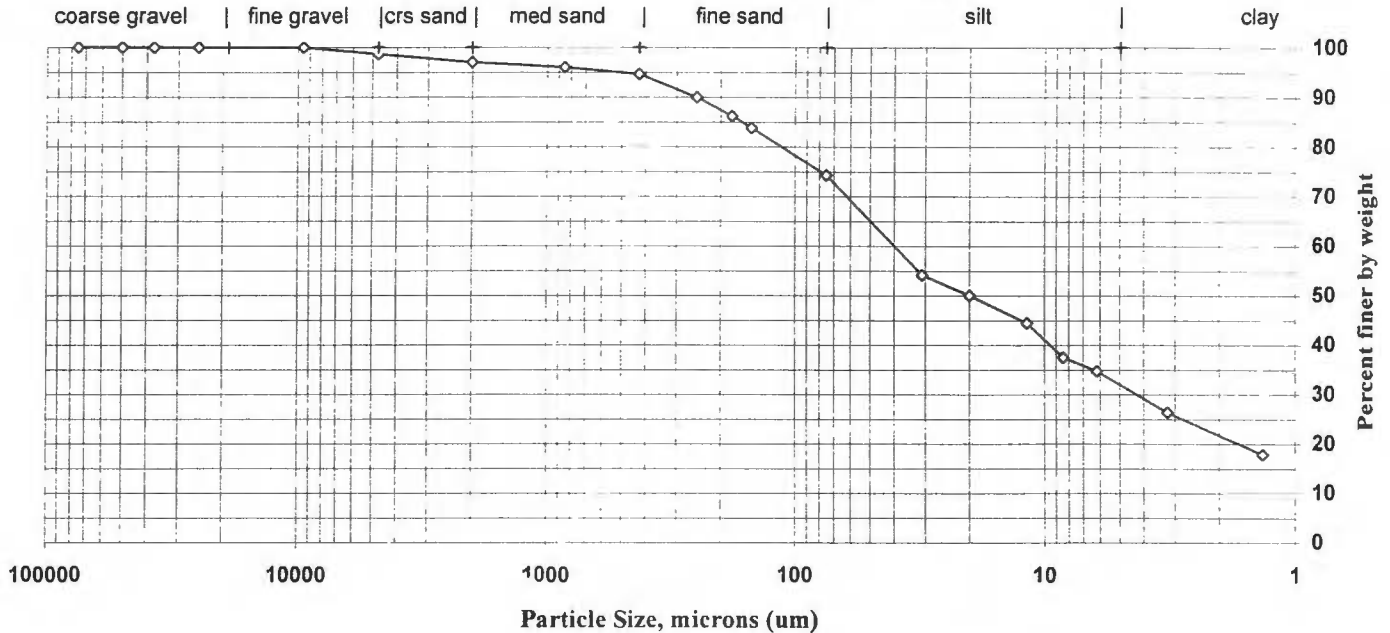
Percent Solids: 76.7%

Maximum Particle Size: 9.5 mm

Specific Gravity: 2.65

Shape (> #10): N/A

Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.6	1.4
#10	2000	97.0	1.6
#20B	850	96.0	1.0
#40B	425	94.7	1.4
#60B	250	90.0	4.6
#80B	180	86.2	3.9
#100B	150	83.8	2.3
#200B	75	74.3	9.5
Hydrometer	30.9	54.2	20.1
	19.9	50.1	4.2
	11.8	44.5	5.6
	8.4	37.5	7.0
	6.2	34.8	2.8
	3.2	26.4	8.3
V	1.3	17.8	8.6

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3244

Submitted By: [Signature]

Date: 2/10/00

STL - Burlington 76582ps::Report

Particle Size of Soils by ASTM D422

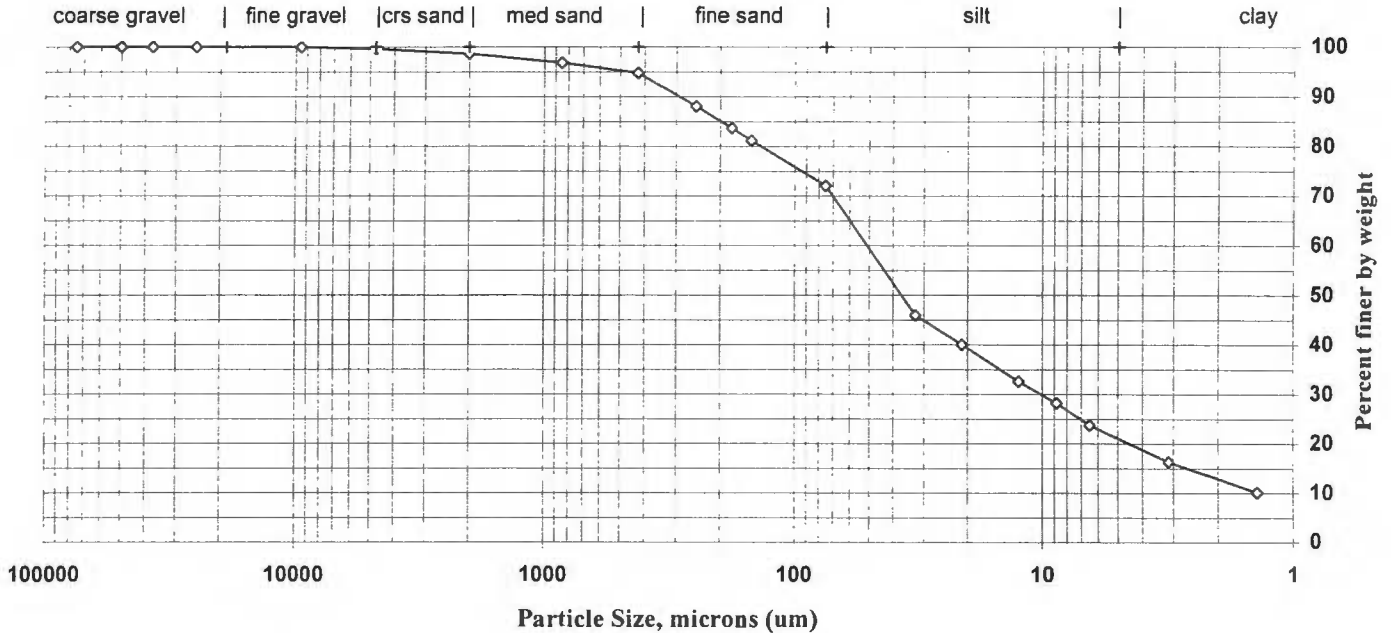
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 406877	Sample ID: 573025
----------------	-------------------

Percent Solids: 70.1%
Specific Gravity: 2.65

Maximum Particle Size: 9.5 mm
Shape (> #10): N/A
Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	98.7	0.9
#20B	850	96.8	1.8
#40B	425	94.8	2.0
#60B	250	88.1	6.7
#80B	180	83.7	4.4
#100B	150	81.2	2.5
#200B	75	72.0	9.1
Hydrometer	32.4	46.0	26.1
	21.0	40.0	5.9
	12.4	32.6	7.4
	8.8	28.2	4.4
	6.5	23.7	4.4
	3.1	16.3	7.4
V	1.4	10.1	6.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3245

Submitted By:

Date: 2/10/00

STL - Burlington 76582ps::Report

Particle Size of Soils by ASTM D422

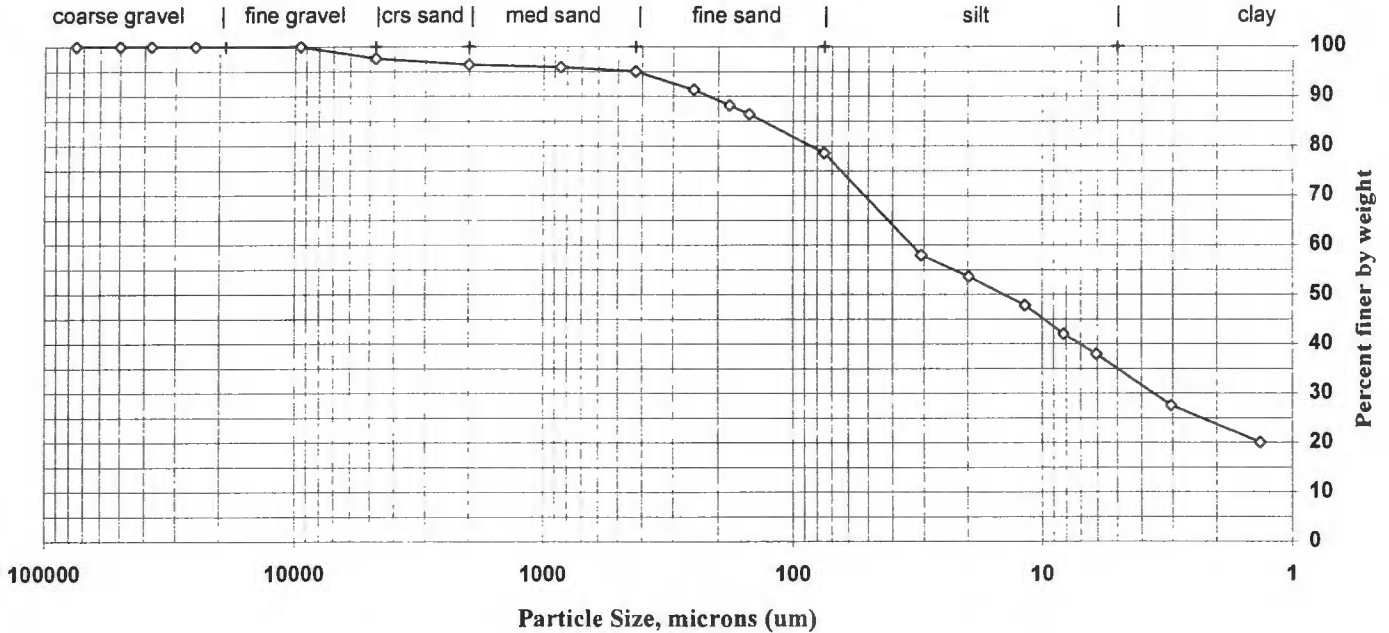
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 406878	Sample ID: 573026
----------------	-------------------

Percent Solids: 73.5%
 Specific Gravity: 2.65

Maximum Particle Size: 9.5 mm
 Shape (> #10): N/A
 Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	97.6	2.4
#10	2000	96.4	1.2
#20B	850	95.9	0.6
#40B	425	95.0	0.8
#60B	250	91.3	3.7
#80B	180	88.2	3.1
#100B	150	86.4	1.9
#200B	75	78.6	7.8
Hydrometer	30.7	57.9	20.7
	19.8	53.6	4.3
	11.7	47.8	5.8
	8.2	42.0	5.8
	6.1	37.9	4.1
	3.0	27.5	10.4
V	1.3	20.0	7.5

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3246

Submitted By: *[Signature]*

Date: 2/10/00

STL - Burlington 76582ps::Report

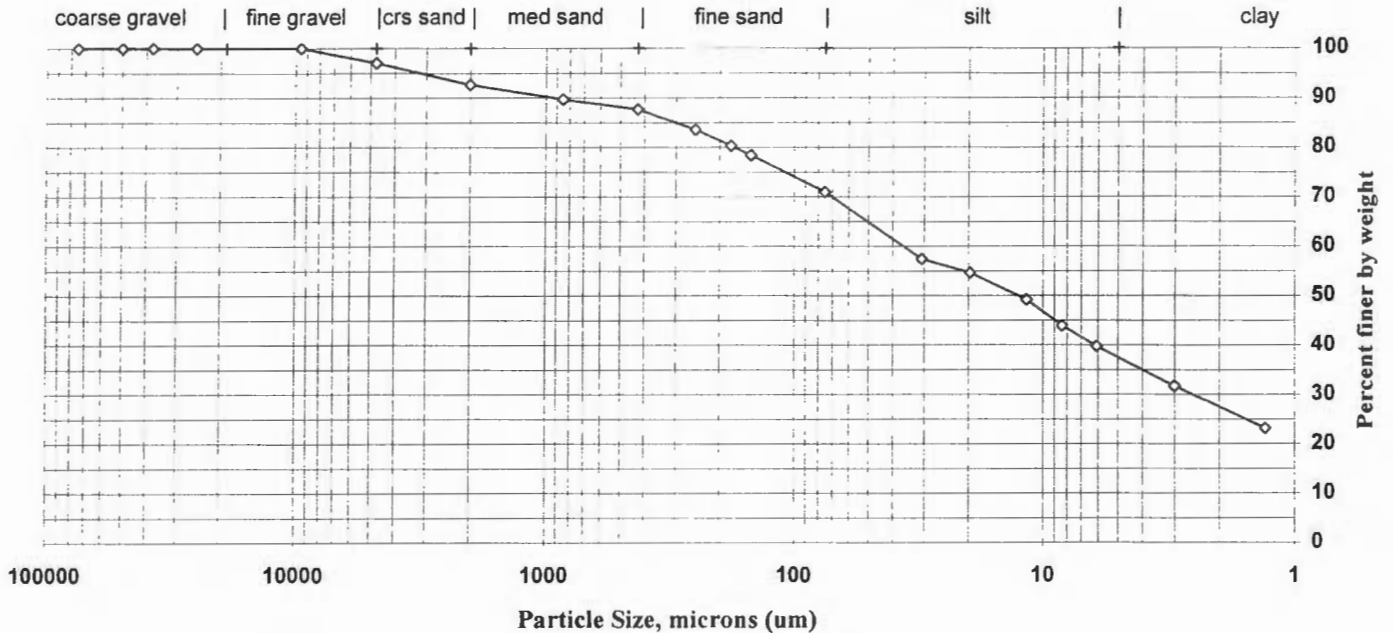
Particle Size of Soils by ASTM D422

Sample preparation by: **D2217**

Client: Parsons Eng. Sci. Project No.: 99029 ETR(s) #: 76582,96
 Client Code: ENGSC2 Job No.: SA4657 SDG(s): 76561,84
 Date Received: 13-Jan-00 Start Date: 20-Jan-00 End Date: 09-Feb-00

Lab ID: 406870	Sample ID: 573030
----------------	-------------------

Percent Solids: 75.9% Maximum Particle Size: 9.5 mm
 Specific Gravity: 2.65 Shape (> #10): N/A
 Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	97.0	3.0
#10	2000	92.7	4.4
#20B	850	89.7	3.0
#40B	425	87.6	2.0
#60B	250	83.5	4.1
#80B	180	80.3	3.2
#100B	150	78.4	2.0
#200B	75	71.0	7.4
Hydrometer	30.6	57.4	13.6
	19.6	54.7	2.8
	11.6	49.1	5.5
	8.4	43.9	5.3
	6.1	39.7	4.1
	3.0	31.7	8.0
V	1.3	23.2	8.5

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3239

Submitted By: *[Signature]*

Date: 2/10/00

STL - Burlington 76582ps::Report

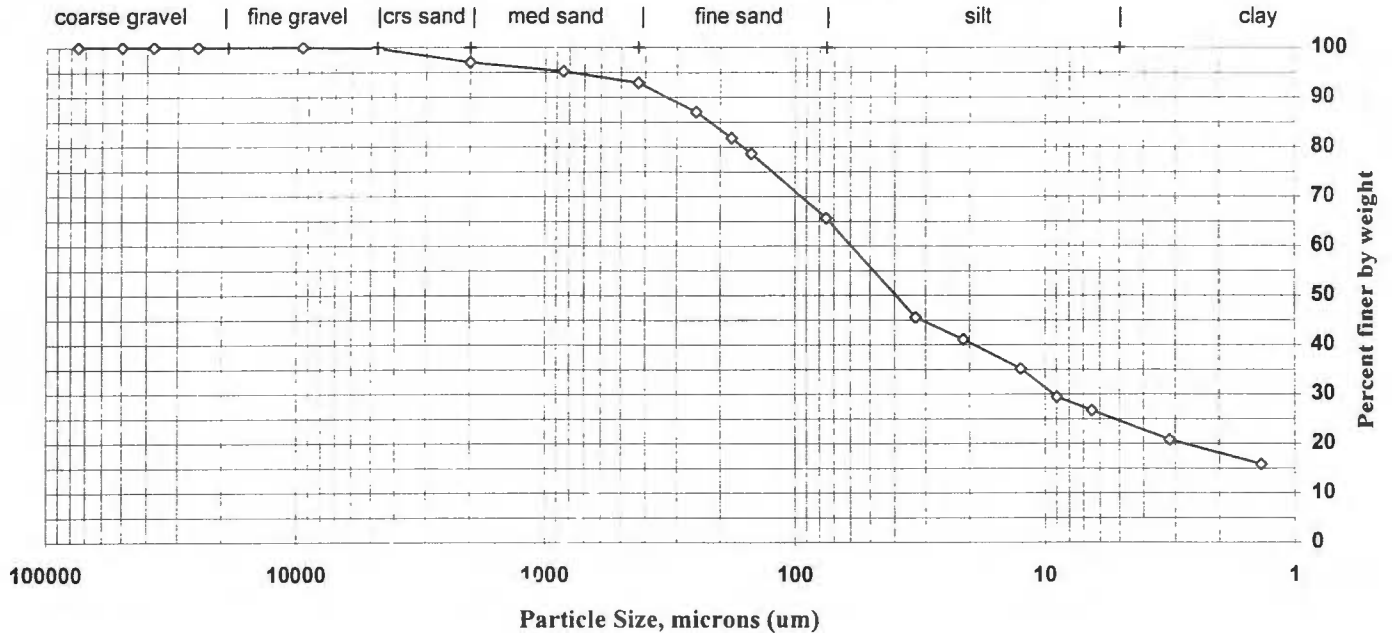
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 406872	Sample ID: 573032
----------------	-------------------

Percent Solids: <u>80.5%</u>	Maximum Particle Size: <u>9.5 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>N/A</u>
	Hardness (> #10): <u>N/A</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.8	0.2
#10	2000	97.0	2.8
#20B	850	95.2	1.8
#40B	425	92.9	2.3
#60B	250	87.0	5.8
#80B	180	81.8	5.2
#100B	150	78.7	3.1
#200B	75	65.6	13.1
Hydrometer	32.8	45.5	20.1
	21.1	41.1	4.5
	12.5	35.1	5.9
	8.9	29.4	5.7
	6.5	26.7	2.7
	3.1	20.8	5.9
V	1.4	15.8	4.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3240

Submitted By:

Date: 2/10/00

STL - Burlington 76582ps::Report

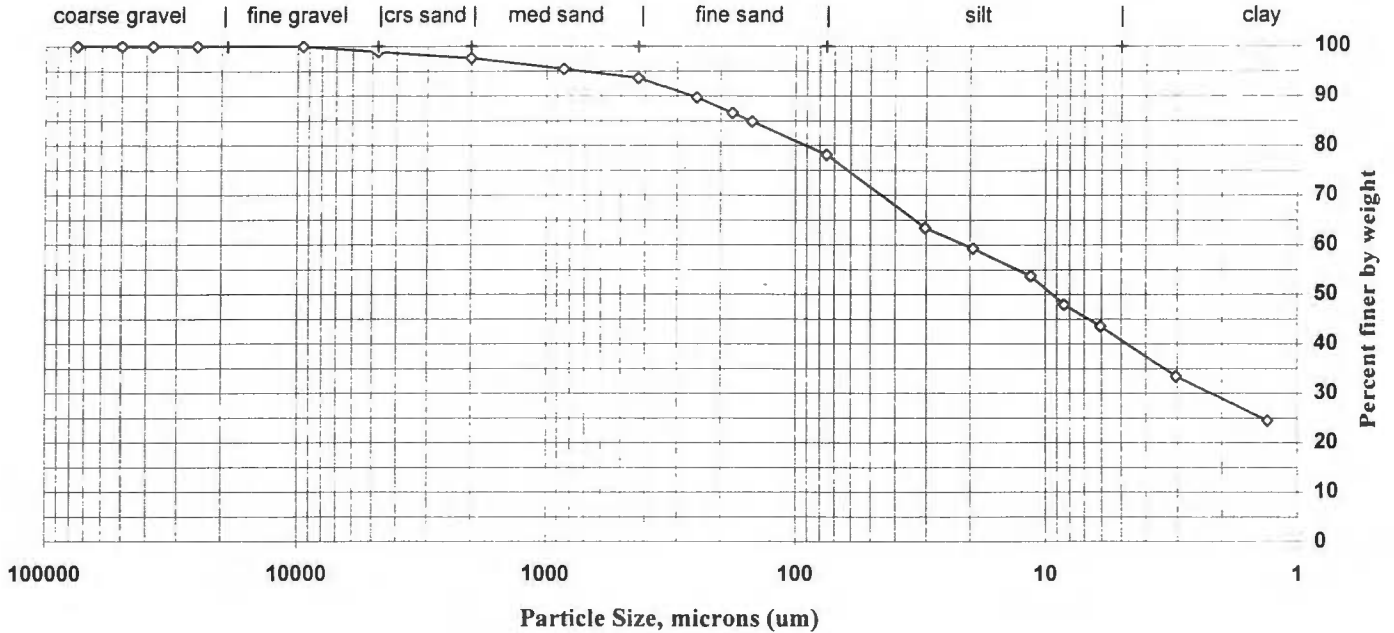
Particle Size of Soils by ASTM D422

Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 406873	Sample ID: 573033
----------------	-------------------

Percent Solids: <u>70.2%</u>	Maximum Particle Size: <u>9.5 mm</u>
Specific Gravity: <u>2.65</u>	Shape (> #10): <u>N/A</u>
	Hardness (> #10): <u>N/A</u>



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.9	1.1
#10	2000	97.6	1.3
#20B	850	95.4	2.2
#40B	425	93.6	1.9
#60B	250	89.7	3.9
#80B	180	86.5	3.1
#100B	150	84.8	1.7
#200B	75	78.1	6.7
Hydrometer	30.2	63.4	14.7
	19.4	59.3	4.1
	11.4	53.7	5.6
	8.4	47.9	5.8
	6.1	43.6	4.4
	3.0	33.4	10.2
V	1.3	24.4	9.0

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3241

Submitted By: [Signature]

Date: 2/10/00

STL - Burlington 76582ps::Report

Particle Size of Soils by ASTM D422

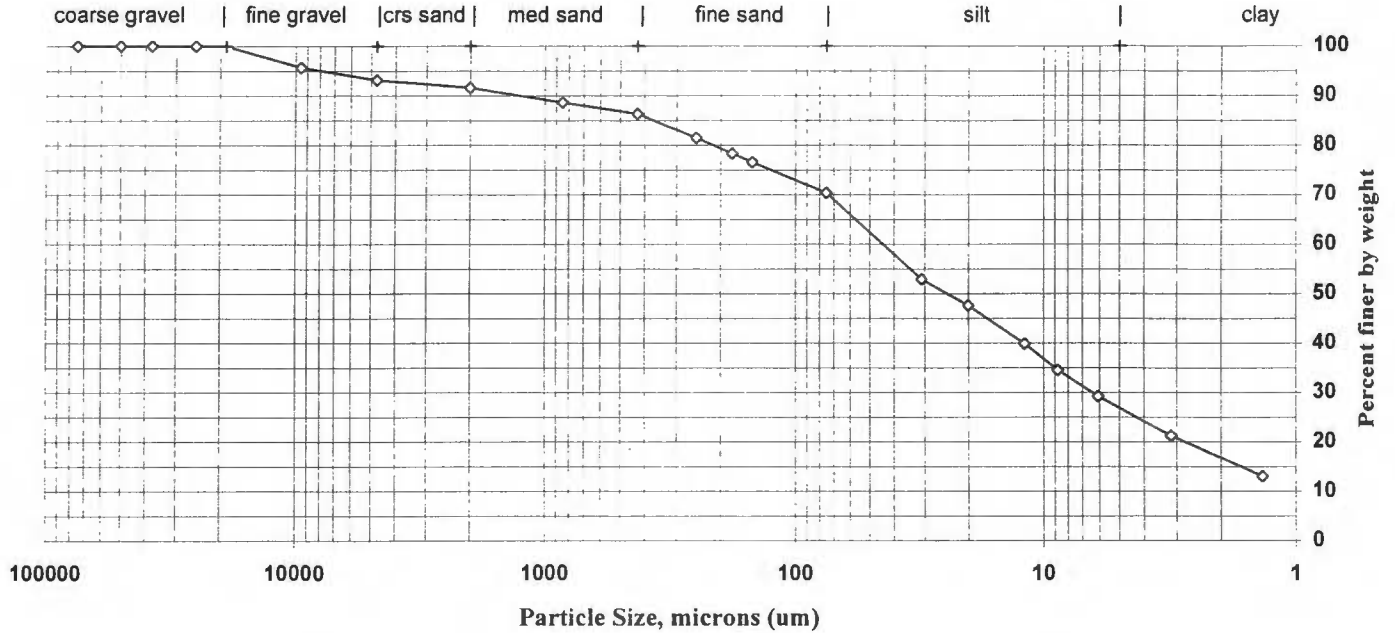
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: <u>406874</u>	Sample ID: <u>573034</u>
-----------------------	--------------------------

Percent Solids: 62.4%
Specific Gravity: 2.65

Maximum Particle Size: 19 mm
Shape (> #10): N/A
Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	95.7	4.3
#4	4750	93.2	2.5
#10	2000	91.6	1.5
#20B	850	88.6	3.0
#40B	425	86.3	2.3
#60B	250	81.5	4.9
#80B	180	78.3	3.1
#100B	150	76.6	1.7
#200B	75	70.4	6.2
Hydrometer	30.8	52.9	17.5
	20.0	47.6	5.3
	11.9	39.9	7.7
	8.8	34.5	5.3
	6.1	29.2	5.3
	3.1	21.3	8.0
V	1.4	13.1	8.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

3242

Submitted By: *[Signature]*

Date: 2/10/00

Particle Size of Soils by ASTM D422

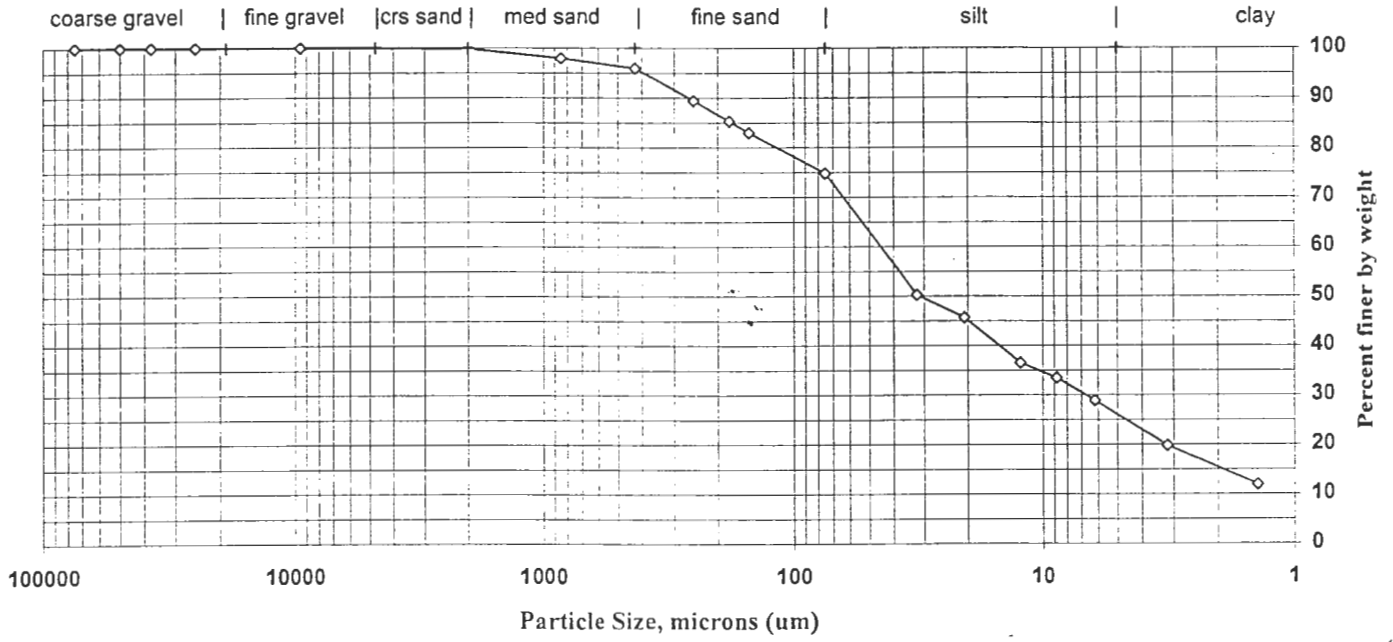
Sample preparation by: **D2217**

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 407035	Sample ID: 573035
----------------	-------------------

Percent Solids: 52.7%
 Specific Gravity: 2.65

Maximum Particle Size: Crs sand
 Shape (> #10): N/A
 Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.8	0.2
#20B	850	98.0	1.9
#40B	425	96.0	2.0
#60B	250	89.4	6.6
#80B	180	85.3	4.1
#100B	150	83.0	2.3
#200B	75	74.8	8.2
Hydrometer	32.0	50.2	24.5
	20.6	45.7	4.6
	12.3	36.5	9.1
	8.8	33.5	3.0
	6.2	28.9	4.6
	3.2	19.8	9.1
V	1.4	11.9	7.9

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By:

Date: 2/10/00

STL - Burlington 76582ps::Report

Particle Size of Soils by ASTM D422

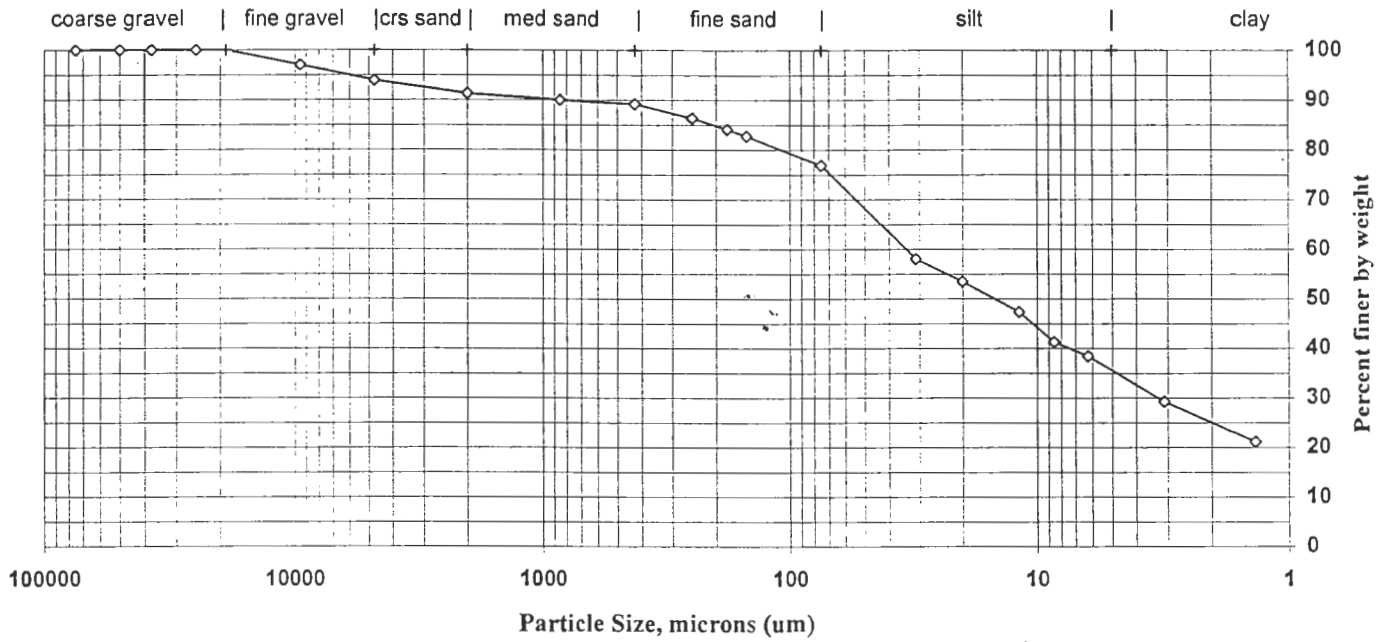
Sample preparation by: D2217

Client: <u>Parsons Eng. Sci.</u>	Project No.: <u>99029</u>	ETR(s) #: <u>76582,96</u>
Client Code: <u>ENGSC2</u>	Job No.: <u>SA4657</u>	SDG(s): <u>76561,84</u>
Date Received: <u>13-Jan-00</u>	Start Date: <u>20-Jan-00</u>	End Date: <u>09-Feb-00</u>

Lab ID: 407036	Sample ID: 573036
----------------	-------------------

Percent Solids: 69.9%
 Specific Gravity: 2.65

Maximum Particle Size: 19 mm
 Shape (> #10): N/A
 Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.0	3.0
#4	4750	94.0	3.0
#10	2000	91.3	2.7
#20B	850	90.0	1.3
#40B	425	89.2	0.8
#60B	250	86.4	2.8
#80B	180	84.1	2.3
#100B	150	82.8	1.4
#200B	75	76.9	5.9
Hydrometer	31.1	58.1	18.8
	20.0	53.5	4.6
	11.8	47.4	6.1
	8.6	41.3	6.1
	6.2	38.5	2.8
	3.1	29.3	9.2
V	1.4	21.1	8.2

Dispersion of soil for hydrometer test by mechanical mixer with metal paddle, operated for at least one minute within a dispersion cup with 125 mls sodium hexametaphosphate

Submitted By:

Date: 2/10/00

STL - Burlington 76582ps::Report

MONITORING WELL COMPLETION REPORT: MW46-1

PROJECT: SEAD-45,46,57 RI/FS
 PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
 ASSOCIATED AREA/UNIT: SEAD-46
 PROJECT NO.: 736676-01001
 WELL INSTALLATION STARTED: 12/13/99
 WELL INSTALLATION COMPLETED: 12/13/99
 DRILLING CONTRACTOR: Maxim Technologies Inc.
 DRILLING METHOD: 4.25 HSA
 SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 24
 DEPTH TO WATER: 4.87
 BORING LOCATION: 1007209.59
 749701.71
 COORDINATE SYSTEM: NAD-27
 GROUND SURFACE ELEVATION: 679.76
 ELEVATION DATUM: NGVD 29
 INSPECTOR: RFB
 CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS
			-2.31	TOC	682.07	
0			0	GS	679.76	PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0 RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.0 SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 19.47 Slot Size (in): 0.010
1						GROUT Type: NA Length (ft): NA SEAL Type: Bentonite Chips Length (ft): 3.0 SANDPACK Type: NJ#0 Length (ft): 21.0 SURFACE SEAL Type: Concrete Size: 2x2x1
2						
3			3	TSP	676.76	
4			4	TSC	675.76	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

WELL DEVELOPMENT DATA

WATER LEVELS

Date: 01/07/2000
 Method: Bail/Peristaltic Pump
 Duration: 1h25m
 Rate: 240 ml/min
 Total Volume Removed (gals): 19.6

Date	Time	Depth TOC
17/00	1010	4.87

pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)
6.17	50.6	904	25.4

LEGEND

WELL DETAILS

- TOC TOP OF WELL RISER
- GS GROUND SURFACE
- TBS TOP BENTONITE SEAL
- TSP TOP OF SANDPACK
- TSC TOP OF SCREEN
- BSC BOTTOM OF SCREEN
- POW POINT OF WELL
- BOD BOTTOM OF DRILL HOLE
- in INCHES
- ft FEET
- ID INSIDE DIAMETER
- gals GALLONS
- SCH SCHEDULE
- NA NOT APPLICABLE

LITHOLOGY

- SEAL
- GROUT
- SANDPACK
- WEATHERED SHALE
- ORGANIC SILT
- TILL
- SILT
- SHALE

NOTES:



UNITED STATES ARMY
 CORPS OF ENGINEERS
 Seneca Army Depot
 Romulus, New York

COMPLETION REPORT
 MW46-1

MONITORING WELL COMPLETION REPORT: MW46-1

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/13/99
WELL INSTALLATION COMPLETED: 12/13/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 24
DEPTH TO WATER: 4.87
BORING LOCATION: 1007209.59
 749701.71
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 679.76
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS																																														
20						PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0 RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.0 SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 19.47 Slot Size (in): 0.010																																														
21						GROUT Type: NA Length (ft): NA SEAL Type: Bentonite Chips Length (ft): 3.0 SANDPACK Type: NJ#0 Length (ft): 21.0 SURFACE SEAL Type: Concrete Size: 2x2x1																																														
22																																																				
23																																																				
24				23.5	BSC	656.26																																														
25			24	POW	655.76																																															
26																																																				
27																																																				
28						WELL DEVELOPMENT DATA																																														
29						WATER LEVELS																																														
30						Date: 01/07/2000 Method: Bail/Peristaltic Pump Duration: 1h25m Rate: 240 ml/min Total Volume Removed (gals): 19.6 <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;"></th> <th style="width: 25%; text-align: center;">Date</th> <th style="width: 25%; text-align: center;">Time</th> <th style="width: 25%; text-align: center;">Depth, TOC</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Development</td> <td style="text-align: center;">1/7/00</td> <td style="text-align: center;">1010</td> <td style="text-align: center;">4.87</td> </tr> </tbody> </table>		Date	Time	Depth, TOC	Development	1/7/00	1010	4.87																																						
	Date	Time	Depth, TOC																																																	
Development	1/7/00	1010	4.87																																																	
31																																																				
32						<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%; text-align: center;">pH</th> <th style="width: 25%; text-align: center;">Temperature (degrees F)</th> <th style="width: 25%; text-align: center;">Conductivity (micromhos/cm)</th> <th style="width: 25%; text-align: center;">Turbidity (NTUs)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">6.17</td> <td style="text-align: center;">50.6</td> <td style="text-align: center;">904</td> <td style="text-align: center;">25.4</td> </tr> </tbody> </table>	pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)	6.17	50.6	904	25.4																																						
pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)																																																	
6.17	50.6	904	25.4																																																	
33						LEGEND																																														
34						WELL DETAILS																																														
35						LITHOLOGY																																														
36						<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td>TOC</td><td>TOP OF WELL RISER</td></tr> <tr><td>GS</td><td>GROUND SURFACE</td></tr> <tr><td>TBS</td><td>TOP BENTONITE SEAL</td></tr> <tr><td>TSP</td><td>TOP OF SANDPACK</td></tr> <tr><td>TSC</td><td>TOP OF SCREEN</td></tr> <tr><td>BSC</td><td>BOTTOM OF SCREEN</td></tr> <tr><td>POW</td><td>POINT OF WELL</td></tr> <tr><td>BOD</td><td>BOTTOM OF DRILL HOLE</td></tr> <tr><td>in</td><td>INCHES</td></tr> <tr><td>ft</td><td>FEET</td></tr> <tr><td>ID</td><td>INSIDE DIAMETER</td></tr> <tr><td>gals</td><td>GALLONS</td></tr> <tr><td>SCH</td><td>SCHEDULE</td></tr> <tr><td>NA</td><td>NOT APPLICABLE</td></tr> </table> </td> <td style="width: 50%; vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table> </td> </tr> </tbody> </table>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>TOC</td><td>TOP OF WELL RISER</td></tr> <tr><td>GS</td><td>GROUND SURFACE</td></tr> <tr><td>TBS</td><td>TOP BENTONITE SEAL</td></tr> <tr><td>TSP</td><td>TOP OF SANDPACK</td></tr> <tr><td>TSC</td><td>TOP OF SCREEN</td></tr> <tr><td>BSC</td><td>BOTTOM OF SCREEN</td></tr> <tr><td>POW</td><td>POINT OF WELL</td></tr> <tr><td>BOD</td><td>BOTTOM OF DRILL HOLE</td></tr> <tr><td>in</td><td>INCHES</td></tr> <tr><td>ft</td><td>FEET</td></tr> <tr><td>ID</td><td>INSIDE DIAMETER</td></tr> <tr><td>gals</td><td>GALLONS</td></tr> <tr><td>SCH</td><td>SCHEDULE</td></tr> <tr><td>NA</td><td>NOT APPLICABLE</td></tr> </table>	TOC	TOP OF WELL RISER	GS	GROUND SURFACE	TBS	TOP BENTONITE SEAL	TSP	TOP OF SANDPACK	TSC	TOP OF SCREEN	BSC	BOTTOM OF SCREEN	POW	POINT OF WELL	BOD	BOTTOM OF DRILL HOLE	in	INCHES	ft	FEET	ID	INSIDE DIAMETER	gals	GALLONS	SCH	SCHEDULE	NA	NOT APPLICABLE	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table>		SEAL		ORGANIC SILT		GROUT		TILL		SANDPACK		SILT		WEATHERED SHALE		SHALE
<table style="width: 100%; border-collapse: collapse;"> <tr><td>TOC</td><td>TOP OF WELL RISER</td></tr> <tr><td>GS</td><td>GROUND SURFACE</td></tr> <tr><td>TBS</td><td>TOP BENTONITE SEAL</td></tr> <tr><td>TSP</td><td>TOP OF SANDPACK</td></tr> <tr><td>TSC</td><td>TOP OF SCREEN</td></tr> <tr><td>BSC</td><td>BOTTOM OF SCREEN</td></tr> <tr><td>POW</td><td>POINT OF WELL</td></tr> <tr><td>BOD</td><td>BOTTOM OF DRILL HOLE</td></tr> <tr><td>in</td><td>INCHES</td></tr> <tr><td>ft</td><td>FEET</td></tr> <tr><td>ID</td><td>INSIDE DIAMETER</td></tr> <tr><td>gals</td><td>GALLONS</td></tr> <tr><td>SCH</td><td>SCHEDULE</td></tr> <tr><td>NA</td><td>NOT APPLICABLE</td></tr> </table>	TOC	TOP OF WELL RISER	GS	GROUND SURFACE	TBS	TOP BENTONITE SEAL	TSP	TOP OF SANDPACK	TSC	TOP OF SCREEN	BSC	BOTTOM OF SCREEN	POW	POINT OF WELL	BOD	BOTTOM OF DRILL HOLE	in	INCHES	ft	FEET	ID	INSIDE DIAMETER	gals	GALLONS	SCH	SCHEDULE	NA	NOT APPLICABLE	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table>		SEAL		ORGANIC SILT		GROUT		TILL		SANDPACK		SILT		WEATHERED SHALE		SHALE							
TOC	TOP OF WELL RISER																																																			
GS	GROUND SURFACE																																																			
TBS	TOP BENTONITE SEAL																																																			
TSP	TOP OF SANDPACK																																																			
TSC	TOP OF SCREEN																																																			
BSC	BOTTOM OF SCREEN																																																			
POW	POINT OF WELL																																																			
BOD	BOTTOM OF DRILL HOLE																																																			
in	INCHES																																																			
ft	FEET																																																			
ID	INSIDE DIAMETER																																																			
gals	GALLONS																																																			
SCH	SCHEDULE																																																			
NA	NOT APPLICABLE																																																			
	SEAL		ORGANIC SILT																																																	
	GROUT		TILL																																																	
	SANDPACK		SILT																																																	
	WEATHERED SHALE		SHALE																																																	

NOTES:

MONITORING WELL COMPLETION REPORT: MW46-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/18/99
WELL INSTALLATION COMPLETED: 12/18/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 12.8
DEPTH TO WATER: 3.64
BORING LOCATION: 1007148.31
 749334.93
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 671.87
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS							
			-2.5	TOC	674.37	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 5.8</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 6.7 Slot Size (in): 0.010</p> </div> <div style="width: 45%;"> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.5</p> <p>SANDPACK Type: NJ#0 Length (ft): 9.3</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p> </div> </div>							
0			0	GS	671.87								
1													
2													
3													
3.5			3.5	TSP	668.37								
4													
5													
5.6			5.6	TSC	666.27								
6													
7													
8													
WELL DEVELOPMENT DATA													
WATER LEVELS													
Date: 01/09/2000 Method: Bail/Peristaltic Pump Duration: 2h10m Rate: >300 ml/min Total Volume Removed (gals): 14.2													
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">Date</th> <th style="width: 20%;">Time</th> <th style="width: 40%;">Depth, TOC</th> </tr> </thead> <tbody> <tr> <td>Development</td> <td>1/9/00</td> <td>0930</td> <td>3.64</td> </tr> </tbody> </table>							Date	Time	Depth, TOC	Development	1/9/00	0930	3.64
	Date	Time	Depth, TOC										
Development	1/9/00	0930	3.64										
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">pH</th> <th style="width: 20%;">Temperature (degrees F)</th> <th style="width: 20%;">Conductivity (micromhos/cm)</th> <th style="width: 40%;">Turbidity (NTUs)</th> </tr> </thead> <tbody> <tr> <td>7.21</td> <td>46.2</td> <td>950</td> <td>24.4</td> </tr> </tbody> </table>						pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)	7.21	46.2	950	24.4
pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)										
7.21	46.2	950	24.4										
12.5			BSC		659.37								
12.8			POW		659.07								
13													
14													
LEGEND													
WELL DETAILS			LITHOLOGY										
TOC	TOP OF WELL RISER		SEAL		ORGANIC SILT								
GS	GROUND SURFACE		GROUT		TILL								
TBS	TOP BENTONITE SEAL		SANDPACK		SILT								
TSP	TOP OF SANDPACK		WEATHERED SHALE		SHALE								
TSC	TOP OF SCREEN												
BSC	BOTTOM OF SCREEN												
POW	POINT OF WELL												
BOD	BOTTOM OF DRILL HOLE												
in	INCHES												
ft	FEET												
ID	INSIDE DIAMETER												
gals	GALLONS												
SCH	SCHEDULE												
NA	NOT APPLICABLE												

NOTES:

MONITORING WELL COMPLETION REPORT: MW46-6

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-46
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/17/99
WELL INSTALLATION COMPLETED: 12/17/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 15
DEPTH TO WATER: 4.32
BORING LOCATION: 1007147.06
 749467.73
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 673.67
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS
			-2.33	TOC	676.00	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 5.0</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 9.47 Slot Size (in): 0.010</p> </div> <div style="width: 45%;"> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.5</p> <p>SANDPACK Type: NJ#0 Length (ft): 11.5</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p> </div> </div>
0			0	GS	673.67	
1						
2						
3						
4			3.5	TSP	670.17	
5			5	TSC	668.67	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15			14.5	BSC	659.17	
15			15	POW	658.67	
16						
17						
18						
19						

WELL DEVELOPMENT DATA

WATER LEVELS

Date: 01/10/2000	Date	Time	Depth, TOC ∇
Method: Bail/Peristaltic Pump	1/10/00	1035	4.32
Duration: 2h5m	Development		
Rate: >500 ml/min			
Total Volume Removed (gals): 14.9			

pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)
6.8	49.9	1330	39.4

LEGEND

WELL DETAILS	LITHOLOGY
TOC TOP OF WELL RISER	
GS GROUND SURFACE	
TBS TOP BENTONITE SEAL	SEAL
TSP TOP OF SANDPACK	GROUT
TSC TOP OF SCREEN	SANDPACK
BSC BOTTOM OF SCREEN	WEATHERED SHALE
POW POINT OF WELL	ORGANIC SILT
BOD BOTTOM OF DRILL HOLE	TILL
in INCHES	SILT
ft FEET	SHALE
ID INSIDE DIAMETER	
gals GALLONS	
SCH SCHEDULE	
NA NOT APPLICABLE	

NOTES:



**UNITED STATES ARMY
 CORPS OF ENGINEERS**
 Seneca Army Depot
 Romulus, New York

**COMPLETION REPORT
 MW46-6**

MONITORING WELL COMPLETION REPORT: MW57-4

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/1/99
WELL INSTALLATION COMPLETED: 12/1/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.5
DEPTH TO WATER: 2.27
BORING LOCATION: 1009471.00
 738710.72
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 629.31
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS							
			-1.98	TOC	631.29	<p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.5</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 9.47 Slot Size (in): 0.010</p> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.5</p> <p>SANDPACK Type: NJ#0 Length (ft): 11.5</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p>							
0			0	GS	629.31								
1													
2													
3													
4			3.5	TSP	625.81								
5			4.5	TSC	624.81								
6													
7													
8													
WELL DEVELOPMENT DATA													
WATER LEVELS													
Date: 01/04/2000 Method: Bail/Peristaltic Pump Duration: 3h10m Rate: <500 ml/min Total Volume Removed (gals): 9.4													
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Date</th> <th style="width: 20%;">Time</th> <th style="width: 20%;">Depth_TOC</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td>01/04/00</td> <td>1030</td> <td>2.27</td> <td style="text-align: right;">▽</td> </tr> </tbody> </table>						Date	Time	Depth_TOC		01/04/00	1030	2.27	▽
Date	Time	Depth_TOC											
01/04/00	1030	2.27	▽										
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">pH</th> <th style="width: 25%;">Temperature (degrees F)</th> <th style="width: 25%;">Conductivity (micromhos/cm)</th> <th style="width: 25%;">Turbidity (NTUs)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">6.31</td> <td style="text-align: center;">46.3</td> <td style="text-align: center;">710</td> <td style="text-align: center;">20.0</td> </tr> </tbody> </table>						pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)	6.31	46.3	710	20.0
pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)										
6.31	46.3	710	20.0										
LEGEND													
WELL DETAILS			LITHOLOGY										
TOC TOP OF WELL RISER GS GROUND SURFACE TBS TOP BENTONITE SEAL TSP TOP OF SANDPACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN POW POINT OF WELL BOD BOTTOM OF DRILL HOLE in INCHES ft FEET ID INSIDE DIAMETER gals GALLONS SCH SCHEDULE NA NOT APPLICABLE			<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> SEAL GROUT SANDPACK WEATHERED SHALE </td> <td style="width: 50%; vertical-align: top;"> ORGANIC SILT TILL SILT SHALE </td> </tr> </table>			SEAL GROUT SANDPACK WEATHERED SHALE	ORGANIC SILT TILL SILT SHALE						
SEAL GROUT SANDPACK WEATHERED SHALE	ORGANIC SILT TILL SILT SHALE												

NOTES:

MONITORING WELL COMPLETION REPORT: MW57-5

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/6/99
WELL INSTALLATION COMPLETED: 12/6/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
DEPTH TO WATER: 2.88
BORING LOCATION: 1008592.20
 738731.78
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 623.31
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS									
		▽	-2.29	TOC	625.60	<p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.5</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 24.47 Slot Size (in): 0.010</p> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.5</p> <p>SANDPACK Type: NJ#0 Length (ft): 26.0</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p>									
0			0	GS	623.31										
1															
2															
3															
4			3.5	TSP	619.81										
5			4.5	TSC	618.81										
6															
7															
8															
WELL DEVELOPMENT DATA															
WATER LEVELS															
Date: 01/05/2000 Method: Bail/Peristaltic Pump Duration: 2h5m Rate: <500 ml/min Total Volume Removed (gals): 25.8															
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 15%;">Date</th> <th style="width: 15%;">Time</th> <th style="width: 15%;">Depth, TOC</th> <th style="width: 15%;"></th> </tr> </thead> <tbody> <tr> <td>Development</td> <td>1/5/00</td> <td>1410</td> <td>2.88</td> <td style="text-align: right;">▽</td> </tr> </tbody> </table>							Date	Time	Depth, TOC		Development	1/5/00	1410	2.88	▽
	Date	Time	Depth, TOC												
Development	1/5/00	1410	2.88	▽											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">pH</th> <th style="width: 15%;">Temperature (degrees F)</th> <th style="width: 15%;">Conductivity (micromhos/cm)</th> <th style="width: 15%;">Turbidity (NTUs)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">6.19</td> <td style="text-align: center;">46.5</td> <td style="text-align: center;">1224</td> <td style="text-align: center;">36.4</td> </tr> </tbody> </table>						pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)	6.19	46.5	1224	36.4		
pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)												
6.19	46.5	1224	36.4												
LEGEND															
WELL DETAILS			LITHOLOGY												
TOC	TOP OF WELL RISER			SEAL		ORGANIC SILT									
GS	GROUND SURFACE			GROUT		TILL									
TBS	TOP BENTONITE SEAL			SANDPACK		SILT									
TSP	TOP OF SANDPACK			WEATHERED SHALE		SHALE									
TSC	TOP OF SCREEN														
BSC	BOTTOM OF SCREEN														
POW	POINT OF WELL														
BOD	BOTTOM OF DRILL HOLE														
in	INCHES														
ft	FEET														
ID	INSIDE DIAMETER														
gals	GALLONS														
SCH	SCHEDULE														
NA	NOT APPLICABLE														

NOTES:

MONITORING WELL COMPLETION REPORT: MW57-5

PROJECT: SEAD-45,46,57 RI/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/6/99
WELL INSTALLATION COMPLETED: 12/6/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 30
DEPTH TO WATER: 2.88
BORING LOCATION: 1008592.20
738731.78
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 623.31
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS																																	
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39						<p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.5</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 24.47 Slot Size (in): 0.010</p> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.5</p> <p>SANDPACK Type: NJ#0 Length (ft): 26.0</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p>																																	
WELL DEVELOPMENT DATA																																							
<table style="width: 100%; border: none;"> <tr> <td colspan="3" style="border: none;">Date: 01/05/2000</td> <td colspan="4" style="text-align: center; border: none;">WATER LEVELS</td> </tr> <tr> <td style="border: none;">Method: Bail/Peristaltic Pump</td> <td style="border: none;">Date</td> <td style="border: none;">Time</td> <td style="border: none;">Depth, TOC</td> <td colspan="3" style="border: none; text-align: right;">▽</td> </tr> <tr> <td style="border: none;">Duration: 2h5m</td> <td style="border: none;">Development</td> <td style="border: none;">1/5/00</td> <td style="border: none;">1410</td> <td style="border: none;">2.88</td> <td colspan="2" style="border: none;"></td> </tr> <tr> <td style="border: none;">Rate: <500 ml/min</td> <td colspan="5" style="border: none;"></td> </tr> <tr> <td style="border: none;">Total Volume Removed (gals): 25.8</td> <td colspan="5" style="border: none;"></td> </tr> </table>							Date: 01/05/2000			WATER LEVELS				Method: Bail/Peristaltic Pump	Date	Time	Depth, TOC	▽			Duration: 2h5m	Development	1/5/00	1410	2.88			Rate: <500 ml/min						Total Volume Removed (gals): 25.8					
Date: 01/05/2000			WATER LEVELS																																				
Method: Bail/Peristaltic Pump	Date	Time	Depth, TOC	▽																																			
Duration: 2h5m	Development	1/5/00	1410	2.88																																			
Rate: <500 ml/min																																							
Total Volume Removed (gals): 25.8																																							
<table style="width: 100%; border: none;"> <thead> <tr> <th style="border: none;">pH</th> <th style="border: none;">Temperature (degrees F)</th> <th style="border: none;">Conductivity (micromhos/cm)</th> <th style="border: none;">Turbidity (NTUs)</th> </tr> </thead> <tbody> <tr> <td style="border: none; text-align: center;">6.19</td> <td style="border: none; text-align: center;">46.5</td> <td style="border: none; text-align: center;">1224</td> <td style="border: none; text-align: center;">36.4</td> </tr> </tbody> </table>							pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)	6.19	46.5	1224	36.4																									
pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)																																				
6.19	46.5	1224	36.4																																				
LEGEND																																							
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>WELL DETAILS</p> <p>TOC TOP OF WELL RISER GS GROUND SURFACE TBS TOP BENTONITE SEAL TSP TOP OF SANDPACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN POW POINT OF WELL BOD BOTTOM OF DRILL HOLE in INCHES ft FEET ID INSIDE DIAMETER gals GALLONS SCH SCHEDULE NA NOT APPLICABLE</p> </td> <td style="width: 50%; border: none;"> <p>LITHOLOGY</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table> </td> </tr> </table>							<p>WELL DETAILS</p> <p>TOC TOP OF WELL RISER GS GROUND SURFACE TBS TOP BENTONITE SEAL TSP TOP OF SANDPACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN POW POINT OF WELL BOD BOTTOM OF DRILL HOLE in INCHES ft FEET ID INSIDE DIAMETER gals GALLONS SCH SCHEDULE NA NOT APPLICABLE</p>	<p>LITHOLOGY</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table>		SEAL		ORGANIC SILT		GROUT		TILL		SANDPACK		SILT		WEATHERED SHALE		SHALE															
<p>WELL DETAILS</p> <p>TOC TOP OF WELL RISER GS GROUND SURFACE TBS TOP BENTONITE SEAL TSP TOP OF SANDPACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN POW POINT OF WELL BOD BOTTOM OF DRILL HOLE in INCHES ft FEET ID INSIDE DIAMETER gals GALLONS SCH SCHEDULE NA NOT APPLICABLE</p>	<p>LITHOLOGY</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"></td> <td>SEAL</td> <td style="text-align: center;"></td> <td>ORGANIC SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>GROUT</td> <td style="text-align: center;"></td> <td>TILL</td> </tr> <tr> <td style="text-align: center;"></td> <td>SANDPACK</td> <td style="text-align: center;"></td> <td>SILT</td> </tr> <tr> <td style="text-align: center;"></td> <td>WEATHERED SHALE</td> <td style="text-align: center;"></td> <td>SHALE</td> </tr> </table>		SEAL		ORGANIC SILT		GROUT		TILL		SANDPACK		SILT		WEATHERED SHALE		SHALE																						
	SEAL		ORGANIC SILT																																				
	GROUT		TILL																																				
	SANDPACK		SILT																																				
	WEATHERED SHALE		SHALE																																				

NOTES:

MONITORING WELL COMPLETION REPORT: MW57-7

PROJECT: SEAD-45,46,57 R/FS
PROJECT LOCATION: Seneca Army Depot Activity, Romulus, NY
ASSOCIATED AREA/UNIT: SEAD-57
PROJECT NO.: 736676-01001
WELL INSTALLATION STARTED: 12/6/99
WELL INSTALLATION COMPLETED: 12/6/99
DRILLING CONTRACTOR: Maxim Technologies Inc.
DRILLING METHOD: 4.25 HSA
SAMPLING METHOD: 2" Split Spoon

TOTAL DEPTH: 14.2
DEPTH TO WATER: 2.85
BORING LOCATION: 1009621.61
 739359.27
COORDINATE SYSTEM: NAD-27
GROUND SURFACE ELEVATION: 631.10
ELEVATION DATUM: NGVD 29
INSPECTOR: RFB
CHECKED BY: DRG

DEPTH (ft)	MACRO SYMBOL	WELL DETAILS	DEPTH (ft)	WELL DETAILS	ELEVATION (ft)	WELL CONSTRUCTION DETAILS
			-2.79	TOC	633.56	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>PROTECTIVE COVER Diameter (ID) (in): 4 Type: Steel Length (ft): 5.0</p> <p>RISER Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 4.2</p> <p>SCREEN Diameter (ID) (in): 2 Type: SCH. 40-PVC Length (ft): 9.47 Slot Size (in): 0.010</p> </div> <div style="width: 45%;"> <p>GROUT Type: NA Length (ft): NA</p> <p>SEAL Type: Bentonite Chips Length (ft): 3.2</p> <p>SANDPACK Type: NJ#0 Length (ft): 11.0</p> <p>SURFACE SEAL Type: Concrete Size: 2x2x1</p> </div> </div>
0			0	GS	631.1	
1						
2						
3			3.2	TSP	627.9	
4			4.2	TSC	626.9	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14			13.7	BSC	617.4	
			14.2	POW	616.9	
15						
16						
17						
18						
19						

WELL DEVELOPMENT DATA				
WATER LEVELS				
Date:	01/06/2000			
Method:	Bail/Peristaltic Pump	Date	1/6/00	Time
Duration:	2h15m	Development	1/6/00	1130
Rate:	>500 ml/min	Depth, TOC		2.85
Total Volume Removed (gals):	13.9			

pH	Temperature (degrees F)	Conductivity (micromhos/cm)	Turbidity (NTUs)
5.83	43.2	1110	19

LEGEND	
<p>WELL DETAILS</p> <p>TOC TOP OF WELL RISER GS GROUND SURFACE TBS TOP BENTONITE SEAL TSP TOP OF SANDPACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN POW POINT OF WELL BOD BOTTOM OF DRILL HOLE in INCHES ft FEET ID INSIDE DIAMETER gals GALLONS SCH SCHEDULE NA NOT APPLICABLE</p>	<p>LITHOLOGY</p> <p> SEAL</p> <p> GROUT</p> <p> SANDPACK</p> <p> WEATHERED SHALE</p> <p> ORGANIC SILT</p> <p> TILL</p> <p> SILT</p> <p> SHALE</p>

NOTES:

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-1**
 Test Date: **January 26, 2000**

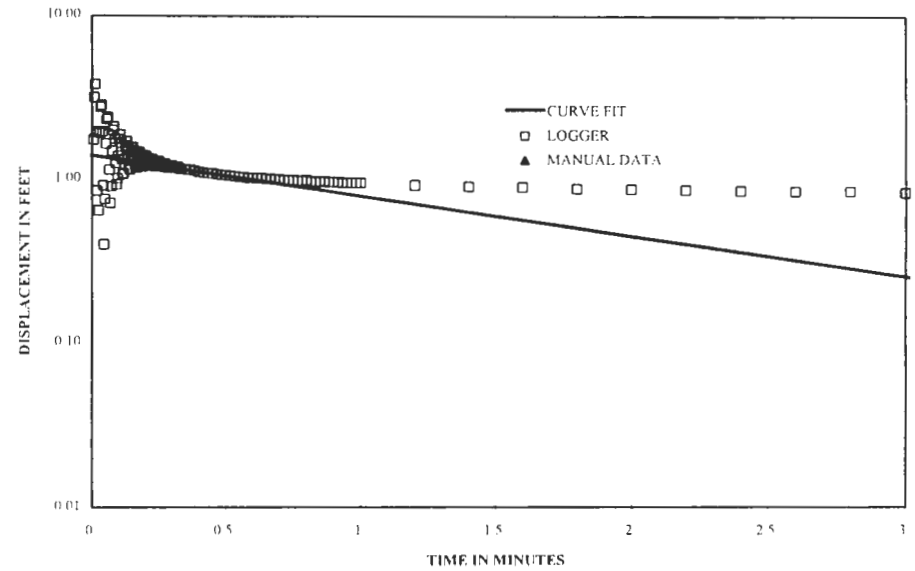
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **Rising**
 Logger Data File: **MW46-1.xls**
 Hydraulic conductivity

2.22E-04 cm/sec
 4.37E-04 ft/min
 0.63 ft/day

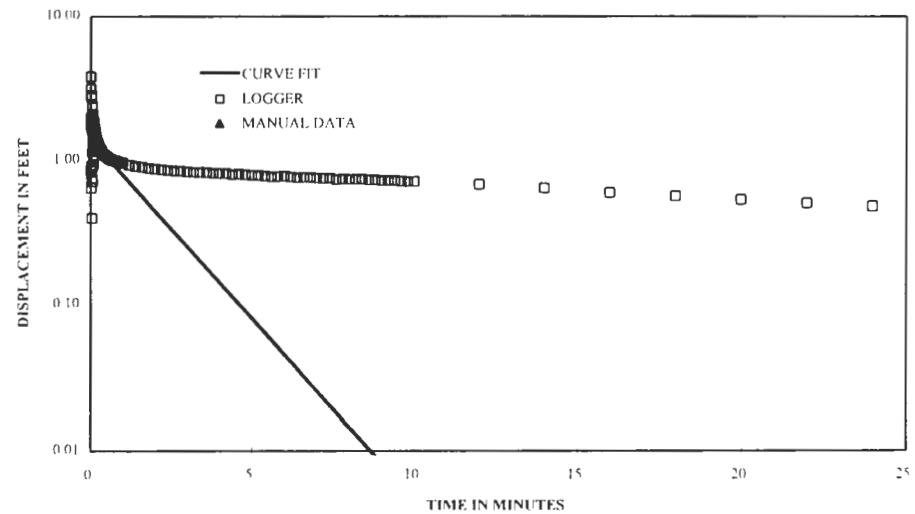
Casing stickup	2.50 feet
Static water level (from top of casing)	5.66 feet
Depth to bottom of screen (from ground level)	23.27 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	19.50 feet
Depth to "impermeable boundary"	24.00 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	1.401 feet
ΔH at time t (Y_t)	0.008 feet
Time	9.01 min

Bouwer-Rice Parameters		
feet	cm	cm
3.16	96.32 <i>SW</i>	
20.11	612.95 <i>H</i>	234.00 <i>L/Rw</i>
3.77	114.91 <i>Ts</i>	0.96 <i>H/D</i>
0.083	2.54 <i>Rw</i>	6.40 <i>A</i>
0.083	2.54 <i>Rc</i>	1.20 <i>B</i>
0.167	5.08 <i>DS</i>	7.50 <i>C</i>
19.50	594.36 <i>L</i>	2.17 $\ln[(D-H)/Rw]'$
20.84	635.20 <i>D</i>	2.17 $\ln[(D-H)/Rw]$
1.4012	42.71 Y_0	4.18 equation (8)
0.0082	0.25 Y_t	4.30 equation (9)
	540.60 <i>t (seconds)</i>	4.30 $\ln(Rs/Rw)$
	0.30 <i>n</i>	2.2E-04 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update". Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R. C. Rice 1976 A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol. 12, no. 3, June 1976

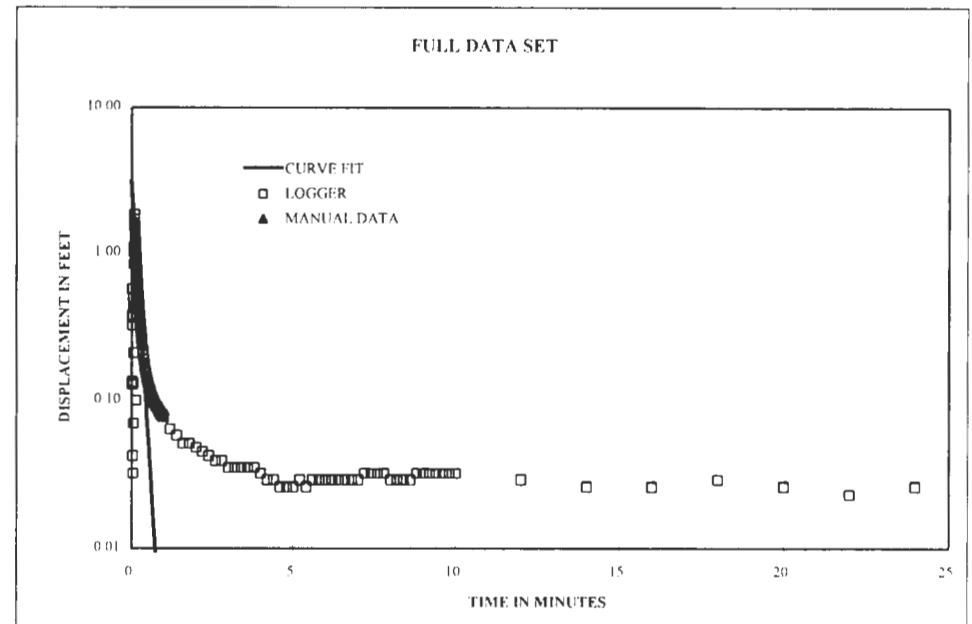
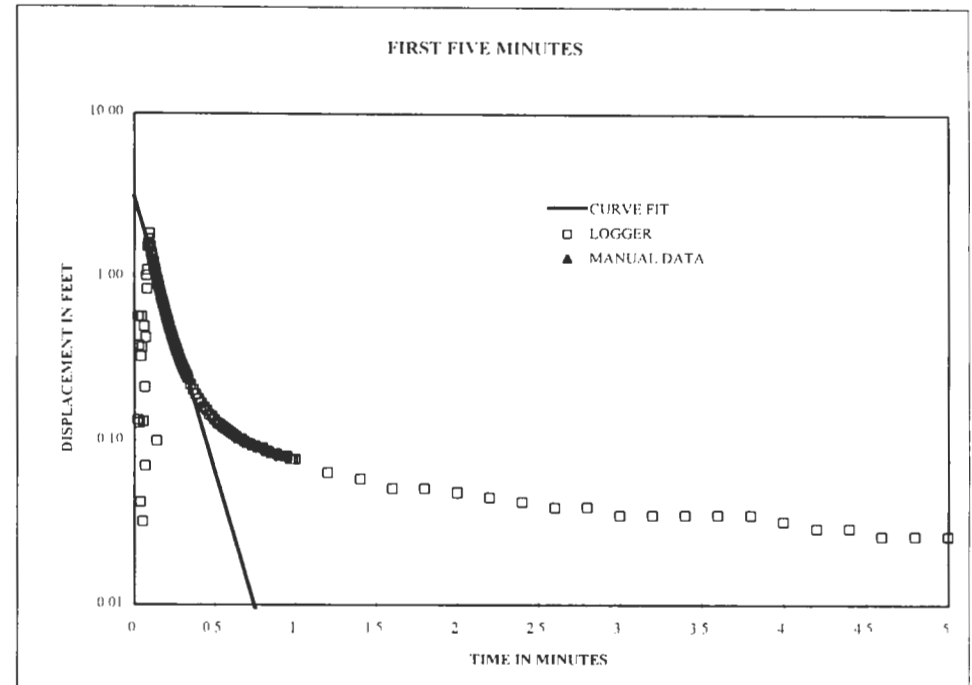
Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-2**
 Test Date: **January 26, 2000**

Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **MW462.xls**
 Hydraulic conductivity

5.53E-03 cm/sec
 1.09E-02 ft/min
 15.69 ft/day

Casing stickup	2.23	feet
Static water level (from top of casing)	3.85	feet
Depth to bottom of screen (from ground level)	13.90	feet
Boring diameter	8.50	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
Screen length	9.47	feet
Depth to "impermeable boundary"	14.40	feet
Porosity of filter pack	0.30	
Slug diameter (optional)		inches
Slug length (optional)		feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	3.100	feet
ΔH at time t (Y_t)	0.008	feet
Time	0.77	min

Bouwer-Rice Parameters		
feet	cm	cm
1.62	49.38	<i>SW</i>
12.28	374.29	<i>H</i>
4.43	135.03	<i>Ts</i>
0.083	2.54	<i>Rw</i>
0.083	2.54	<i>Rc</i>
0.167	5.08	<i>DS</i>
9.47	288.65	<i>L</i>
12.78	389.53	<i>D</i>
3.09999993	94.49	Y_0
0.0082	0.25	Y_t
	46.20	<i>t(seconds)</i>
	0.30	<i>n</i>
		5.5E-03 equation (5)
		113.64 <i>L/Rw</i>
		0.96 <i>H/D</i>
		4.50 <i>A</i>
		0.75 <i>B</i>
		4.44 <i>C</i>
		1.79 $\ln[(D-H)/Rw]^*$
		1.79 $\ln[(D-H)/Rw]$
		3.68 equation (8)
		3.86 equation (9)
		3.86 $\ln(Re/Rw)$



Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989
 Bouwer, H and R C Rice 1976 A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol 12, no 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-3**
 Test Date: **January 26, 2000**

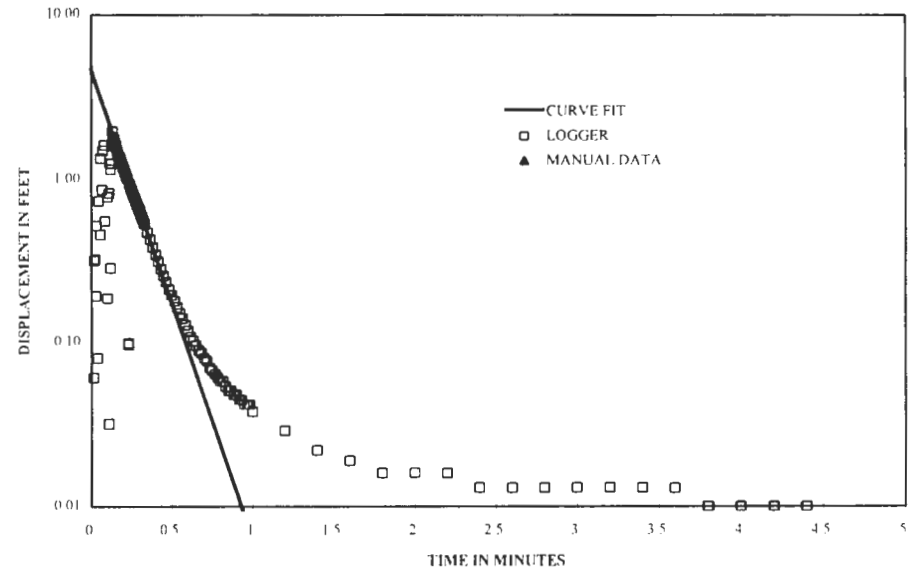
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **MW46-3.xls**
 Hydraulic conductivity

4.81E-03 cm/sec
 9.47E-03 ft/min
 13.63 ft/day

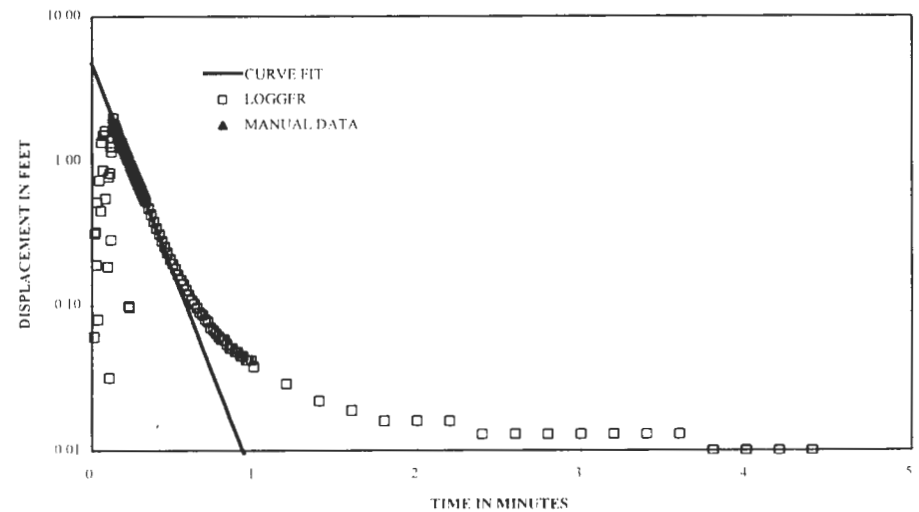
Casing stickup	3.04 feet
Static water level (from top of casing)	3.85 feet
Depth to bottom of screen (from ground level)	14.00 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	9.47 feet
Depth to "impermeable boundary"	14.50 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	4.701 feet
ΔH at time t (Y_t)	0.008 feet
Time	0.96 min

Bouwer-Rice Parameters		
feet	cm	cm
0.81	24.69	<i>SW</i>
13.19	402.03	<i>H</i> 113.64 <i>L/Rw</i>
4.53	138.07	<i>Ts</i> 0.96 <i>H/D</i>
0.083	2.54	<i>Rw</i> 4.50 <i>A</i>
0.083	2.54	<i>Rc</i> 0.75 <i>B</i>
0.167	5.08	<i>DS</i> 4.44 <i>C</i>
9.47	288.65	<i>L</i> 1.79 $\ln[(D-H)/Rw]$
13.69	417.27	<i>D</i> 1.79 $\ln[(D-H)/Rw]$
4.70120005	143.29	Y_0 3.72 equation (8)
0.0082	0.25	Y_t 3.90 equation (9)
	57.60	<i>t (seconds)</i> 3.90 $\ln(Rc/Rw)$
	0.30	<i>n</i> 4.8E-03 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R. C. Rice 1976 "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol. 12, no. 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-4**
 Test Date: **January 26, 2000**

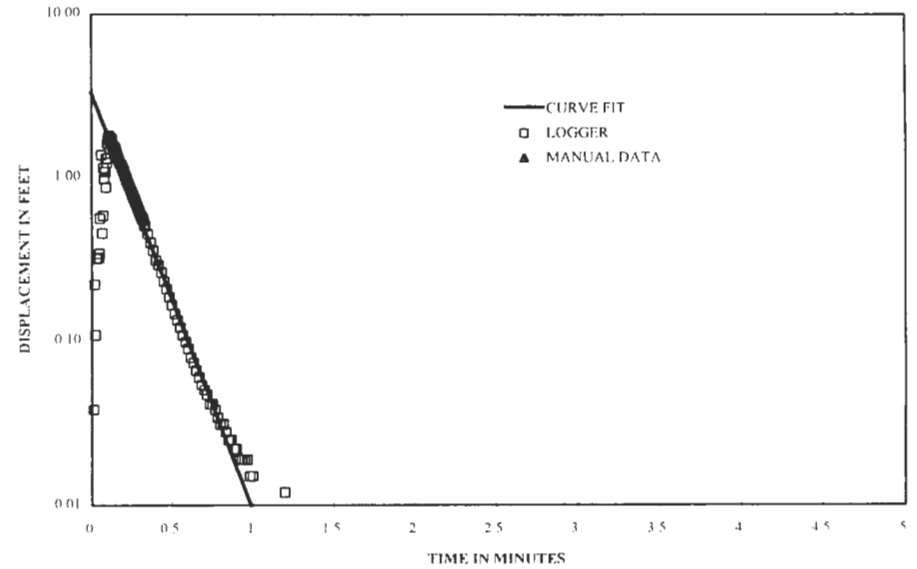
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw46-4.xls**
 Hydraulic conductivity

5.80E-03 cm/sec
 1.14E-02 ft/min
 16.45 ft/day

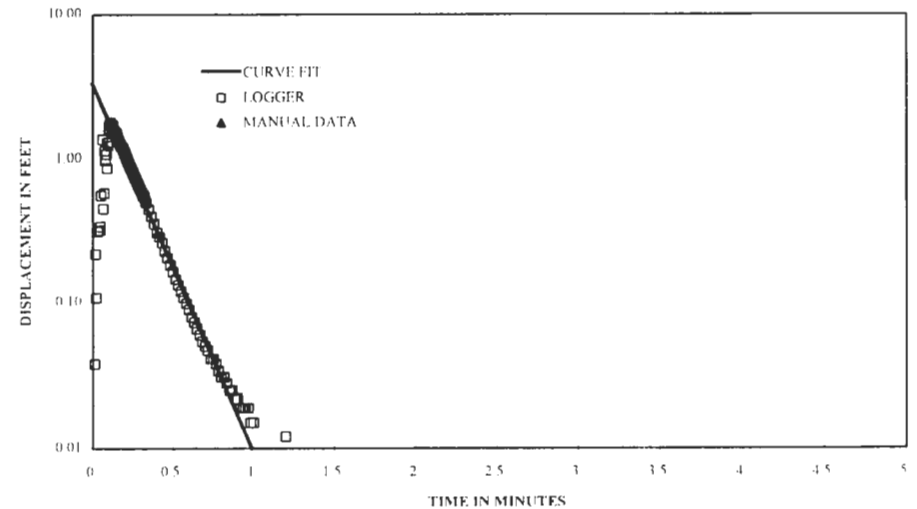
Casing stickup	2.75 feet
Static water level (from top of casing)	3.66 feet
Depth to bottom of screen (from ground level)	12.50 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	6.70 feet
Depth to "impermeable boundary"	12.80 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	3.300 feet
ΔH at time t (Y_t)	1.000 feet
Time	0.20 min

Bower-Rice Parameters		
feet	cm	cm
0.91	27.74	SW
11.59	353.26	H
5.8	176.78	T_s
0.083	2.54	Rw
0.083	2.54	Rc
0.167	5.08	DS
6.70	204.22	L
11.89	362.41	D
3.29999999	100.58	Y_0
1	30.48	Y_t
	12.20	t (seconds)
	0.30	n
		80.40 L/Rw
		0.97 H/D
		3.80 A
		0.65 B
		3.50 C
		1.28 Ln[(D-H)/Rw]
		1.28 Ln[(D-H)/Rw]
		3.56 equation (8)
		3.75 equation (9)
		3.75 Ln(Rc/Rw)
		5.8E-03 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bowyer, Herman 1989 "The Bowyer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989
 Bowyer, H. and R. C. Rice 1976 "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol. 12, no. 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-5**
 Test Date: **January 26, 2000**

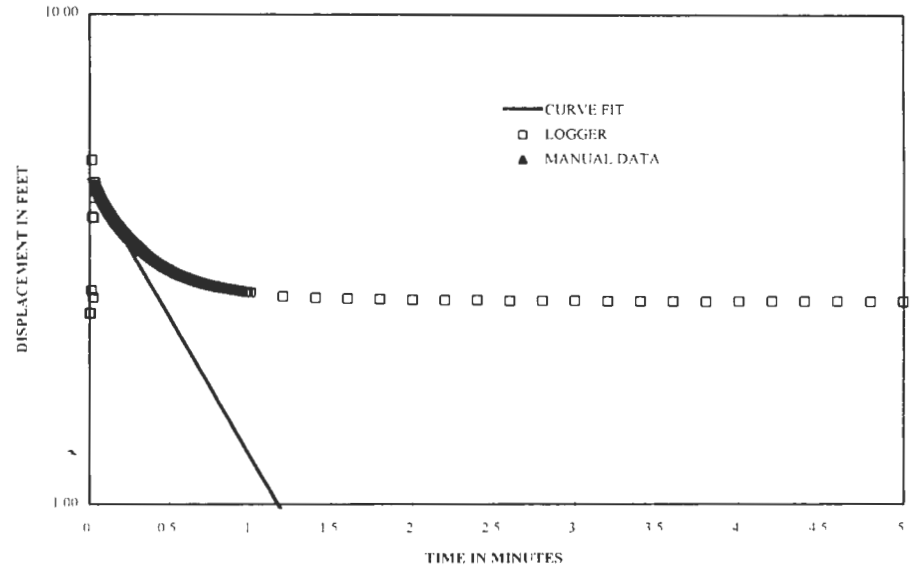
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw46-5.xls**
 Hydraulic conductivity

1.64E-03 cm/sec
 3.23E-03 ft/min
 4.64 ft/day

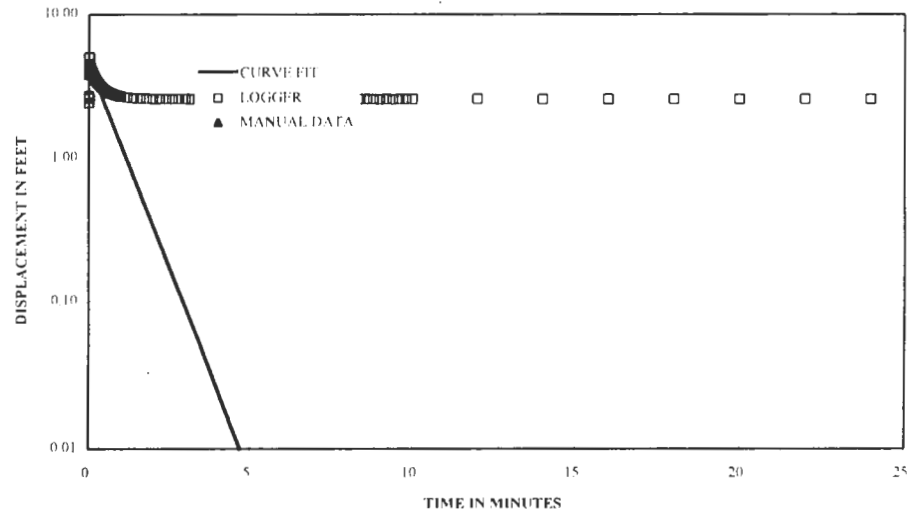
Casing stickup	2.64 feet
Static water level (from top of casing)	3.46 feet
Depth to bottom of screen (from ground level)	9.80 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	4.47 feet
Depth to "impermeable boundary"	10.80 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	4.600 feet
ΔH at time t (Y_t)	1.000 feet
Time	1.17 min

Bouwer-Rice Parameters		
feet	cm	cm
0.82	24.99	SW
8.98	273.71	H
5.33	162.46	T_s
0.083	2.54	R_w
0.083	2.54	R_c
0.167	5.08	D_S
4.47	136.25	L
9.98	304.19	D
4.60000005	140.21	Y_0
1	30.48	Y_t
	70.20	t (seconds)
	0.30	n
		1.6E-03 equation (5)
		53.64 L/R_w
		0.90 H/D
		3.10 A
		0.46 B
		2.70 C
		2.48 $\ln[(D-H)/R_w]$
		2.48 $\ln[(D-H)/R_w]$
		3.18 equation (8)
		3.50 equation (9)
		3.18 $\ln(R_e/R_w)$

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update". Ground Water vol 27, no 3, May-June 1989
 Bouwer, H and R C Rice 1976 "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol 12, no 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW46-6**
 Test Date: **January 26, 2000**

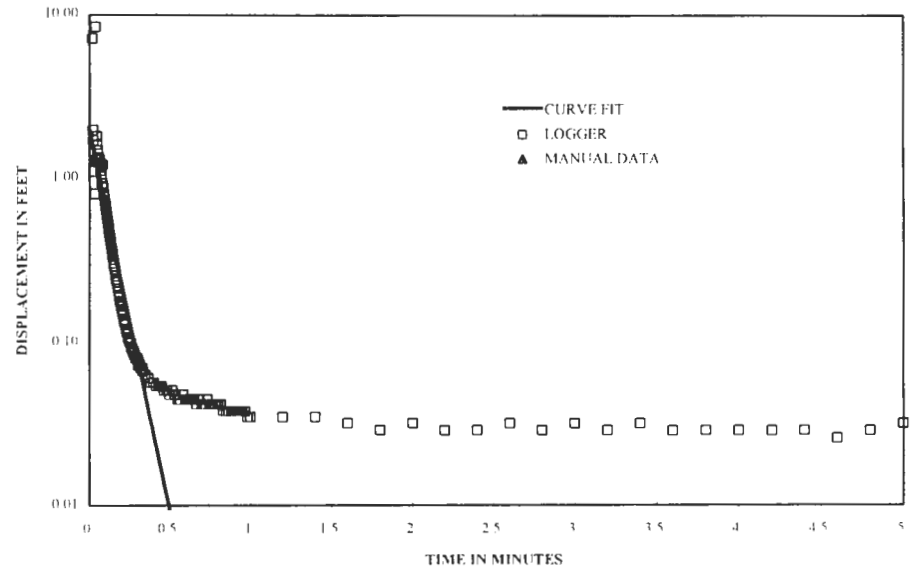
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw46-6.xls**
 Hydraulic conductivity

7.68E-03 cm/sec
 1.51E-02 ft/min
 21.78 ft/day

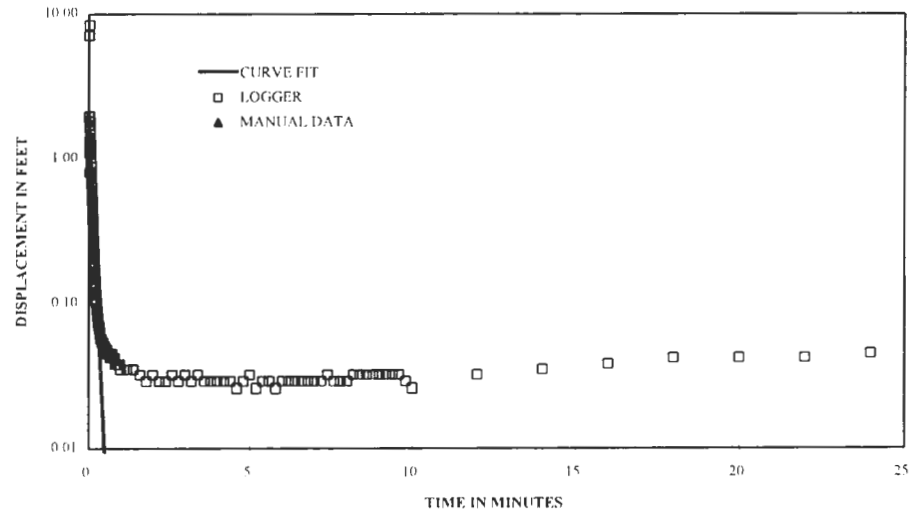
Casing stickup	2.58 feet
Static water level (from top of casing)	4.86 feet
Depth to bottom of screen (from ground level)	14.50 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	9.47 feet
Depth to "impermeable boundary"	15.00 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	2.001 feet
ΔH at time t (Y_t)	0.008 feet
Time	0.51 min

Bouwer-Rice Parameters		
feet	cm	cm
2.28	69.49	SW
12.22	372.47	H
5.03	153.31	Ts
0.083	2.54	Rw
0.083	2.54	Rc
0.167	5.08	DS
9.47	288.65	L
12.72	387.71	D
2.00120001	61.00	Y_0
0.0082	0.25	Y_t
	30.80	t (seconds)
	0.30	n
		113.64 L/Rw
		0.96 H/D
		4.50 A
		0.75 B
		4.44 C
		1.79 $\ln[(D-H)/Rw]$
		1.79 $\ln[(D-H)/Rw]$
		3.68 equation (8)
		3.85 equation (9)
		3.85 $\ln(Re/Rw)$
		7.7E-03 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman. 1989 "The Bouwer and Rice Slug Test - An Update". Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R.C. Rice. 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol. 12, no. 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-2**
 Test Date: **January 26, 2000**

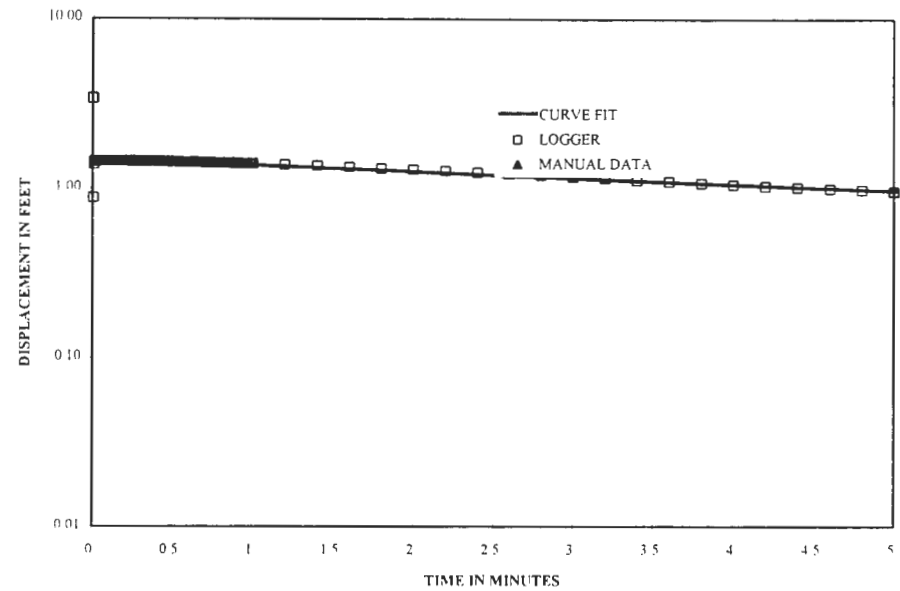
Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw57-2.xls**
 Hydraulic conductivity

1.95E-04 cm/sec
 3.84E-04 ft/min
 0.55 ft/day

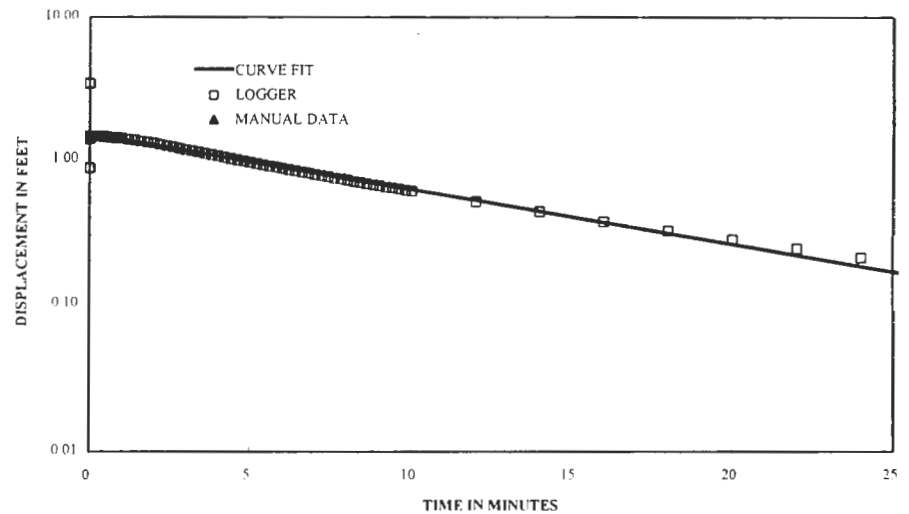
Casing stickup	2.40 feet
Static water level (from top of casing)	3.43 feet
Depth to bottom of screen (from ground level)	6.10 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	2.00 feet
Depth to "impermeable boundary"	7.50 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	1.501 feet
ΔH at time t (Y_t)	1.000 feet
Time	4.62 min

Bouwer-Rice Parameters		
feet	cm	cm
1.03	31.39 SW	
5.07	154.53 H	24.00 L/Rw
4.1	124.97 Ts	0.78 H/D
0.083	2.54 Rw	2.25 A
0.083	2.54 Rc	0.31 B
0.167	5.08 DS	1.70 C
2.00	60.96 L	2.82 $\ln[(D-H)/Rw]$
6.47	197.21 D	2.82 $\ln[(D-H)/Rw]$
1.50120001	45.76 Y_0	2.51 equation (8)
1	30.48 Y_t	2.95 equation (9)
	277.20 t (seconds)	2.51 $\ln(Re/Rw)$
	0.30 n	1.9E-04 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



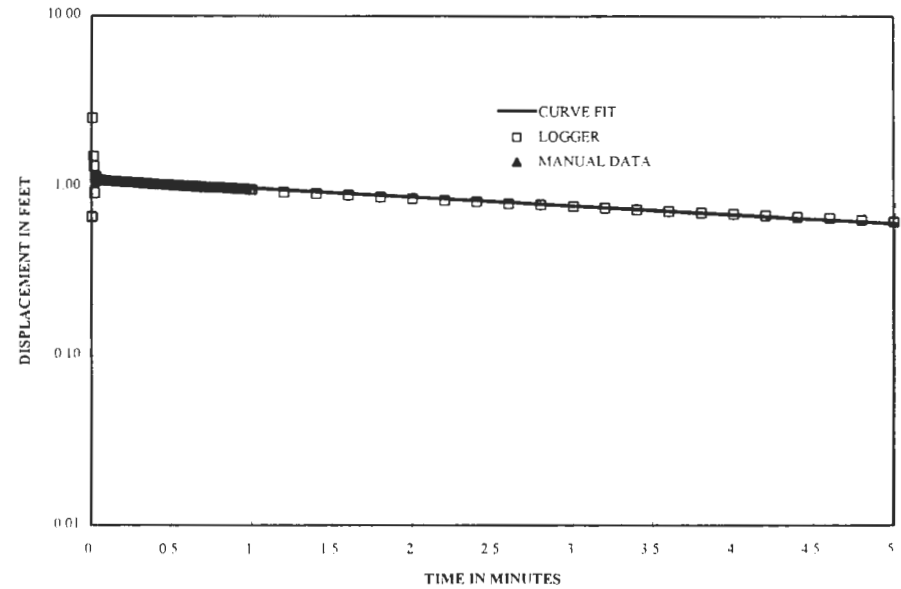
Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update". Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R.C. Rice. 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol. 12, no. 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 47 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-3**
 Test Date: **January 26, 2000**
 Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw57-3**
 Hydraulic conductivity: **2.60E-04 cm/sec**
5.12E-04 ft/min
0.74 ft/day

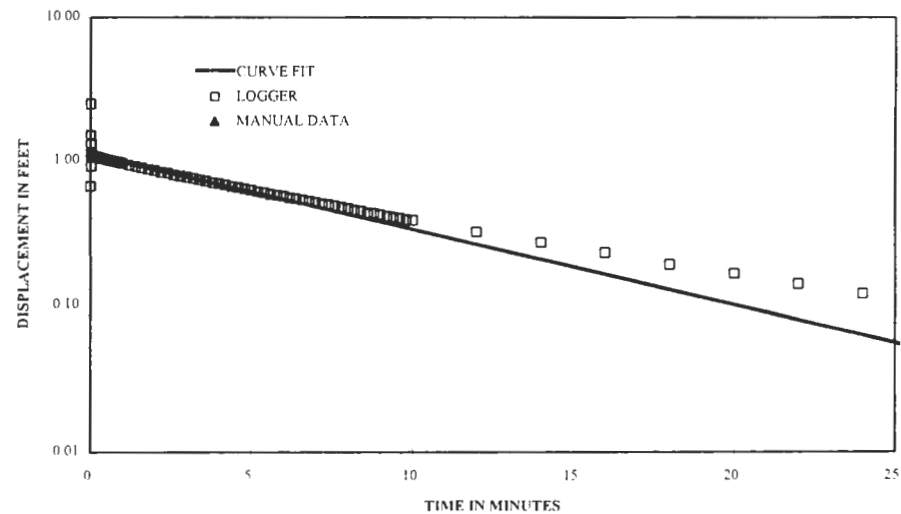
Casing stickup	2.46 feet
Static water level (from top of casing)	3.26 feet
Depth to bottom of screen (from ground level)	6.10 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	2.00 feet
Depth to "impermeable boundary"	9.10 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	1.101 feet
ΔH at time t (Y_t)	0.008 feet
Time	41.00 min

Bouwer-Rice Parameters		
feet	cm	cm
0.8	24.38 <i>SW</i>	
5.3	161.54 <i>H</i>	24.00 <i>L/Rw</i>
4.1	124.97 <i>Ts</i>	0.64 <i>H/D</i>
0.083	2.54 <i>Rw</i>	2.25 <i>A</i>
0.083	2.54 <i>Rc</i>	0.31 <i>B</i>
0.167	5.08 <i>DS</i>	1.70 <i>C</i>
2.00	60.96 <i>L</i>	3.58 $\ln[(D-H)/Rw]$
8.3	252.98 <i>D</i>	3.58 $\ln[(D-H)/Rw]$
1.1012	33.56 Y_0	2.47 equation (8)
0.0082	0.25 Y_t	2.98 equation (9)
	2460.00 <i>t (seconds)</i>	2.47 $\ln(Re/Rw)$
	0.30 <i>n</i>	2.6E-04 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



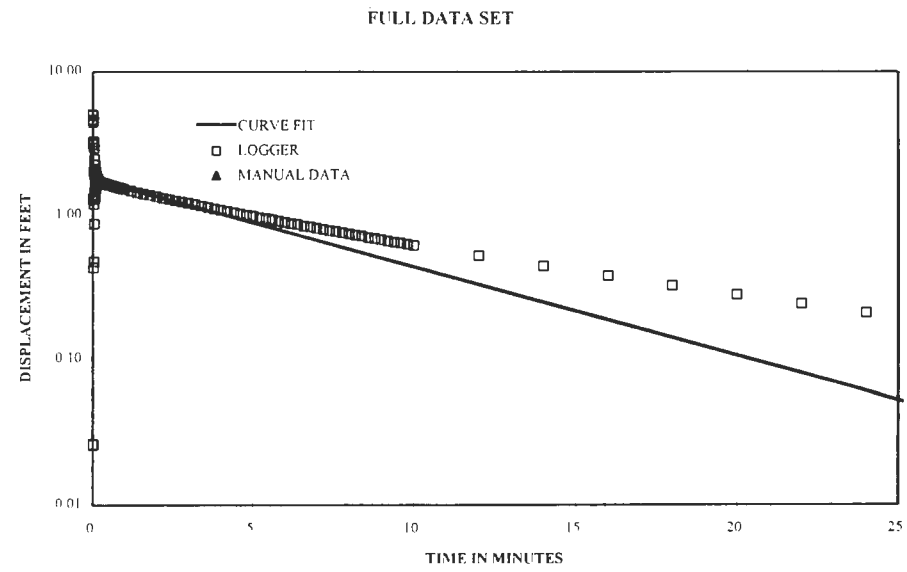
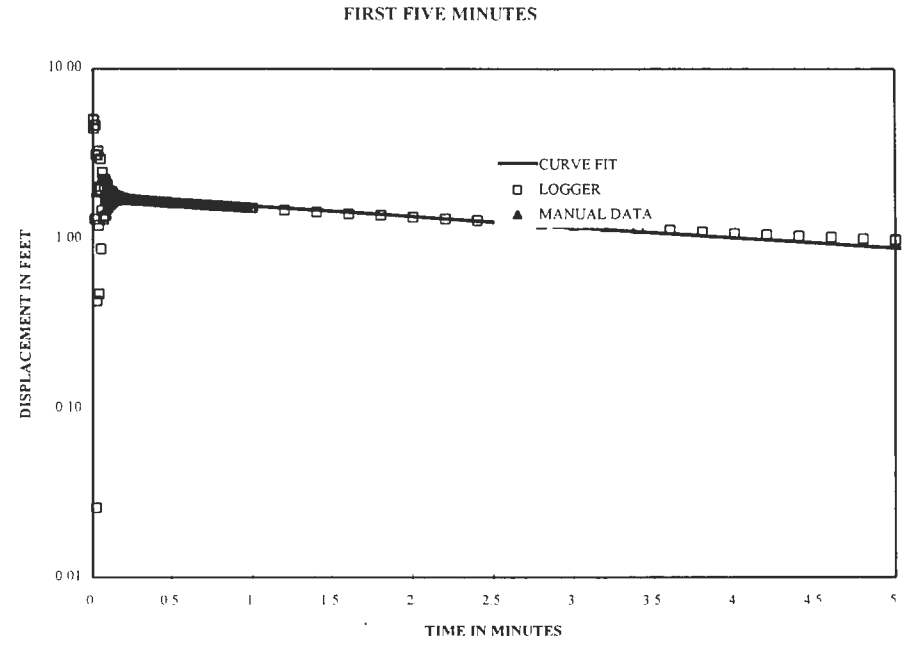
Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R.C. Rice. 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol 12, no. 3, June 1976.

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-4**
 Test Date: **January 26, 2000**
 Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw57-4**

Hydraulic conductivity **1.03E-04 cm/sec**
2.03E-04 ft/min
0.29 ft/day

Casing stickup	1.98 feet
Static water level (from top of casing)	2.71 feet
Depth to bottom of screen (from ground level)	14.00 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	9.50 feet
Depth to "impermeable boundary"	14.50 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	1.801 feet
ΔH at time t (Y_t)	0.008 feet
Time	38.00 min

Bower-Rice Parameters		
feet	cm	cm
0.73	22.25 <i>SW</i>	
13.27	404.47 <i>H</i>	114.00 <i>L/Rw</i>
4.5	137.16 <i>Ts</i>	0.96 <i>H/D</i>
0.083	2.54 <i>Rw</i>	4.50 <i>A</i>
0.083	2.54 <i>Rc</i>	0.75 <i>B</i>
0.167	5.08 <i>DS</i>	4.44 <i>C</i>
9.50	289.56 <i>L</i>	1.79 $\ln[(D-H)/Rw]'$
13.77	419.71 <i>D</i>	1.79 $\ln[(D-H)/Rw]$
1.80120001	54.90 Y_0	3.73 equation (8)
0.0082	0.25 Y_t	3.91 equation (9)
	2280.00 <i>t (seconds)</i>	3.91 $\ln(Re/Rw)$
	0.30 <i>n</i>	1.0E-04 equation (5)



Bowser, Herman 1989 "The Bowser and Rice Slug Test - An Update". Ground Water vol. 27, no. 3, May-June 1989
 Bowser, H. and R.C. Rice. 1976 "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol. 12, no. 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-5**
 Test Date: **January 26, 2000**

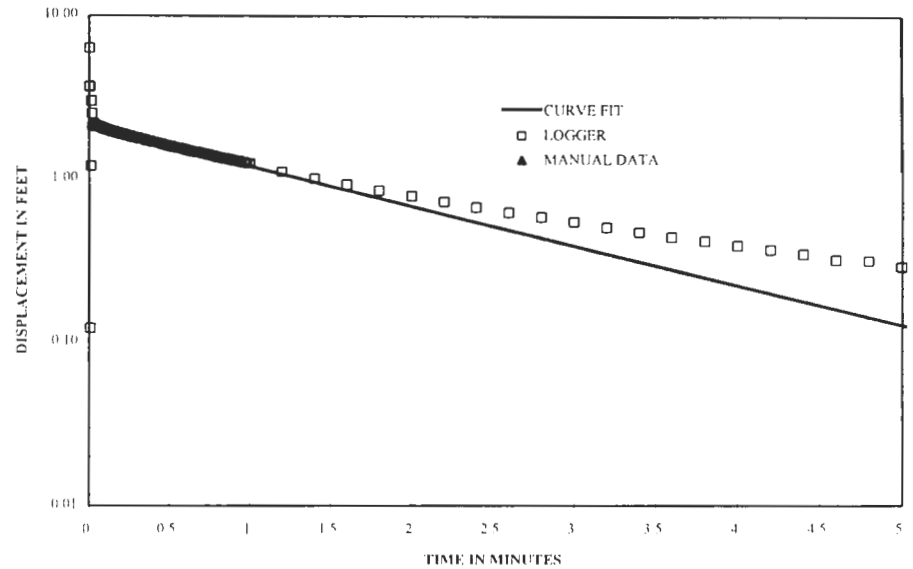
Formation Tested: **Alluvial deposits**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw57-5.xls**
 Hydraulic conductivity

1.85E-04 cm/sec
 3.65E-04 ft/min
 0.53 ft/day

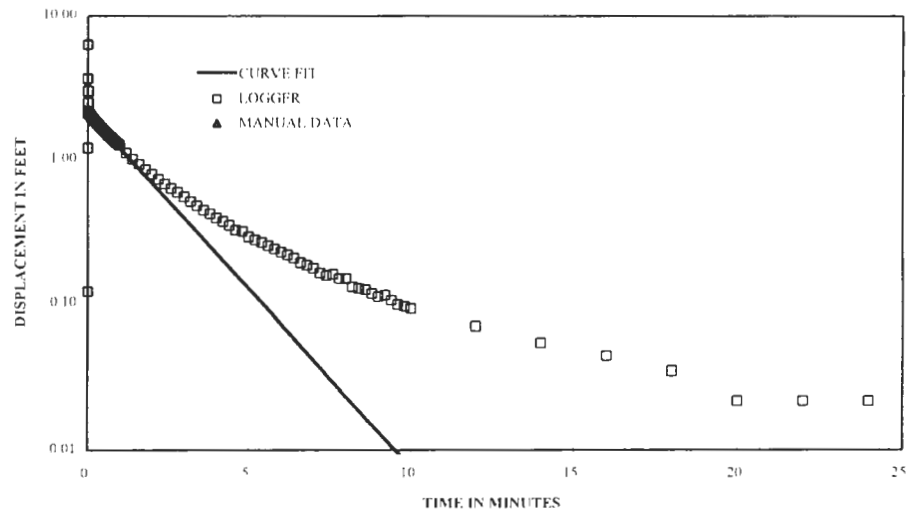
Casing stickup	2.29 feet
Static water level (from top of casing)	3.48 feet
Depth to bottom of screen (from ground level)	29.00 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	24.47 feet
Depth to "impermeable boundary"	30.00 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	2.101 feet
ΔH at time t (Y_t)	0.008 feet
Time	9.88 min

Bouwer-Rice Parameters		
feet	cm	cm
1.19	36.27	SW
27.81	847.65	H
4.53	138.07	T_s
0.083	2.54	R_w
0.083	2.54	R_c
0.167	5.08	D_S
24.47	745.85	L
28.81	878.13	D
2.10120002	64.04	Y_0
0.0082	0.25	Y_t
	592.80	t (seconds)
	0.30	n
		293.64
		L/Rw
		0.97
		H/D
		6.94
		A
		1.40
		B
		8.50
		C
		2.48
		$\ln[(D-H)/R_w]^*$
		2.48
		$\ln[(D-H)/R_w]$
		4.45
		equation (8)
		4.58
		equation (9)
		4.58
		$\ln(R_e/R_w)$
		1.9E-04
		equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R.C. Rice 1976. "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol. 12, no. 3, June 1976

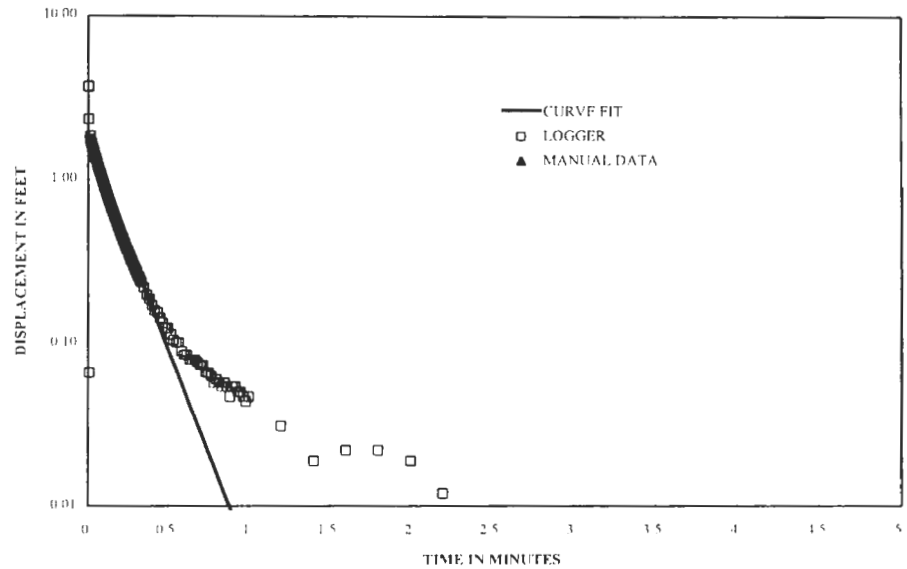
Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-6**
 Test Date: **January 26, 2000**
 Formation Tested: **Till**
 Rising (R) or Falling (F) Head Test: **rising**
 Logger Data File: **Mw57-6**

Hydraulic conductivity
 4.24E-03 cm/sec
 8.35E-03 ft/min
 12.03 ft/day

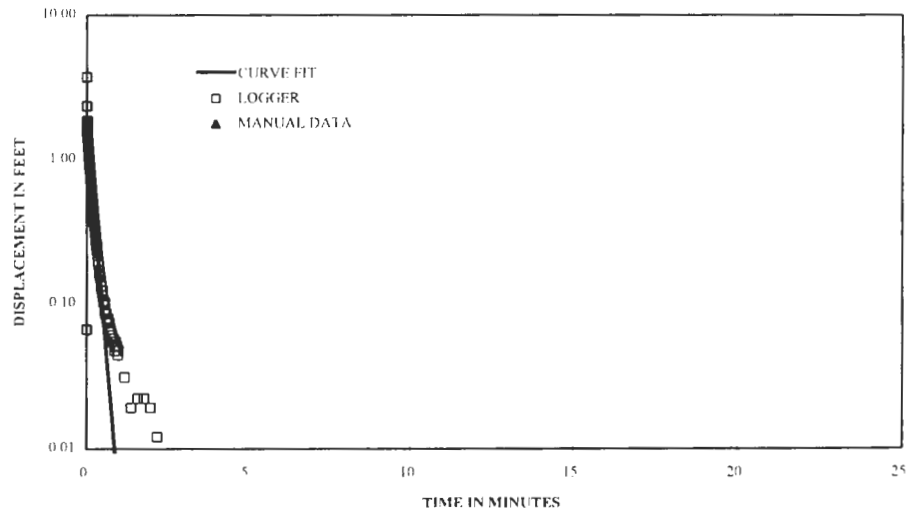
Casing stickup	2.32	feet
Static water level (from top of casing)	2.68	feet
Depth to bottom of screen (from ground level)	13.50	feet
Boring diameter	8.50	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
Screen length	9.47	feet
Depth to "impermeable boundary"	14.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)		inches
Slug length (optional)		feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.701	feet
ΔH at time t (Y_t)	0.008	feet
Time	0.91	min

Bouwer-Rice Parameters		
feet	cm	cm
0.36	10.97	<i>SW</i>
13.14	400.51	<i>H</i>
4.03	122.83	<i>Ts</i>
0.083	2.54	<i>Rw</i>
0.083	2.54	<i>Rc</i>
0.167	5.08	<i>DS</i>
9.47	288.65	<i>L</i>
13.64	415.75	<i>D</i>
1.70120001	51.85	Y_0
0.0082	0.25	Y_t
	54.80	<i>t (seconds)</i>
	0.30	<i>n</i>
		113.64 <i>L/Rw</i>
		0.96 <i>H/D</i>
		4.50 <i>A</i>
		0.75 <i>B</i>
		4.44 <i>C</i>
		1.79 $\ln\{(D-H)/Rw\}$
		1.79 $\ln\{(D-H)/Rw\}$
		3.72 equation (8)
		3.90 equation (9)
		3.90 $\ln(Re/Rw)$
		4.2E-03 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989
 Bouwer, H. and R.C. Rice 1976 "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells" Water Resources Research vol 12, no 3, June 1976

Client: **Parsons ES**
 Project: **SEAD 46 and 57 RI**
 Project No.: **736676**
 Well No.: **MW57-7**

Test Date: **January 26, 2000**

Formation Tested: **Till**

Rising (R) or Falling (F) Head Test: **rising**

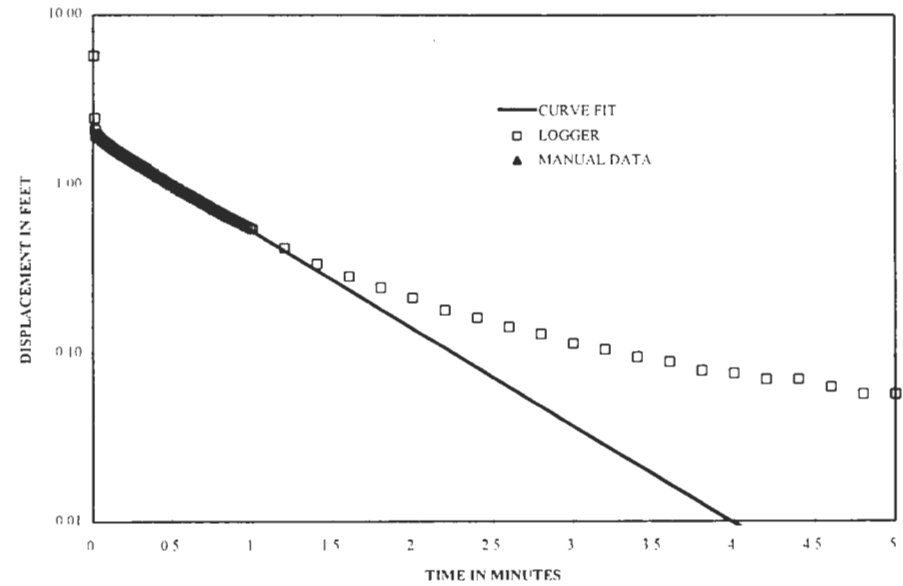
Logger Data File: **Mw57-7.xls**

Hydraulic conductivity **9.66E-04 cm/sec**
1.90E-03 ft/min
2.74 ft/day

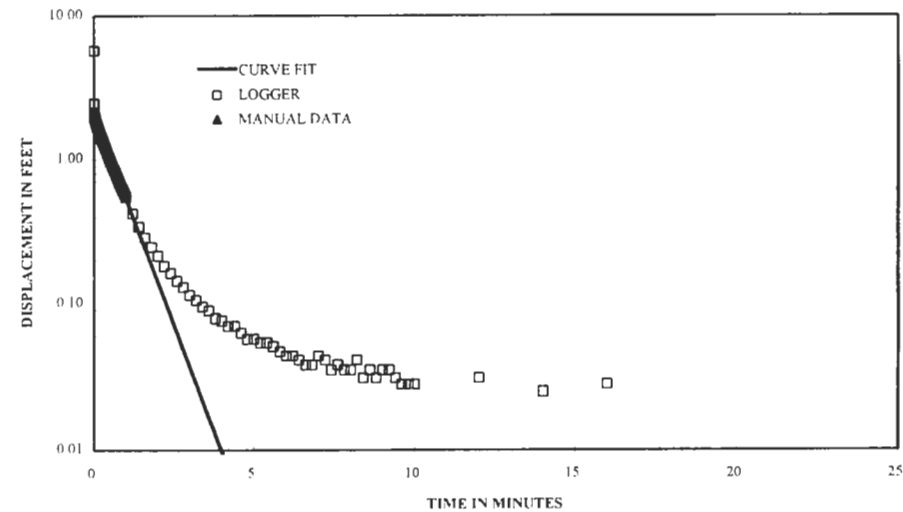
Casing stickup	2.46 feet
Static water level (from top of casing)	3.10 feet
Depth to bottom of screen (from ground level)	13.70 feet
Boring diameter	8.50 inches
Casing diameter	2.00 inches
Screen diameter	2.00 inches
Screen length	9.47 feet
Depth to "impermeable boundary"	14.20 feet
Porosity of filter pack	0.30
Slug diameter (optional)	inches
Slug length (optional)	feet
Theoretical ΔH at time zero (Y_0)	0.00 feet
Actual ΔH at time zero (Y_0)	2.001 feet
ΔH at time t (Y_t)	0.008 feet
Time	4.13 min

Bouwer-Rice Parameters		
feet	cm	cm
0.64	19.51	<i>SW</i>
13.06	398.07	<i>H</i>
4.23	128.93	<i>Ts</i>
0.083	2.54	<i>Rw</i>
0.083	2.54	<i>Rc</i>
0.167	5.08	<i>DS</i>
9.47	288.65	<i>L</i>
13.56	413.31	<i>D</i>
2.00120001	61.00	Y_0
0.0082	0.25	Y_t
	247.80	<i>t (seconds)</i>
	0.30	<i>n</i>
		113.64 <i>L/Rw</i>
		0.96 <i>H/D</i>
		4.50 <i>A</i>
		0.75 <i>B</i>
		4.44 <i>C</i>
		1.79 $\ln[(D-H)/Rw]$
		1.79 $\ln[(D-H)/Rw]$
		3.72 equation (8)
		3.90 equation (9)
		3.90 $\ln(Re/Rw)$
		9.7E-04 equation (5)

FIRST FIVE MINUTES



FULL DATA SET



Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update". Ground Water vol. 27, no. 3, May-June 1989
 Bouwer, H. and R C Rice. 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells". Water Resources Research vol 12, no. 3, June 1976

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-1	SS46-10	SS46-11	SS46-12	SS46-13
								SOIL	SOIL	SOIL	SOIL	SOIL
								464023	464011	464014	464018	464028
							0	0	0	0	0	0
							0.5	0.5	0.5	0.5	0.5	0.5
							12/15/99	12/14/99	12/14/99	12/15/99	12/15/99	12/16/99
							SA	SA	SA	SA	SA	DU
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Acetone	UG/KG	410	100.0%	200	21	26	26	140 J	330 J	300 J	300 J	210 J
Benzene	UG/KG	4	19.2%	60	0	5	26	14 U	14 U	11 U	13 UJ	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Bromoform	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Carbon disulfide	UG/KG	33	34.6%	2700	0	9	26	14 U	14 U	11 U	33 J	12 UJ
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	26	14 UJ	14 U	11 U	13 UJ	12 UJ
Chloroform	UG/KG	0	0.0%	300	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	26	14 UJ	14 UJ	11 UJ	13 UJ	12 UJ
Methyl ethyl ketone	UG/KG	48	84.6%	300	0	22	26	16	29	28	13 UJ	23 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	26	14 U	14 U	11 U	13 UJ	12 UJ
Styrene	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Toluene	UG/KG	11	96.2%	1500	0	25	26	4 J	10 J	6 J	13 UJ	4 J
Total Xylenes	UG/KG	6	15.4%	1200	0	4	26	14 U	14 U	11 U	13 UJ	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	14 U	14 U	11 U	13 UJ	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	26	14 U	14 U	11 U	13 UJ	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	26	14 UJ	14 U	11 U	13 UJ	12 UJ
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	26	110 UJ	92 UJ	130 UJ	2500 UJ	92 UJ

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-1	SS46-10	SS46-11	SS46-12	SS46-13
								SOIL	SOIL	SOIL	SOIL	SOIL
								464023	464011	464014	464018	464028
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/15/99	12/14/99	12/14/99	12/15/99	12/16/99
								SA	SA	SA	SA	DU
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Carbazole	UG/KG	53	3.8%		0	1	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Chrysene	UG/KG	950	53.8%	400	1	14	26	110 U	13 J	5.9 J	2500 U	6.5 J
Di-n-butylphthalate	UG/KG	1100	34.6%	8100	0	9	26	110 U	5.5 J	130 UJ	2500 U	5.2 J
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Dibenz(a,h)anthracene	UG/KG	120	11.5%	14	1	3	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Dibenzofuran	UG/KG	9.5	7.7%	6200	0	2	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Diethyl phthalate	UG/KG	11	11.5%	7100	0	3	26	110 U	4.8 J	11 J	2500 U	92 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Fluoranthene	UG/KG	1000	80.8%	50000	0	21	26	9.4 J	17 J	10 J	2500 U	10 J
Fluorene	UG/KG	10	3.8%	50000	0	1	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	26	110 UJ	92 UJ	130 UJ	2500 UJ	92 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	23.1%	3200	0	6	26	110 U	9.2 J	130 UJ	2500 U	92 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
N-Nitrosodiphenylamine	UG/KG	59	15.4%		0	4	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Naphthalene	UG/KG	14	11.5%	13000	0	3	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	110 U	92 UJ	130 UJ	2500 U	92 UJ
Pentachlorophenol	UG/KG	130	3.8%	1000	0	1	26	270 U	220 UJ	320 UJ	6100 U	220 UJ
Phenanthrene	UG/KG	110	65.4%	50000	0	17	26	4.9 J	5.6 J	5.2 J	2500 UJ	5.2 J
Phenol	UG/KG	22	30.8%	30	0	8	26	110 U	92 UJ	130 UJ	2500 U	5.4 J
Pyrene	UG/KG	56	76.9%	50000	0	20	26	6.2 J	56 J	6.1 J	2500 U	8 J
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	26	120 U	120 U	120 U	120 UJ	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 UJ
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
HMX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-1	SS46-10	SS46-11	SS46-12	SS46-13
								SOIL	SOIL	SOIL	SOIL	SOIL
								464023	464011	464014	464018	464028
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/15/99	12/14/99	12/14/99	12/15/99	12/16/99
								SA	SA	SA	SA	DU
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	120 U	120 U	120 U	120 UJ	120 U
RDX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
Tetryl	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	3.8%	2900	0	1	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
4,4'-DDE	UG/KG	4.6	23.1%	2100	0	6	26	5.6 U	4.6 U	4.3 UJ	2 J	4.6 U
4,4'-DDT	UG/KG	15	11.5%	2100	0	3	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Aldrin	UG/KG	0	0.0%	41	0	0	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Alpha-BHC	UG/KG	1.6	3.8%	110	0	1	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Alpha-Chlordane	UG/KG	3.5	7.7%		0	2	26	3.5	2.3 U	1.3 UJ	2.3 U	2.4 U
Aroclor-1016	UG/KG	0	0.0%		0	0	26	56 U	46 U	43 UJ	44 U	46 U
Aroclor-1221	UG/KG	0	0.0%		0	0	26	110 U	92 U	88 UJ	89 U	93 U
Aroclor-1232	UG/KG	0	0.0%		0	0	26	56 U	46 U	43 UJ	44 U	46 U
Aroclor-1242	UG/KG	0	0.0%		0	0	26	56 U	46 U	43 UJ	44 U	46 U
Aroclor-1248	UG/KG	0	0.0%		0	0	26	56 U	46 U	43 UJ	44 U	46 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	26	56 U	46 U	43 UJ	44 U	46 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	26	56 U	46 U	43 UJ	44 U	46 U
Beta-BHC	UG/KG	3.2	3.8%	200	0	1	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Dieldrin	UG/KG	46	50.0%	44	2	13	26	3 J	6.5 J	46 J	4.4 U	7.5 J
Endosulfan I	UG/KG	5.8	3.8%	900	0	1	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Endosulfan II	UG/KG	2.3	3.8%	900	0	1	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Endrin	UG/KG	5.1	11.5%	100	0	3	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Endrin aldehyde	UG/KG	3.6	3.8%		0	1	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Endrin ketone	UG/KG	3.4	7.7%		0	2	26	5.6 U	4.6 U	4.3 UJ	4.4 U	4.6 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Gamma-Chlordane	UG/KG	1.9	7.7%	540	0	2	26	2.9 U	2.3 U	2.2 UJ	1.2 J	2.4 U
Heptachlor	UG/KG	0	0.0%	100	0	0	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	26	2.9 U	2.3 U	2.2 UJ	2.3 U	2.4 U
Methoxychlor	UG/KG	0	0.0%		0	0	26	29 U	23 U	22 UJ	23 U	24 U
Toxaphene	UG/KG	0	0.0%		0	0	26	290 U	230 U	220 UJ	230 U	240 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	26	26	13000	12000	13900	9470	13900
Antimony	MG/KG	2.3	19.2%	5.9	0	5	26	0.82 UR	0.65 J	0.53 UJ	0.56 UR	0.56 J
Arsenic	MG/KG	7.9	100.0%	8.2	0	26	26	4.4	5.3	6.1	2.8	4.9
Barium	MG/KG	149	100.0%	300	0	26	26	67.8	93.6	96.6	25.1 J	83.4

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-13	SS46-14	SS46-15	SS46-16	SS46-17
								SOIL	SOIL	SOIL	SOIL	SOIL
								464027	464019	464024	464015	464029
							0	0	0	0	0	0
							0.5	0.5	0.5	0.5	0.5	0.5
							12/16/99	12/15/99	12/15/99	12/14/99	12/16/99	12/16/99
							SA	SA	SA	SA	SA	SA
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	26	13 U	14 U	12 UR	12 U	18 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Acetone	UG/KG	410	100.0%	200	21	26	26	210 J	270 J	72 J	210 J	240 J
Benzene	UG/KG	4	19.2%	60	0	5	26	13 U	14 U	2 J	12 U	18 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Bromoform	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UR	12 U	18 U
Carbon disulfide	UG/KG	33	34.6%	2700	0	9	26	13 UJ	9 J	11 J	12 U	18 UJ
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	26	13 U	14 U	12 UJ	12 U	18 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	26	13 U	14 U	12 UR	12 U	18 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	26	13 UJ	14 UJ	12 UJ	12 U	18 UJ
Chloroform	UG/KG	0	0.0%	300	0	0	26	13 U	14 U	12 UJ	12 U	18 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	26	13 U	14 U	12 UR	12 U	18 U
Methyl bromide	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Methyl chloride	UG/KG	0	0.0%		0	0	26	13 UJ	14 UJ	12 UJ	12 UJ	18 UJ
Methyl ethyl ketone	UG/KG	48	84.6%	300	0	22	26	20 J	26 J	12 UJ	27	25 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	26	13 U	14 U	12 UJ	12 U	18 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	26	13 UJ	14 U	12 UJ	12 U	18 UJ
Styrene	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UR	12 U	18 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	26	13 U	14 U	12 UJ	12 U	18 U
Toluene	UG/KG	11	96.2%	1500	0	25	26	3 J	3 J	9 J	8 J	4 J
Total Xylenes	UG/KG	6	15.4%	1200	0	4	26	13 U	14 U	12 UR	12 U	18 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	13 U	14 U	12 UJ	12 U	18 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	26	13 U	14 U	12 UJ	12 U	18 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	26	13 UJ	14 UJ	12 UJ	12 U	18 UJ
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	26	90 UJ	90 UJ	89 UJ	88 UJ	100 UJ

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-13	SS46-14	SS46-15	SS46-16	SS46-17
								SOIL	SOIL	SOIL	SOIL	SOIL
								464027	464019	464024	464015	464029
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/16/99	12/15/99	12/15/99	12/14/99	12/16/99
								SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Carbazole	UG/KG	53	3.8%		0	1	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Chrysene	UG/KG	950	53.8%	400	1	14	26	90 UJ	28 J	40 J	6.5 J	100 UJ
Di-n-butylphthalate	UG/KG	1100	34.6%	8100	0	9	26	90 UJ	90 U	12 J	88 UJ	100 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Dibenz(a,h)anthracene	UG/KG	120	11.5%	14	1	3	26	90 UJ	90 UJ	89 U	88 UJ	100 UJ
Dibenzofuran	UG/KG	9.5	7.7%	6200	0	2	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Diethyl phthalate	UG/KG	11	11.5%	7100	0	3	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Fluoranthene	UG/KG	1000	80.8%	50000	0	21	26	6 J	31 J	36 J	9.3 J	7.5 J
Fluorene	UG/KG	10	3.8%	50000	0	1	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	26	90 UJ	90 UJ	89 UJ	88 UJ	100 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	23.1%	3200	0	6	26	90 UJ	18 J	19 J	88 UJ	100 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
N-Nitrosodiphenylamine	UG/KG	59	15.4%		0	4	26	90 UJ	90 U	15 J	88 UJ	100 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Naphthalene	UG/KG	14	11.5%	13000	0	3	26	90 UJ	90 U	3.5 J	88 UJ	100 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	90 UJ	90 U	89 U	88 UJ	100 UJ
Pentachlorophenol	UG/KG	130	3.8%	1000	0	1	26	220 UJ	220 U	220 U	210 UJ	250 UJ
Phenanthrene	UG/KG	110	65.4%	50000	0	17	26	90 UJ	13 J	12 J	5.6 J	100 UJ
Phenol	UG/KG	22	30.8%	30	0	8	26	12 J	22 J	89 U	88 UJ	17 J
Pyrene	UG/KG	56	76.9%	50000	0	20	26	8 J	37 J	32 J	9.1 J	8.6 J
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	26	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 UJ	120 U	120 U	120 U	120 UJ
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-13	SS46-14	SS46-15	SS46-16	SS46-17
								SOIL	SOIL	SOIL	SOIL	SOIL
								464027	464019	464024	464015	464029
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/16/99	12/15/99	12/15/99	12/14/99	12/16/99
								SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	26	26	0.84 J	0.48 J	0.31 J	0.79 J	0.82 J
Cadmium	MG/KG	0.09	3.8%	2.3	0	1	26	0.05 U	0.08 U	0.09 J	0.07 U	0.05 U
Calcium	MG/KG	56200	100.0%	121000	0	26	26	3010 J	7910 J	18400 J	2610	7400 J
Chromium	MG/KG	26.3	100.0%	29.6	0	26	26	16.2	21 J	16.9 J	16	13
Cobalt	MG/KG	16.2	100.0%	30	0	26	26	9.7 J	10.7 J	9.6 J	10.1 J	6.1 J
Copper	MG/KG	203	100.0%	33	7	26	26	45.5 J	31.8	37.8	16.5	21.4 J
Cyanide	MG/KG	0	0.0%	0.35	0	0	26	0.66 U	0.66 U	0.59 U	0.65 U	0.75 U
Iron	MG/KG	32300	100.0%	36500	0	26	26	25800 J	24800 J	20800 J	19500 J	19200 J
Lead	MG/KG	913	100.0%	24.8	17	26	26	46.8	88.2	34.8	26.4 J	22.1
Magnesium	MG/KG	20400	100.0%	21500	0	26	26	3780 J	5300	4910	2850	3880 J
Manganese	MG/KG	1170	96.2%	1060	1	25	26	405 J	514 J	0.11 UJ	750	245 J
Mercury	MG/KG	0.17	73.1%	0.1	12	19	26	0.07 U	0.08 J	0.06 U	0.17 J	0.07 J
Nickel	MG/KG	44.7	100.0%	49	0	26	26	24.2 J	32.2 J	34.5 J	19.1	18.7 J
Potassium	MG/KG	1770	100.0%	2380	0	26	26	1120 J	1720	1020 J	976 J	1260 J
Selenium	MG/KG	0.81	7.7%	2	0	2	26	0.67 U	0.65 U	0.64 U	0.55 UJ	0.81 J
Silver	MG/KG	0.46	3.8%	0.75	0	1	26	0.35 UJ	0.52 UJ	0.51 UJ	0.34 UJ	0.33 UJ
Sodium	MG/KG	230	38.5%	172	3	10	26	77.8 U	121 U	193 J	108 J	75.1 J
Thallium	MG/KG	3.3	96.2%	0.7	25	25	26	1.7 J	2.2 J	2 J	1.6 J	0.91 J
Vanadium	MG/KG	28.6	100.0%	150	0	26	26	25	21.8	12.5 J	19.6	23.3
Zinc	MG/KG	115	100.0%	110	1	26	26	70.1 J	77.3 J	65.7 J	58	69.1 J
Conventional Analyses												
Nitrate/Nitrite Nitrogen	MG/KG	4.5	90.0%		0	18	20	0.04 J	0.51	0.04		0.94
Percent Solids	% WW	88.3	100.0%		0	26	26	72.8	72.9	73.7	75.3	63.7

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-18	SS46-19	SS46-2	SS46-20	SS46-21
								SOIL	SOIL	SOIL	SOIL	SOIL
								464030	464025	464013	464022	464026
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/16/99	12/15/99	12/14/99	12/15/99	12/15/99
								SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	26	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	26	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	26	220 UJ	220 U	1100 UJ	260 U	250 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
2,4-Dimethylphenol	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	26	220 UR	220 UR	1100 UR	260 UR	250 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	2900 UJ	110 U	100 U
2,6-Dinitrotoluene	UG/KG	130	3.8%	1000	0	1	26	93 UJ	90 U	130 J	110 U	100 U
2-Chloronaphthalene	UG/KG	0	0.0%		0	0	26	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ
2-Chlorophenol	UG/KG	0	0.0%	800	0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
2-Methylnaphthalene	UG/KG	6.3	7.7%	36400	0	2	26	93 UJ	90 U	450 UJ	110 U	100 U
2-Methylphenol	UG/KG	0	0.0%	100	0	0	26	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ
2-Nitroaniline	UG/KG	0	0.0%	430	0	0	26	220 UJ	220 U	1100 UJ	260 U	250 U
2-Nitrophenol	UG/KG	0	0.0%	330	0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
3,3'-Dichlorobenzidine	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
3-Nitroaniline	UG/KG	0	0.0%	500	0	0	26	220 UJ	220 U	1100 UJ	260 U	250 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%		0	0	26	220 UJ	220 U	1100 UJ	260 U	250 U
4-Bromophenyl phenyl ether	UG/KG	0	0.0%		0	0	26	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%	240	0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
4-Chloroaniline	UG/KG	0	0.0%	220	0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
4-Methylphenol	UG/KG	13	7.7%	900	0	2	26	93 UJ	90 U	13 J	110 U	100 U
4-Nitroaniline	UG/KG	0	0.0%		0	0	26	220 UJ	220 U	1100 UJ	260 U	250 U
4-Nitrophenol	UG/KG	0	0.0%	100	0	0	26	220 UJ	220 UR	1100 UJ	260 UR	250 UR
Acenaphthene	UG/KG	9.4	3.8%	50000	0	1	26	93 UJ	90 U	450 UJ	110 U	100 U
Acenaphthylene	UG/KG	18	3.8%	41000	0	1	26	93 UJ	90 U	450 UJ	110 U	100 U
Anthracene	UG/KG	44	7.7%	50000	0	2	26	93 UJ	90 U	450 UJ	110 U	100 U
Benzo(a)anthracene	UG/KG	560	42.3%	224	1	11	26	93 UJ	90 U	450 UJ	110 U	100 U
Benzo(a)pyrene	UG/KG	500	76.9%	61	1	20	26	6.5 J	5.9 J	450 UJ	8.1 J	100 U
Benzo(b)fluoranthene	UG/KG	1100	65.4%	1100	0	17	26	7.4 J	90 U	450 UJ	6.1 J	100 U
Benzo(ghi)perylene	UG/KG	310	23.1%	50000	0	6	26	93 UJ	90 U	450 UJ	110 U	100 U
Benzo(k)fluoranthene	UG/KG	640	65.4%	1100	0	17	26	4.4 J	90 U	450 UJ	7.4 J	100 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	26	93 UJ	90 U	450 UJ	110 U	100 U
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	19.2%	50000	0	5	26	93 UJ	90 U	450 UJ	110 U	100 U

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-18	SS46-19	SS46-2	SS46-20	SS46-21
								SOIL	SOIL	SOIL	SOIL	SOIL
								464030	464025	464013	464022	464026
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/16/99	12/15/99	12/14/99	12/15/99	12/15/99
								SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	120 U	120 U	120 U	120 UJ	120 U
RDX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
Tetryl	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 UJ	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	3.8%	2900	0	1	26	12	4.5 U	4.5 U	5.4 U	5.2 U
4,4'-DDE	UG/KG	4.6	23.1%	2100	0	6	26	4.6 U	1.8 J	4.5 U	5.4 U	5.2 U
4,4'-DDT	UG/KG	15	11.5%	2100	0	3	26	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U
Aldrin	UG/KG	0	0.0%	41	0	0	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Alpha-BHC	UG/KG	1.6	3.8%	110	0	1	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Alpha-Chlordane	UG/KG	3.5	7.7%		0	2	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Aroclor-1016	UG/KG	0	0.0%		0	0	26	46 U	45 U	45 U	54 U	52 U
Aroclor-1221	UG/KG	0	0.0%		0	0	26	94 U	92 U	91 U	110 U	100 U
Aroclor-1232	UG/KG	0	0.0%		0	0	26	46 U	45 U	45 U	54 U	52 U
Aroclor-1242	UG/KG	0	0.0%		0	0	26	46 U	45 U	45 U	54 U	52 U
Aroclor-1248	UG/KG	0	0.0%		0	0	26	46 U	45 U	45 U	54 U	52 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	26	46 U	45 U	45 U	54 U	52 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	26	46 U	45 U	45 U	54 U	52 U
Beta-BHC	UG/KG	3.2	3.8%	200	0	1	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Dieldrin	UG/KG	46	50.0%	44	2	13	26	28 J	4.3 J	4.5 U	5.4 U	5.2 U
Endosulfan I	UG/KG	5.8	3.8%	900	0	1	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Endosulfan II	UG/KG	2.3	3.8%	900	0	1	26	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	26	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U
Endrin	UG/KG	5.1	11.5%	100	0	3	26	3.1 J	4.5 U	4.5 U	5.4 U	5.2 U
Endrin aldehyde	UG/KG	3.6	3.8%		0	1	26	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U
Endrin ketone	UG/KG	3.4	7.7%		0	2	26	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Gamma-Chlordane	UG/KG	1.9	7.7%	540	0	2	26	2.4 U	2.3 U	2.3 U	2.8 U	1.9 J
Heptachlor	UG/KG	0	0.0%	100	0	0	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	26	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U
Methoxychlor	UG/KG	0	0.0%		0	0	26	24 U	23 U	23 U	28 U	26 U
Toxaphene	UG/KG	0	0.0%		0	0	26	240 U	230 U	230 U	280 U	260 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	26	26	12600	13500	12000	14400	15300
Antimony	MG/KG	2.3	19.2%	5.9	0	5	26	0.51 J	0.72 UR	0.52 UJ	0.85 UR	0.8 UR
Arsenic	MG/KG	7.9	100.0%	8.2	0	26	26	5.7	5.1	4.8	5.2	7.9
Barium	MG/KG	149	100.0%	300	0	26	26	67.4	67.2	95	93.9	134

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-22	SS46-23	SS46-24	SS46-3	SS46-4
								SOIL	SOIL	SOIL	SOIL	SOIL
								464031	464032	464033	464010	464009
							0	0	0	0	0	0
							0.5	0.5	0.5	0.5	0.5	0.5
							12/16/99	12/16/99	12/16/99	12/14/99	12/14/99	12/14/99
							SA	SA	SA	SA	SA	SA
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	26	13 U	13 U	12 U	12 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	26	13 U	13 U	12 U	12 U	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	26	13 U	13 U	12 U	12 U	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	26	13 U	13 U	12 U	12 U	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	26	13 U	13 U	12 U	12 U	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Acetone	UG/KG	410	100.0%	200	21	26	26	410 J	320 J	260 J	210 J	160 J
Benzene	UG/KG	4	19.2%	60	0	5	26	13 U	13 U	12 U	12 U	11 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Bromoform	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Carbon disulfide	UG/KG	33	34.6%	2700	0	9	26	13 UJ	13 UJ	12 UJ	12 U	11 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	26	13 U	13 U	12 U	12 U	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	26	13 U	13 U	12 U	12 U	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	26	13 UJ	13 UJ	12 UJ	12 U	11 U
Chloroform	UG/KG	0	0.0%	300	0	0	26	13 U	13 U	12 U	12 U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	26	13 U	13 U	12 U	12 U	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	26	13 UJ	13 UJ	12 UJ	12 UJ	11 UJ
Methyl ethyl ketone	UG/KG	48	84.6%	300	0	22	26	43 J	40 J	26 J	25	18
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	26	13 U	13 U	12 U	12 U	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	26	13 UJ	13 UJ	12 UJ	12 U	11 U
Styrene	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	26	13 U	13 U	12 U	12 U	11 U
Toluene	UG/KG	11	96.2%	1500	0	25	26	10 J	5 J	6 J	7 J	4 J
Total Xylenes	UG/KG	6	15.4%	1200	0	4	26	13 U	13 U	12 U	12 U	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	13 U	13 U	12 U	12 U	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	26	13 U	13 U	12 U	12 U	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	26	13 UJ	13 UJ	12 UJ	12 U	11 U
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	SEAD-46					SEAD-57					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
								SS46-22 SOIL 464031	SS46-23 SOIL 464032	SS46-24 SOIL 464033	SS46-3 SOIL 464010	SS46-4 SOIL 464009
							0	0	0	0	0	
							0.5	0.5	0.5	0.5	0.5	
							12/16/99	12/16/99	12/16/99	12/14/99	12/14/99	
							SA	SA	SA	SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Carbazole	UG/KG	53	3.8%		0	1	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Chrysene	UG/KG	950	53.8%	400	1	14	26	5.4 J	5.3 J	7 J	93 UJ	87 UJ
Di-n-butylphthalate	UG/KG	1100	34.6%	8100	0	9	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Dibenz(a,h)anthracene	UG/KG	120	11.5%	14	1	3	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Dibenzofuran	UG/KG	9.5	7.7%	6200	0	2	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Diethyl phthalate	UG/KG	11	11.5%	7100	0	3	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Fluoranthene	UG/KG	1000	80.8%	50000	0	21	26	9.8 J	7.9 J	6.2 J	93 UJ	87 UJ
Fluorene	UG/KG	10	3.8%	50000	0	1	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	23.1%	3200	0	6	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
N-Nitrosodiphenylamine	UG/KG	59	15.4%		0	4	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Naphthalene	UG/KG	14	11.5%	13000	0	3	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ
Pentachlorophenol	UG/KG	130	3.8%	1000	0	1	26	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ
Phenanthrene	UG/KG	110	65.4%	50000	0	17	26	6.4 J	4.9 J	90 UJ	93 UJ	87 UJ
Phenol	UG/KG	22	30.8%	30	0	8	26	4.9 J	16 J	9.9 J	93 UJ	87 UJ
Pyrene	UG/KG	56	76.9%	50000	0	20	26	9.5 J	8.7 J	5.5 J	93 UJ	87 UJ
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	26	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 UJ	120 UJ	120 UJ	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-22	SS46-23	SS46-24	SS46-3	SS46-4
								SOIL	SOIL	SOIL	SOIL	SOIL
								464031	464032	464033	464010	464009
							0	0	0	0	0	0
							0.5	0.5	0.5	0.5	0.5	0.5
							12/16/99	12/16/99	12/16/99	12/14/99	12/14/99	12/14/99
							SA	SA	SA	SA	SA	SA
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	26	26	1 J	0.95 J	1.2	0.84 J	0.84 J
Cadmium	MG/KG	0.09	3.8%	2.3	0	1	26	0.05 U	0.04 U	0.04 U	0.06 U	0.07 U
Calcium	MG/KG	56200	100.0%	121000	0	26	26	4110 J	4330 J	3390 J	7000	3340
Chromium	MG/KG	26.3	100.0%	29.6	0	26	26	15.5 J	12.2 J	16.9 J	18.3	19.2
Cobalt	MG/KG	16.2	100.0%	30	0	26	26	9.3 J	9 J	16.2	9.8 J	9.9 J
Copper	MG/KG	203	100.0%	33	7	26	26	22 J	21.8 J	27.6 J	22.9	21.3
Cyanide	MG/KG	0	0.0%	0.35	0	0	26	0.71 U	0.75 U	0.61 U	0.7 U	0.63 U
Iron	MG/KG	32300	100.0%	36500	0	26	26	24200 J	23400 J	32300 J	23700 J	24800
Lead	MG/KG	913	100.0%	24.8	17	26	26	21.7	23.9	20.9	22.8 J	73 J
Magnesium	MG/KG	20400	100.0%	21500	0	26	26	3720 J	3400 J	4860 J	4580	3490
Manganese	MG/KG	1170	96.2%	1060	1	25	26	577 J	498 J	1000 J	475	531
Mercury	MG/KG	0.17	73.1%	0.1	12	19	26	0.09 J	0.12	0.06 U	0.15 J	0.13 J
Nickel	MG/KG	44.7	100.0%	49	0	26	26	25.3 J	24.5 J	43.3 J	27.2	24.6
Potassium	MG/KG	1770	100.0%	2380	0	26	26	1630	1630	1320	1310	1390
Selenium	MG/KG	0.81	7.7%	2	0	2	26	0.6 U	0.57 J	0.45 U	0.48 UJ	0.52 UJ
Silver	MG/KG	0.46	3.8%	0.75	0	1	26	0.31 UJ	0.28 UJ	0.24 UJ	0.32 UJ	0.33 UJ
Sodium	MG/KG	230	38.5%	172	3	10	26	68.8 U	63.3 U	52.6 U	89.1 U	96.4 U
Thallium	MG/KG	3.3	96.2%	0.7	25	25	26	1.2 J	2.3	2.5	1.4 J	1.1 J
Vanadium	MG/KG	28.6	100.0%	150	0	26	26	24.7	23.7	26.7	21.5	22.2
Zinc	MG/KG	115	100.0%	110	1	26	26	79.2 J	78 J	115 J	75.6	71.8
Conventional Analyses												
Nitrate/Nitrite Nitrogen	MG/KG	4.5	90.0%		0	18	20	0.16	0.43	0.05		2.1
Percent Solids	% WW	88.3	100.0%		0	26	26	70	67.1	73.3	70.7	75.5

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	SEAD-46					SS46-5	SS46-6	SS46-7	SS46-8	SS46-8	
		Maximum	Frequency of	Criteria	Number of	Number of	SOIL	SOIL	SOIL	SOIL	SOIL	
		Detect	Detection	Value(1)	Exceedences	Detections	464008	464021	464020	464017	464016	
						0	0	0	0	0		
						0.5	0.5	0.5	0.5	0.5		
						12/14/99	12/15/99	12/15/99	12/15/99	12/15/99		
						SA	SA	SA	DU	SA		
						RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE		
						1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1		
						Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)		
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	26	90 UJ	100 UJ	87 UJ	75 UJ	75 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	26	90 UJ	100 UJ	87 UJ	75 UJ	75 UJ
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	26	220 UJ	250 U	210 U	180 U	180 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	26	220 UJ	250 UR	210 UR	180 UR	180 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
2,6-Dinitrotoluene	UG/KG	130	3.8%	1000	0	1	26	90 UJ	100 U	87 U	75 U	75 UJ
2-Chloronaphthalene	UG/KG	0	0.0%		0	0	26	90 UJ	100 UJ	87 UJ	75 UJ	75 UJ
2-Chlorophenol	UG/KG	0	0.0%	800	0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
2-Methylnaphthalene	UG/KG	6.3	7.7%	36400	0	2	26	90 UJ	100 U	87 U	75 U	2.6 J
2-Methylphenol	UG/KG	0	0.0%	100	0	0	26	90 UJ	100 UJ	87 UJ	75 UJ	75 UJ
2-Nitroaniline	UG/KG	0	0.0%	430	0	0	26	220 UJ	250 U	210 U	180 U	180 UJ
2-Nitrophenol	UG/KG	0	0.0%	330	0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
3-Nitroaniline	UG/KG	0	0.0%	500	0	0	26	220 UJ	250 U	210 U	180 U	180 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%		0	0	26	220 UJ	250 U	210 U	180 U	180 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0.0%		0	0	26	90 UJ	100 UJ	87 UJ	75 UJ	75 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%	240	0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
4-Chloroaniline	UG/KG	0	0.0%	220	0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
4-Methylphenol	UG/KG	13	7.7%	900	0	2	26	90 UJ	100 U	6.2 J	75 U	75 UJ
4-Nitroaniline	UG/KG	0	0.0%		0	0	26	220 UJ	250 U	210 U	180 U	180 UJ
4-Nitrophenol	UG/KG	0	0.0%	100	0	0	26	220 UJ	250 UR	210 UR	180 UR	180 UJ
Acenaphthene	UG/KG	9.4	3.8%	50000	0	1	26	90 UJ	100 U	87 U	75 U	75 UJ
Acenaphthylene	UG/KG	18	3.8%	41000	0	1	26	90 UJ	100 U	87 U	75 U	75 UJ
Anthracene	UG/KG	44	7.7%	50000	0	2	26	90 UJ	100 U	87 U	75 U	3.1 J
Benzo(a)anthracene	UG/KG	560	42.3%	224	1	11	26	90 UJ	8.9 J	4.7 J	21 J	29 J
Benzo(a)pyrene	UG/KG	500	76.9%	61	1	20	26	9.5 J	16 J	7.8 J	22 J	30 J
Benzo(b)fluoranthene	UG/KG	1100	65.4%	1100	0	17	26	11 J	14 J	7.5 J	30 J	44 J
Benzo(ghi)perylene	UG/KG	310	23.1%	50000	0	6	26	90 UJ	100 U	87 U	30 J	18 J
Benzo(k)fluoranthene	UG/KG	640	65.4%	1100	0	17	26	6.8 J	15 J	6.4 J	33 J	32 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	26	90 UJ	100 U	87 U	75 U	75 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	19.2%	50000	0	5	26	90 UJ	100 U	87 U	75 U	75 UJ

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS46-5	SS46-6	SS46-7	SS46-8	SS46-8
								SOIL 464008 0 0.5 12/14/99 SA RI PHASE 1 STEP 1	SOIL 464021 0 0.5 12/15/99 SA RI PHASE 1 STEP 1	SOIL 464020 0 0.5 12/15/99 SA RI PHASE 1 STEP 1	SOIL 464017 0 0.5 12/15/99 DU RI PHASE 1 STEP 1	SOIL 464016 0 0.5 12/15/99 SA RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	26	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	3.8%	2900	0	1	26	4.5 U	5.1 U	4.3 U	3.8 U	3.7 U
4,4'-DDE	UG/KG	4.6	23.1%	2100	0	6	26	4.5 U	5.1 U	3.7 J	4.1	4.6
4,4'-DDT	UG/KG	15	11.5%	2100	0	3	26	4.5 U	5.1 U	4.3 U	2.1 J	2.3 J
Aldrin	UG/KG	0	0.0%	41	0	0	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Alpha-BHC	UG/KG	1.6	3.8%	110	0	1	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Alpha-Chlordane	UG/KG	3.5	7.7%		0	2	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Aroclor-1016	UG/KG	0	0.0%		0	0	26	45 U	51 U	43 U	38 U	37 U
Aroclor-1221	UG/KG	0	0.0%		0	0	26	91 U	100 U	88 U	76 U	75 U
Aroclor-1232	UG/KG	0	0.0%		0	0	26	45 U	51 U	43 U	38 U	37 U
Aroclor-1242	UG/KG	0	0.0%		0	0	26	45 U	51 U	43 U	38 U	37 U
Aroclor-1248	UG/KG	0	0.0%		0	0	26	45 U	51 U	43 U	38 U	37 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	26	45 U	51 U	43 U	38 U	37 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	26	45 U	51 U	43 U	38 U	37 U
Beta-BHC	UG/KG	3.2	3.8%	200	0	1	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Dieldrin	UG/KG	46	50.0%	44	2	13	26	4.5 U	9 J	45 J	3.8 U	3.7 U
Endosulfan I	UG/KG	5.8	3.8%	900	0	1	26	2.3 U	2.6 U	5.8 J	1.9 U	1.9 U
Endosulfan II	UG/KG	2.3	3.8%	900	0	1	26	4.5 U	5.1 U	2.3 J	3.8 U	3.7 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	26	4.5 U	5.1 U	4.3 U	3.8 U	3.7 U
Endrin	UG/KG	5.1	11.5%	100	0	3	26	4.5 U	5.1 U	5.1 J	3.8 U	3.7 U
Endrin aldehyde	UG/KG	3.6	3.8%		0	1	26	4.5 U	5.1 U	4.3 U	3.8 U	3.7 U
Endrin ketone	UG/KG	3.4	7.7%		0	2	26	4.5 U	5.1 U	3.1 J	3.8 U	3.7 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Gamma-Chlordane	UG/KG	1.9	7.7%	540	0	2	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Heptachlor	UG/KG	0	0.0%	100	0	0	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	26	2.3 U	2.6 U	2.2 U	1.9 U	1.9 U
Methoxychlor	UG/KG	0	0.0%		0	0	26	23 U	26 U	22 U	19 U	19 U
Toxaphene	UG/KG	0	0.0%		0	0	26	230 U	260 U	220 U	190 U	190 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	26	26	12500	13900	11600	9960	9820
Antimony	MG/KG	2.3	19.2%	5.9	0	5	26	0.57 UJ	0.81 UR	0.59 UR	1.8 J	2.3 J
Arsenic	MG/KG	7.9	100.0%	8.2	0	26	26	4.2	4.2	4.7	4.3	4
Barium	MG/KG	149	100.0%	300	0	26	26	97.2	115	79.1	66.5	77.5

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

SS46-9
SOIL
464012
0
0.5
12/14/99
SA
RI PHASE
1 STEP 1

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	26	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	26	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	26	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	26	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	26	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	26	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	26	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	26	11 U
Acetone	UG/KG	410	100.0%	200	21	26	26	300 J
Benzene	UG/KG	4	19.2%	60	0	5	26	2 J
Bromodichloromethane	UG/KG	0	0.0%		0	0	26	11 U
Bromoform	UG/KG	0	0.0%		0	0	26	11 U
Carbon disulfide	UG/KG	33	34.6%	2700	0	9	26	4 J
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	26	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	26	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	26	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	26	11 U
Chloroform	UG/KG	0	0.0%	300	0	0	26	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	26	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	26	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	26	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	26	11 UJ
Methyl ethyl ketone	UG/KG	48	84.6%	300	0	22	26	30
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	26	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	26	11 U
Styrene	UG/KG	0	0.0%		0	0	26	11 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	26	11 U
Toluene	UG/KG	11	96.2%	1500	0	25	26	9 J
Total Xylenes	UG/KG	6	15.4%	1200	0	4	26	3 J
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	26	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	26	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	26	11 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	26	180 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	26	180 UJ

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

SS46-9
SOIL
464012
0
0.5
12/14/99
SA
RI PHASE
1 STEP 1

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	26	180 UJ
Carbazole	UG/KG	53	3.8%		0	1	26	53 J
Chrysene	UG/KG	950	53.8%	400	1	14	26	950 J
Di-n-butylphthalate	UG/KG	1100	34.6%	8100	0	9	26	180 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	26	180 UJ
Dibenz(a,h)anthracene	UG/KG	120	11.5%	14	1	3	26	120 J
Dibenzofuran	UG/KG	9.5	7.7%	6200	0	2	26	9.5 J
Diethyl phthalate	UG/KG	11	11.5%	7100	0	3	26	180 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	26	180 UJ
Fluoranthene	UG/KG	1000	80.8%	50000	0	21	26	1000 J
Fluorene	UG/KG	10	3.8%	50000	0	1	26	10 J
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	26	180 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	26	180 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	26	180 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	26	180 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	23.1%	3200	0	6	26	310 J
Isophorone	UG/KG	0	0.0%	4400	0	0	26	180 UJ
N-Nitrosodiphenylamine	UG/KG	59	15.4%		0	4	26	180 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	26	180 UJ
Naphthalene	UG/KG	14	11.5%	13000	0	3	26	14 J
Nitrobenzene	UG/KG	0	0.0%	200	0	0	26	180 UJ
Pentachlorophenol	UG/KG	130	3.8%	1000	0	1	26	130 J
Phenanthrene	UG/KG	110	65.4%	50000	0	17	26	110 J
Phenol	UG/KG	22	30.8%	30	0	8	26	180 UJ
Pyrene	UG/KG	56	76.9%	50000	0	20	26	790 UJ
Explosives								
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	26	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	26	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	26	120 U
HMX	UG/KG	0	0.0%		0	0	26	120 U

**Table F-1
SHALLOW SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

SS46-9 SOIL 464012 0 0.5 12/14/99 SA RI PHASE 1 STEP 1								
Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	26	26	0.79 J
Cadmium	MG/KG	0.09	3.8%	2.3	0	1	26	0.06 U
Calcium	MG/KG	56200	100.0%	121000	0	26	26	7490
Chromium	MG/KG	26.3	100.0%	29.6	0	26	26	18.2
Cobalt	MG/KG	16.2	100.0%	30	0	26	26	9.7 J
Copper	MG/KG	203	100.0%	33	7	26	26	70
Cyanide	MG/KG	0	0.0%	0.35	0	0	26	0.61 U
Iron	MG/KG	32300	100.0%	36500	0	26	26	24800 J
Lead	MG/KG	913	100.0%	24.8	17	26	26	185 J
Magnesium	MG/KG	20400	100.0%	21500	0	26	26	4820
Manganese	MG/KG	1170	96.2%	1060	1	25	26	585
Mercury	MG/KG	0.17	73.1%	0.1	12	19	26	0.14 J
Nickel	MG/KG	44.7	100.0%	49	0	26	26	25.1
Potassium	MG/KG	1770	100.0%	2380	0	26	26	1230
Selenium	MG/KG	0.81	7.7%	2	0	2	26	0.47 UJ
Silver	MG/KG	0.46	3.8%	0.75	0	1	26	0.34 UJ
Sodium	MG/KG	230	38.5%	172	3	10	26	93.9 J
Thallium	MG/KG	3.3	96.2%	0.7	25	25	26	1.6 J
Vanadium	MG/KG	28.6	100.0%	150	0	26	26	19.6
Zinc	MG/KG	115	100.0%	110	1	26	26	72.9
Conventional Analyses								
Nitrate/Nitrite Nitrogen	MG/KG	4.5	90.0%		0	18	20	4.5
Percent Solids	% WW	88.3	100.0%		0	26	26	75.4

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								BE46-1	BE46-2	BE46-3	BE46-4	BE46-5
								SOIL	SOIL	SOIL	SOIL	SOIL
								464001	464002	464003	464004	464005
								1.8	1.8	1.8	1.8	1.8
								2.2	2.2	2.2	2.2	2.2
								12/13/99	12/13/99	12/13/99	12/13/99	12/13/99
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	34	11 U	10 U	10 U	9 U	9 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	34	11 U	10 U	10 U	9 U	9 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	34	11 U	10 U	10 U	9 U	9 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	34	11 U	10 U	10 U	9 U	9 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	34	11 U	10 U	10 U	9 U	9 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Acetone	UG/KG	410	100.0%	200	21	33	33	200 J	110 J	200 J	150 J	160 J
Benzene	UG/KG	12	29.4%	60	0	10	34	1 J	10 U	1 J	9 U	9 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Bromoform	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Carbon disulfide	UG/KG	33	44.1%	2700	0	15	34	6 J	10 U	10	9 U	3 J
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	34	11 U	10 U	10 U	9 U	9 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	34	11 U	10 U	10 U	9 U	9 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	34	11 U	10 U	10 U	9 U	9 U
Chloroform	UG/KG	0	0.0%	300	0	0	34	11 U	10 U	10 U	9 U	9 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Ethyl benzene	UG/KG	1	2.9%	5500	0	1	34	11 U	10 U	10 U	9 U	9 U
Methyl bromide	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Methyl chloride	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Methyl ethyl ketone	UG/KG	48	73.5%	300	0	25	34	11 U	9 J	10 U	15	12
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	34	11 U	10 U	10 U	9 U	9 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	34	11 U	10 U	10 U	9 U	9 U
Styrene	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	34	11 U	10 U	10 U	9 U	9 U
Toluene	UG/KG	12	88.2%	1500	0	30	34	2 J	10 U	2 J	9 U	9 U
Total Xylenes	UG/KG	7	26.5%	1200	0	9	34	1 J	10 U	1 J	9 U	9 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	11 U	10 U	10 U	9 U	9 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	34	11 U	10 U	10 U	9 U	9 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	34	11 U	10 U	10 U	9 U	9 U
Semivolatile Organics												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-57					
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Number of	Number of	Number of	Number of	
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
							SEAD-46 BE46-1 464001 1.8 2.2 12/13/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-2 464002 1.8 2.2 12/13/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-3 SOIL 464003 1.8 2.2 12/13/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-4 SOIL 464004 1.8 2.2 12/13/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-5 SOIL 464005 1.8 2.2 12/13/99 SA RI PHASE 1 STEP 1	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Carbazole	UG/KG	53	2.9%		0	1	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Chrysene	UG/KG	950	41.2%	400	1	14	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Di-n-butylphthalate	UG/KG	1100	26.5%	8100	0	9	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Dibenz(a,h)anthracene	UG/KG	120	8.8%	14	1	3	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Dibenzofuran	UG/KG	9.5	5.9%	6200	0	2	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Diethyl phthalate	UG/KG	11	8.8%	7100	0	3	34	77 UJ	3.6 UJ	81 UJ	78 UJ	77 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Fluoranthene	UG/KG	1000	61.8%	50000	0	21	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Fluorene	UG/KG	10	2.9%	50000	0	1	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Hexachlorobenzene	UG/KG	11	2.9%	410	0	1	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Hexachloroethane	UG/KG	9.9	2.9%		0	1	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	20.6%	3200	0	7	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
N-Nitrosodiphenylamine	UG/KG	59	11.8%		0	4	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Naphthalene	UG/KG	14	8.8%	13000	0	3	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Pentachlorophenol	UG/KG	130	2.9%	1000	0	1	34	190 UJ	190 UJ	200 UJ	190 UJ	190 UJ
Phenanthrene	UG/KG	110	52.9%	50000	0	18	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Phenol	UG/KG	22	23.5%	30	0	8	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Pyrene	UG/KG	56	61.8%	50000	0	21	34	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	34	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								BE46-1	BE46-2	BE46-3	BE46-4	BE46-5
								SOIL	SOIL	SOIL	SOIL	SOIL
								464001	464002	464003	464004	464005
								1.8	1.8	1.8	1.8	1.8
								2.2	2.2	2.2	2.2	2.2
								12/13/99	12/13/99	12/13/99	12/13/99	12/13/99
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	34	34	0.85 J	0.95 J	0.85 J	0.8 J	0.88 J
Cadmium	MG/KG	0.09	2.9%	2.3	0	1	34	0.06 U	0.07 U	0.06 U	0.06 U	0.06 U
Calcium	MG/KG	56200	100.0%	121000	0	34	34	27400	14900	26800	39000	7410
Chromium	MG/KG	26.3	100.0%	29.6	0	34	34	20.9	20	21.9	18.7	20.1
Cobalt	MG/KG	16.2	100.0%	30	0	34	34	11.7	9.3 J	10.5 J	10.2 J	9.8 J
Copper	MG/KG	203	100.0%	33	7	34	34	25.6	17.4	20.7	23.2	19.3
Cyanide	MG/KG	0	0.0%	0.35	0	0	34	0.56 U	0.57 U	0.6 U	0.55 U	0.52 U
Iron	MG/KG	32300	100.0%	36500	0	34	34	27000 J	26800 J	24900 J	24800 J	25200 J
Lead	MG/KG	913	100.0%	24.8	18	34	34	15.3 J	14.9 J	13.5 J	15.3 J	13.7 J
Magnesium	MG/KG	20400	100.0%	21500	0	34	34	9350	6670	6890	12800	7130
Manganese	MG/KG	1170	97.1%	1060	1	33	34	568	698	593	526	531
Mercury	MG/KG	0.17	79.4%	0.1	14	27	34	0.12 J	0.1 J	0.09 J	0.08 J	0.08 J
Nickel	MG/KG	44.7	100.0%	49	0	34	34	35.4	25.7	30.2	29.9	27.6
Potassium	MG/KG	1770	100.0%	2380	0	34	34	1190	817 J	1010	974	865 J
Selenium	MG/KG	0.81	5.9%	2	0	2	34	0.49 UJ	0.53 UJ	0.45 UJ	0.46 UJ	0.51 UJ
Silver	MG/KG	0.46	2.9%	0.75	0	1	34	0.25 UJ	0.27 UJ	0.28 UJ	0.28 UJ	0.26 UJ
Sodium	MG/YG	272	47.1%	172	5	16	34	98.8 J	98.6 U	205 J	107 J	94.2 U
Thallium	MG/KG	3.4	97.1%	0.7	33	33	34	1.5 J	1.2 J	3.4	2.7	1.2 J
Vanadium	MG/KG	28.6	100.0%	150	0	34	34	21.6	24.7	21.7	20.8	22.4
Zinc	MG/KG	115	100.0%	110	1	34	34	67.8	51.1	85.3	64.6	72.4
Conventional Analyses												
Nitrate/Nitrite Nitrogen	MG/KG	4.5	92.6%		0	25	27	0.67	1.5	0.94	1.9	1.9
Percent Solids	% WW	89.5	100.0%		0	34	34	86.5	84.2	81.2	83.9	85.7

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-57					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	34	76 UJ	78 UJ	74 UJ	110 UJ	92 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	34	76 UJ	78 UJ	74 UJ	110 UJ	92 UJ
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	34	180 UJ	190 UJ	180 UJ	270 U	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	34	180 UJ	190 UR	180 UR	270 UR	220 UJ
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2,6-Dinitrotoluene	UG/KG	130	2.9%	1000	0	1	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2-Chloronaphthalene	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 UJ	92 UJ
2-Chlorophenol	UG/KG	0	0.0%	800	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2-Methylnaphthalene	UG/KG	6.3	5.9%	36400	0	2	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
2-Methylphenol	UG/KG	0	0.0%	100	0	0	34	76 UJ	78 UJ	74 UJ	110 UJ	92 UJ
2-Nitroaniline	UG/KG	0	0.0%	430	0	0	34	180 UJ	190 UJ	180 UJ	270 U	220 UJ
2-Nitrophenol	UG/KG	0	0.0%	330	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
3-Nitroaniline	UG/KG	0	0.0%	500	0	0	34	180 UJ	190 UJ	180 UJ	270 U	220 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%	0	0	0	34	180 UJ	190 UJ	180 UJ	270 U	220 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 UJ	92 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%	240	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
4-Chloroaniline	UG/KG	0	0.0%	220	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
4-Nitroaniline	UG/KG	0	0.0%	0	0	0	34	180 UJ	190 UJ	180 U	270 U	220 UJ
4-Nitrophenol	UG/KG	0	0.0%	100	0	0	34	180 UR	190 UJ	180 UR	270 UR	220 UJ
Acenaphthene	UG/KG	9.4	2.9%	50000	0	1	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Acenaphthylene	UG/KG	18	2.9%	41000	0	1	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Anthracene	UG/KG	44	5.9%	50000	0	2	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Benzo(a)anthracene	UG/KG	560	32.4%	224	1	11	34	76 UJ	78 UJ	74 UJ	110 U	9.9 J
Benzo(a)pyrene	UG/KG	500	58.8%	61	1	20	34	76 UJ	78 UJ	19 UJ	8.1 J	16 J
Benzo(b)fluoranthene	UG/KG	1100	55.9%	1100	0	19	34	19 J	78 UJ	74 UJ	110 U	21 J
Benzo(ghi)perylene	UG/KG	310	17.6%	50000	0	6	34	76 UJ	78 UJ	74 UJ	110 U	9.1 J
Benzo(k)fluoranthene	UG/KG	640	55.9%	1100	0	19	34	19 J	78 UJ	74 UJ	110 U	8.4 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%	0	0	0	34	76 UJ	78 UJ	74 UJ	110 U	92 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	14.7%	50000	0	5	34	76 UJ	78 UJ	74 UJ	110 U	42 J

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-57					
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SEAD-46 BE46-6 SOIL 464006 1.8 2.2 12/14/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-7 SOIL 464007 1.8 2.2 12/14/99 SA RI PHASE 1 STEP 1	SEAD-46 BE46-8 SOIL 464000 1.8 2.2 12/14/99 SA RI PHASE 1 STEP 1	SEAD-46 SS46-1 SOIL 464023 0 0.5 12/15/99 SA RI PHASE 1 STEP 1	SEAD-46 SS46-10 SOIL 464011 0 0.5 12/14/99 SA RI PHASE 1 STEP 1
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	2.9%	2900	0	1	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
4,4'-DDE	UG/KG	4.6	17.6%	2100	0	6	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
4,4'-DDT	UG/KG	15	8.8%	2100	0	3	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Aldrin	UG/KG	0	0.0%	41	0	0	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Alpha-BHC	UG/KG	1.6	2.9%	110	0	1	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Alpha-Chlordane	UG/KG	3.5	5.9%		0	2	34	1.9 U	2 U	1.9 U	3.5	2.3 U
Aroclor-1016	UG/KG	0	0.0%		0	0	34	38 U	39 U	37 U	56 U	46 U
Aroclor-1221	UG/KG	0	0.0%		0	0	34	76 U	78 U	75 U	110 U	92 U
Aroclor-1232	UG/KG	0	0.0%		0	0	34	38 U	39 U	37 U	56 U	46 U
Aroclor-1242	UG/KG	0	0.0%		0	0	34	38 U	39 U	37 U	56 U	46 U
Aroclor-1248	UG/KG	0	0.0%		0	0	34	38 U	39 U	37 U	56 U	46 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	34	38 U	39 U	37 U	56 U	46 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	34	38 U	39 U	37 U	56 U	46 U
Beta-BHC	UG/KG	3.2	2.9%	200	0	1	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Dieldrin	UG/KG	46	38.2%	44	2	13	34	3.8 U	3.9 U	3.7 U	3 J	6.5 J
Endosulfan I	UG/KG	5.8	2.9%	900	0	1	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Endosulfan II	UG/KG	2.3	2.9%	900	0	1	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Endrin	UG/KG	5.1	8.8%	100	0	3	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Endrin aldehyde	UG/KG	3.6	2.9%		0	1	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Endrin ketone	UG/KG	3.4	5.9%		0	2	34	3.8 U	3.9 U	3.7 U	5.6 U	4.6 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Gamma-Chlordane	UG/KG	1.9	5.9%	540	0	2	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Heptachlor	UG/KG	0	0.0%	100	0	0	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	34	1.9 U	2 U	1.9 U	2.9 U	2.3 U
Methoxychlor	UG/KG	0	0.0%		0	0	34	19 U	20 U	19 U	29 U	23 U
Toxaphene	UG/KG	0	0.0%		0	0	34	190 U	200 U	190 U	290 U	230 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	34	34	11100	12700	8890	13000	12000
Antimony	MG/KG	2.3	14.7%	5.9	0	5	34	0.48 UJ	0.51 UJ	0.48 UJ	0.82 UR	0.65 J
Arsenic	MG/KG	7.9	100.0%	8.2	0	34	34	3.7	4.3	3.8	4.4	5.3
Barium	MG/KG	149	100.0%	300	0	34	34	80.5	88.2	62.7	67.8	93.6

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-11	SS46-12	SS46-13	SS46-13	SS46-14
								SOIL	SOIL	SOIL	SOIL	SOIL
							464014	464018	464028	464027	464019	
							0	0	0	0	0	
							0.5	0.5	0.5	0.5	0.5	
							12/14/99	12/15/99	12/16/99	12/16/99	12/15/99	
							SA	SA	DU	SA	SA	
							RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
							STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Acetone	UG/KG	410	100.0%	200	21	33	33	300 J	300 J	210 J	210 J	270 J
Benzene	UG/KG	12	29.4%	60	0	10	34	11 U	13 UJ	12 U	13 U	14 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Bromoform	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Carbon disulfide	UG/KG	33	44.1%	2700	0	15	34	11 U	33 J	12 UJ	13 UJ	9 J
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	34	11 U	13 UJ	12 UJ	13 UJ	14 UJ
Chloroform	UG/KG	0	0.0%	300	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Ethyl benzene	UG/KG	1	2.9%	5500	0	1	34	11 U	13 UJ	12 U	13 U	14 U
Methyl bromide	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Methyl chloride	UG/KG	0	0.0%		0	0	34	11 UJ	13 UJ	12 UJ	13 UJ	14 UJ
Methyl ethyl ketone	UG/KG	48	73.5%	300	0	25	34	28	13 UJ	23 J	20 J	26 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	34	11 U	13 UJ	12 UJ	13 UJ	14 U
Styrene	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Toluene	UG/KG	12	88.2%	1500	0	30	34	6 J	13 UJ	4 J	3 J	3 J
Total Xylenes	UG/KG	7	26.5%	1200	0	9	34	11 U	13 UJ	12 U	13 U	14 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	11 U	13 UJ	12 U	13 U	14 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	34	11 U	13 UJ	12 U	13 U	14 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	34	11 U	13 UJ	12 UJ	13 UJ	14 UJ
Semivolatile Organics												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	34	130 UJ	2500 UJ	92 UJ	90 UJ	90 UJ

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Carbazole	UG/KG	53	2.9%		0	1	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Chrysene	UG/KG	950	41.2%	400	1	14	34	5.9 J	2500 U	6.5 J	90 UJ	28 J
Di-n-butylphthalate	UG/KG	1100	26.5%	8100	0	9	34	130 UJ	2500 U	5.2 J	90 UJ	90 U
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Dibenz(a,h)anthracene	UG/KG	120	8.8%	14	1	3	34	130 UJ	2500 U	92 UJ	90 UJ	90 UJ
Dibenzofuran	UG/KG	9.5	5.9%	6200	0	2	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Diethyl phthalate	UG/KG	11	8.8%	7100	0	3	34	11 J	2500 U	92 UJ	90 UJ	90 U
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Fluoranthene	UG/KG	1000	61.8%	50000	0	21	34	10 J	2500 U	10 J	6 J	31 J
Fluorene	UG/KG	10	2.9%	50000	0	1	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Hexachlorobenzene	UG/KG	11	2.9%	410	0	1	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	34	130 UJ	2500 UJ	92 UJ	90 UJ	90 UJ
Hexachloroethane	UG/KG	9.9	2.9%		0	1	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Indeno(1,2,3-cd)pyrene	UG/KG	310	20.6%	3200	0	7	34	130 UJ	2500 U	92 UJ	90 UJ	18 J
Isophorone	UG/KG	0	0.0%	4400	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
N-Nitrosodiphenylamine	UG/KG	59	11.8%		0	4	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Naphthalene	UG/KG	14	8.8%	13000	0	3	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	130 UJ	2500 U	92 UJ	90 UJ	90 U
Pentachlorophenol	UG/KG	130	2.9%	1000	0	1	34	320 UJ	6100 U	220 UJ	220 UJ	220 U
Phenanthrene	UG/KG	110	52.9%	50000	0	18	34	5.2 J	2500 UJ	5.2 J	90 UJ	13 J
Phenol	UG/KG	22	23.5%	30	0	8	34	130 UJ	2500 U	5.4 J	12 J	22 J
Pyrene	UG/KG	56	61.8%	50000	0	21	34	6.1 J	2500 U	8 J	8 J	37 J
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	34	120 U	120 UJ	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 UJ	120 UJ	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U

Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-46							
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)		
Beryllium	MG/KG	1.2	100.0%	1.1	1	34	34	1.1 J	0.35 J	0.83 J	0.84 J	0.48 J		
Cadmium	MG/KG	0.09	2.9%	2.3	0	1	34	0.07 U	0.06 U	0.04 U	0.05 U	0.08 U		
Calcium	MG/KG	56200	100.0%	121000	0	34	34	4060	21800 J	2930 J	3010 J	7910 J		
Chromium	MG/KG	26.3	100.0%	29.6	0	34	34	22.7	18.9 J	15.8	16.2	21 J		
Cobalt	MG/KG	16.2	100.0%	30	0	34	34	12.3	9.2 J	9.6	9.7 J	10.7 J		
Copper	MG/KG	203	100.0%	33	7	34	34	30.3	21.3	36.8 J	45.5 J	31.8		
Cyanide	MG/KG	0	0.0%	0.35	0	0	34	0.65 U	0.6 U	0.69 U	0.66 U	0.66 U		
Iron	MG/KG	32300	100.0%	36500	0	34	34	28600 J	21000 J	23100 J	25800 J	24800 J		
Lead	MG/KG	913	100.0%	24.8	18	34	34	31.6 J	21.2	54.7	46.8	88.2		
Magnesium	MG/KG	20400	100.0%	21500	0	34	34	4490	5170	3380 J	3780 J	5300		
Manganese	MG/KG	1170	97.1%	1060	1	33	34	672	295 J	411 J	405 J	514 J		
Mercury	MG/KG	0.17	79.4%	0.1	14	27	34	0.12 J	0.07 U	0.06 U	0.07 U	0.08 J		
Nickel	MG/KG	44.7	100.0%	49	0	34	34	35.7	33.7 J	21.4 J	24.2 J	32.2 J		
Potassium	MG/KG	1770	100.0%	2380	0	34	34	1310	1000 J	1150	1120 J	1720		
Selenium	MG/KG	0.81	5.9%	2	0	2	34	0.55 UJ	0.5 U	0.47 U	0.67 U	0.65 U		
Silver	MG/KG	0.46	2.9%	0.75	0	1	34	0.31 UJ	0.39 UJ	0.46 J	0.35 UJ	0.52 UJ		
Sodium	MG/KG	272	47.1%	172	5	16	34	127 J	93.2 J	90.7 J	77.8 U	121 U		
Thallium	MG/KG	3.4	97.1%	0.7	33	33	34	2 J	1.3 J	2.3	1.7 J	2.2 J		
Vanadium	MG/KG	28.6	100.0%	150	0	34	34	25.4	13.5	24.6	25	21.8		
Zinc	MG/KG	115	100.0%	110	1	34	34	83.2	47.3 J	68 J	70.1 J	77.3 J		
Conventional Analyses														
Nitrate/Nitrite Nitrogen	MG/KG	4.5	92.6%		0	25	27		0.01 U	0.07 J	0.04 J	0.51		
Percent Solids	% WW	89.5	100.0%		0	34	34	75.8	74.9	72	72.8	72.9		

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-46					
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
		Detect	Detection	Value(1)	Exceedences	Detections	Samples					
							SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
							SS46-15	SS46-16	SS46-17	SS46-18	SS46-19	
							SOIL	SOIL	SOIL	SOIL	SOIL	
							464024	464015	464029	464030	464025	
							0	0	0	0	0	
							0.5	0.5	0.5	0.5	0.5	
							12/15/99	12/14/99	12/16/99	12/16/99	12/15/99	
							SA	SA	SA	SA	SA	
							RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
							STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	34	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	34	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	34	220 UJ	210 UJ	250 UJ	220 UJ	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	34	220 UR	210 UJ	250 UR	220 UR	220 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2,6-Dinitrotoluene	UG/KG	130	2.9%	1000	0	1	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2-Chloronaphthalene	UG/KG	0	0.0%	0	0	0	34	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ
2-Chlorophenol	UG/KG	0	0.0%	800	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2-Methylnaphthalene	UG/KG	6.3	5.9%	36400	0	2	34	89 U	88 UJ	100 UJ	93 UJ	90 U
2-Methylphenol	UG/KG	0	0.0%	100	0	0	34	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ
2-Nitroaniline	UG/KG	0	0.0%	430	0	0	34	220 U	210 UJ	250 UJ	220 UJ	220 U
2-Nitrophenol	UG/KG	0	0.0%	330	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
3,3'-Dichlorobenzidine	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
3-Nitroaniline	UG/KG	0	0.0%	500	0	0	34	220 U	210 UJ	250 UJ	220 UJ	220 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%	0	0	0	34	220 U	210 UJ	250 UJ	220 UJ	220 U
4-Bromophenyl phenyl ether	UG/KG	0	0.0%	0	0	0	34	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%	240	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
4-Chloroaniline	UG/KG	0	0.0%	220	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	89 U	88 UJ	100 UJ	93 UJ	90 U
4-Nitroaniline	UG/KG	0	0.0%	0	0	0	34	220 U	210 UJ	250 UJ	220 UJ	220 U
4-Nitrophenol	UG/KG	0	0.0%	100	0	0	34	220 UR	210 UJ	250 UJ	220 UJ	220 UR
Acenaphthene	UG/KG	9.4	2.9%	50000	0	1	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Acenaphthylene	UG/KG	18	2.9%	41000	0	1	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Anthracene	UG/KG	44	5.9%	50000	0	2	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Benzo(a)anthracene	UG/KG	560	32.4%	224	1	11	34	34 J	88 UJ	100 UJ	93 UJ	90 U
Benzo(a)pyrene	UG/KG	500	58.8%	61	1	20	34	30 J	7.9 J	6.7 J	6.5 J	5.9 J
Benzo(b)fluoranthene	UG/KG	1100	55.9%	1100	0	19	34	47 J	9 J	5.7 J	7.4 J	90 U
Benzo(ghi)perylene	UG/KG	310	17.6%	50000	0	6	34	17 J	88 UJ	100 UJ	93 UJ	90 U
Benzo(k)fluoranthene	UG/KG	640	55.9%	1100	0	19	34	33 J	6.6 J	7.2 J	4.4 J	90 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%	0	0	0	34	89 U	88 UJ	100 UJ	93 UJ	90 U
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	14.7%	50000	0	5	34	160	28 J	100 UJ	93 UJ	90 U

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-15	SS46-16	SS46-17	SS46-18	SS46-19
								SOIL	SOIL	SOIL	SOIL	SOIL
								464024	464015	464029	464030	464025
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/15/99	12/14/99	12/16/99	12/16/99	12/15/99
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	2.9%	2900	0	1	34	4.4 U	4.4 U	5.2 U	12	4.5 U
4,4'-DDE	UG/KG	4.6	17.6%	2100	0	6	34	2 J	4.4 U	5.2 U	4.6 U	1.8 J
4,4'-DDT	UG/KG	15	8.8%	2100	0	3	34	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U
Aldrin	UG/KG	0	0.0%	41	0	0	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Alpha-BHC	UG/KG	1.6	2.9%	110	0	1	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Alpha-Chlordane	UG/KG	3.5	5.9%		0	2	34	2.3 U	1.5 J	2.6 U	2.4 U	2.3 U
Aroclor-1016	UG/KG	0	0.0%		0	0	34	44 U	44 U	52 U	46 U	45 U
Aroclor-1221	UG/KG	0	0.0%		0	0	34	90 U	88 U	100 U	94 U	92 U
Aroclor-1232	UG/KG	0	0.0%		0	0	34	44 U	44 U	52 U	46 U	45 U
Aroclor-1242	UG/KG	0	0.0%		0	0	34	44 U	44 U	52 U	46 U	45 U
Aroclor-1248	UG/KG	0	0.0%		0	0	34	44 U	44 U	52 U	46 U	45 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	34	44 U	44 U	52 U	46 U	45 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	34	44 U	44 U	52 U	46 U	45 U
Beta-BHC	UG/KG	3.2	2.9%	200	0	1	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Dieldrin	UG/KG	46	38.2%	44	2	13	34	4.4 U	4.4 U	5.2 U	28 J	4.3 J
Endosulfan I	UG/KG	5.8	2.9%	900	0	1	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Endosulfan II	UG/KG	2.3	2.9%	900	0	1	34	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	34	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U
Endrin	UG/KG	5.1	8.8%	100	0	3	34	4.4 U	4.4 U	5.2 U	3.1 J	4.5 U
Endrin aldehyde	UG/KG	3.6	2.9%		0	1	34	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U
Endrin ketone	UG/KG	3.4	5.9%		0	2	34	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Gamma-Chlordane	UG/KG	1.9	5.9%	540	0	2	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Heptachlor	UG/KG	0	0.0%	100	0	0	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	34	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U
Methoxychlor	UG/KG	0	0.0%		0	0	34	23 U	22 U	26 U	24 U	23 U
Toxaphene	UG/KG	0	0.0%		0	0	34	230 U	220 U	260 U	240 U	230 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	34	34	9020	11100	14400	12600	13500
Antimony	MG/KG	2.3	14.7%	5.9	0	5	34	0.73 UR	0.57 UJ	0.56 UR	0.51 J	0.72 UR
Arsenic	MG/KG	7.9	100.0%	8.2	0	34	34	2.9	4.1	4	5.7	5.1
Barium	MG/KG	149	100.0%	300	0	34	34	20.5 J	77.5	149	67.4	67.2

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-2	SS46-20	SS46-21	SS46-22	SS46-23
								SOIL	SOIL	SOIL	SOIL	SOIL
								464013	464022	464026	464031	464032
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/14/99	12/15/99	12/15/99	12/16/99	12/16/99
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics												
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	34	12 U	14 U	14 U	13 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	34	12 U	14 U	14 U	13 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	34	12 U	14 U	14 U	13 U	13 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	34	12 U	14 U	14 U	13 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	34	12 U	14 U	14 U	13 U	13 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Acetone	UG/KG	410	100.0%	200	21	33	33	380 J	160 J	220 J	410 J	320 J
Benzene	UG/KG	12	29.4%	60	0	10	34	12 U	14 U	14 U	13 U	13 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Bromoform	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Carbon disulfide	UG/KG	33	44.1%	2700	0	15	34	12 U	14 U	14 U	13 UJ	13 UJ
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	34	12 U	14 U	14 U	13 U	13 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	34	12 U	14 U	14 U	13 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	34	12 U	14 U	14 UJ	13 UJ	13 UJ
Chloroform	UG/KG	0	0.0%	300	0	0	34	12 U	14 U	14 U	13 U	13 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Ethyl benzene	UG/KG	1	2.9%	5500	0	1	34	12 U	14 U	14 U	13 U	13 U
Methyl bromide	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Methyl chloride	UG/KG	0	0.0%		0	0	34	12 UJ	14 UJ	14 UJ	13 UJ	13 UJ
Methyl ethyl ketone	UG/KG	48	73.5%	300	0	25	34	48	17	23	43 J	40 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	34	12 U	14 U	14 U	13 U	13 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	34	12 U	14 U	14 U	13 UJ	13 UJ
Styrene	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	34	12 U	14 U	14 U	13 U	13 U
Toluene	UG/KG	12	88.2%	1500	0	30	34	4 J	5 J	2 J	10 J	5 J
Total Xylenes	UG/KG	7	26.5%	1200	0	9	34	12 U	14 U	14 U	13 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	12 U	14 U	14 U	13 U	13 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	34	12 U	14 U	14 U	13 U	13 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	34	12 U	14 U	14 UJ	13 UJ	13 UJ
Semivolatile Organics												
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	34	450 UJ	110 UJ	100 UJ	94 UJ	98 UJ

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46					SEAD-57					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Carbazole	UG/KG	53	2.9%		0	1	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Chrysene	UG/KG	950	41.2%	400	1	14	34	450 UJ	110 U	100 U	5.4 J	5.3 J
Di-n-butylphthalate	UG/KG	1100	26.5%	8100	0	9	34	1100 J	5.8 J	6.4 J	94 UJ	98 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Dibenz(a,h)anthracene	UG/KG	120	8.8%	14	1	3	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Dibenzofuran	UG/KG	9.5	5.9%	6200	0	2	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Diethyl phthalate	UG/KG	11	8.8%	7100	0	3	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Fluoranthene	UG/KG	1000	61.8%	50000	0	21	34	450 UJ	10 J	100 U	9.8 J	7.9 J
Fluorene	UG/KG	10	2.9%	50000	0	1	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Hexachlorobenzene	UG/KG	11	2.9%	410	0	1	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	34	450 UJ	110 UJ	100 UJ	94 UJ	98 UJ
Hexachloroethane	UG/KG	9.9	2.9%		0	1	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	20.6%	3200	0	7	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
N-Nitrosodiphenylamine	UG/KG	59	11.8%		0	4	34	59 J	110 U	100 U	94 UJ	98 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Naphthalene	UG/KG	14	8.8%	13000	0	3	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	450 UJ	110 U	100 U	94 UJ	98 UJ
Pentachlorophenol	UG/KG	130	2.9%	1000	0	1	34	1100 UJ	260 U	250 U	230 UJ	240 UJ
Phenanthrene	UG/KG	110	52.9%	50000	0	18	34	450 UJ	7.1 J	100 UJ	6.4 J	4.9 J
Phenol	UG/KG	22	23.5%	30	0	8	34	450 UJ	110 U	100 U	4.9 J	16 J
Pyrene	UG/KG	56	61.8%	50000	0	21	34	450 UJ	9.3 J	100 U	9.5 J	8.7 J
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	34	120 U	120 UJ	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 UJ	120 UJ
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	34	120 U	120 UJ	120 U	120 U	120 U

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-2	SS46-20	SS46-21	SS46-22	SS46-23
								SOIL	SOIL	SOIL	SOIL	SOIL
								464013	464022	464026	464031	464032
								0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5
								12/14/99	12/15/99	12/15/99	12/16/99	12/16/99
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	34	34	0.93 J	0.51 J	0.58 J	1 J	0.95 J
Cadmium	MG/KG	0.09	2.9%	2.3	0	1	34	0.07 U	0.09 U	0.09 U	0.05 U	0.04 U
Calcium	MG/KG	56200	100.0%	121000	0	34	34	5740	4390 J	6480 J	4110 J	4330 J
Chromium	MG/KG	26.3	100.0%	29.6	0	34	34	19.9	19 J	20.9 J	15.5 J	12.2 J
Cobalt	MG/KG	16.2	100.0%	30	0	34	34	11 J	11 J	13.5 J	9.3 J	9 J
Copper	MG/KG	203	100.0%	33	7	34	34	24.2	20.3	30.6	22 J	21.8 J
Cyanide	MG/KG	0	0.0%	0.35	0	0	34	0.62 U	0.69 U	0.76 U	0.71 U	0.75 U
Iron	MG/KG	32300	100.0%	36500	0	34	34	25000 J	24300 J	30800 J	24200 J	23400 J
Lead	MG/KG	913	100.0%	24.8	18	34	34	22.1 J	26.8	28.1	21.7	23.9
Magnesium	MG/KG	20400	100.0%	21500	0	34	34	4180	3890	6230	3720 J	3400 J
Manganese	MG/KG	1170	97.1%	1060	1	33	34	700	741 J	1170 J	577 J	498 J
Mercury	MG/KG	0.17	79.4%	0.1	14	27	34	0.16 J	0.07 U	0.11 J	0.09 J	0.12
Nickel	MG/KG	44.7	100.0%	49	0	34	34	29.4	25.6 J	44.7 J	25.3 J	24.5 J
Potassium	MG/KG	1770	100.0%	2380	0	34	34	1410	1450 J	1690	1630	1630
Selenium	MG/KG	0.81	5.9%	2	0	2	34	0.55 UJ	0.76 U	0.71 U	0.6 U	0.57 J
Silver	MG/KG	0.46	2.9%	0.75	0	1	34	0.31 UJ	0.6 UJ	0.56 UJ	0.31 UJ	0.28 UJ
Sodium	MG/KG	272	47.1%	172	5	16	34	102 U	140 U	132 U	68.8 U	63.3 U
Thallium	MG/KG	3.4	97.1%	0.7	33	33	34	1.9 J	2.2 J	3.3	1.2 J	2.3
Vanadium	MG/KG	28.6	100.0%	150	0	34	34	22.4	25.4	28.6	24.7	23.7
Zinc	MG/KG	115	100.0%	110	1	34	34	84.7	84.1 J	97.3 J	79.2 J	78 J
Conventional Analyses												
Nitrate/Nitrite Nitrogen	MG/KG	4.5	92.6%		0	25	27		0.05	0.01 U	0.16	0.43
Percent Solids	% WW	89.5	100.0%		0	34	34	72.9	61	63.6	70	67.1

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-24	SS46-3	SS46-4	SS46-5	SS46-6
								SOIL	SOIL	SOIL	SOIL	SOIL
							464033	464010	464009	464008	464021	
							0	0	0	0	0	0
							0.5	0.5	0.5	0.5	0.5	0.5
							12/16/99	12/14/99	12/14/99	12/14/99	12/15/99	
							SA	SA	SA	SA	SA	
							RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
							STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2,4-Dimethylphenol	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	34	220 UR	220 UJ	210 UJ	220 UJ	250 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2,6-Dinitrotoluene	UG/KG	130	2.9%	1000	0	1	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2-Chloronaphthalene	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ
2-Chlorophenol	UG/KG	0	0.0%	800	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2-Methylnaphthalene	UG/KG	6.3	5.9%	36400	0	2	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
2-Methylphenol	UG/KG	0	0.0%	100	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ
2-Nitroaniline	UG/KG	0	0.0%	430	0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 U
2-Nitrophenol	UG/KG	0	0.0%	330	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
3,3'-Dichlorobenzidine	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
3-Nitroaniline	UG/KG	0	0.0%	500	0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%		0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 U
4-Bromophenyl phenyl ether	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%	240	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
4-Chloroaniline	UG/KG	0	0.0%	220	0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
4-Nitroaniline	UG/KG	0	0.0%		0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 U
4-Nitrophenol	UG/KG	0	0.0%	100	0	0	34	220 UJ	220 UJ	210 UJ	220 UJ	250 UR
Acenaphthene	UG/KG	9.4	2.9%	50000	0	1	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Acenaphthylene	UG/KG	18	2.9%	41000	0	1	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Anthracene	UG/KG	44	5.9%	50000	0	2	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Benzo(a)anthracene	UG/KG	560	32.4%	224	1	11	34	6.3 J	93 UJ	87 UJ	90 UJ	8.9 J
Benzo(a)pyrene	UG/KG	500	58.8%	61	1	20	34	7.4 J	93 UJ	87 UJ	9.5 J	16 J
Benzo(b)fluoranthene	UG/KG	1100	55.9%	1100	0	19	34	8.8 J	93 UJ	87 UJ	11 J	14 J
Benzo(ghi)perylene	UG/KG	310	17.6%	50000	0	6	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Benzo(k)fluoranthene	UG/KG	640	55.9%	1100	0	19	34	7.8 J	93 UJ	87 UJ	6.8 J	15 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U
Bis(2-Ethylhexyl)phthalate	UG/KG	18000	14.7%	50000	0	5	34	90 UJ	93 UJ	87 UJ	90 UJ	100 U

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-24 SOIL 464033 0 0.5 12/16/99 SA RI PHASE 1 STEP 1	SS46-3 SOIL 464010 0 0.5 12/14/99 SA RI PHASE 1 STEP 1	SS46-4 SOIL 464009 0 0.5 12/14/99 SA RI PHASE 1 STEP 1	SS46-5 SOIL 464008 0 0.5 12/14/99 SA RI PHASE 1 STEP 1	SS46-6 SOIL 464021 0 0.5 12/15/99 SA RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs												
4,4'-DDD	UG/KG	12	2.9%	2900	0	1	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
4,4'-DDE	UG/KG	4.6	17.6%	2100	0	6	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
4,4'-DDT	UG/KG	15	8.8%	2100	0	3	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
Aldrin	UG/KG	0	0.0%	41	0	0	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Alpha-BHC	UG/KG	1.6	2.9%	110	0	1	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Alpha-Chlordane	UG/KG	3.5	5.9%		0	2	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Aroclor-1016	UG/KG	0	0.0%		0	0	34	45 U	46 U	43 U	45 U	51 U
Aroclor-1221	UG/KG	0	0.0%		0	0	34	92 U	94 U	88 U	91 U	100 U
Aroclor-1232	UG/KG	0	0.0%		0	0	34	45 U	46 U	43 U	45 U	51 U
Aroclor-1242	UG/KG	0	0.0%		0	0	34	45 U	46 U	43 U	45 U	51 U
Aroclor-1248	UG/KG	0	0.0%		0	0	34	45 U	46 U	43 U	45 U	51 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	34	45 U	46 U	43 U	45 U	51 U
Aroclor-1260	UG/KG	0	0.0%	10000	0	0	34	45 U	46 U	43 U	45 U	51 U
Beta-BHC	UG/KG	3.2	2.9%	200	0	1	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Dieldrin	UG/KG	46	38.2%	44	2	13	34	4.5 U	10 J	4.6	4.5 U	9 J
Endosulfan I	UG/KG	5.8	2.9%	900	0	1	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Endosulfan II	UG/KG	2.3	2.9%	900	0	1	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
Endrin	UG/KG	5.1	8.8%	100	0	3	34	4.5 U	2.4 J	4.3 U	4.5 U	5.1 U
Endrin aldehyde	UG/KG	3.6	2.9%		0	1	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
Endrin ketone	UG/KG	3.4	5.9%		0	2	34	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U
Gamma-BHC/Lindane	UG/KG	0	0.0%	60	0	0	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Gamma-Chlordane	UG/KG	1.9	5.9%	540	0	2	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Heptachlor	UG/KG	0	0.0%	100	0	0	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Heptachlor epoxide	UG/KG	0	0.0%	20	0	0	34	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U
Methoxychlor	UG/KG	0	0.0%		0	0	34	23 U	24 U	22 U	23 U	26 U
Toxaphene	UG/KG	0	0.0%		0	0	34	230 U	240 U	220 U	230 U	260 U
Metals and Cyanide												
Aluminum	MG/KG	15300	100.0%	19300	0	34	34	15300	12100	12500	12500	13900
Antimony	MG/KG	2.3	14.7%	5.9	0	5	34	0.4 UR	0.55 UJ	0.56 UJ	0.57 UJ	0.81 UR
Arsenic	MG/KG	7.9	100.0%	8.2	0	34	34	6.2	4.4	4.5	4.2	4.2
Barium	MG/KG	149	100.0%	300	0	34	34	109	95.1	99.6	97.2	115

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-7	SS46-8	SS46-8	SS46-9
								SOIL	SOIL	SOIL	SOIL
								464020	464017	464016	464012
								0	0	0	0
								0.5	0.5	0.5	0.5
								12/15/99	12/15/99	12/15/99	12/14/99
								SA	DU	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics											
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	34	12 U	9 U	9 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	34	12 U	9 U	9 UJ	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	34	12 U	9 U	9 U	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	34	12 U	9 U	9 U	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	34	12 U	9 U	9 U	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Acetone	UG/KG	410	100.0%	200	21	33	33	320 J	120 J	260 J	300 J
Benzene	UG/KG	12	29.4%	60	0	10	34	2 J	4 J	4 J	2 J
Bromodichloromethane	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Bromoform	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Carbon disulfide	UG/KG	33	44.1%	2700	0	15	34	11 J	9 J	12	4 J
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	34	12 U	9 U	9 U	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	34	12 U	9 U	9 UJ	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	34	12 U	9 U	9 U	11 U
Chloroform	UG/KG	0	0.0%	300	0	0	34	12 U	9 U	9 U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Ethyl benzene	UG/KG	1	2.9%	5500	0	1	34	12 U	9 U	9 UJ	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	34	12 UJ	9 UJ	9 UJ	11 UJ
Methyl ethyl ketone	UG/KG	48	73.5%	300	0	25	34	35	9 U	19	30
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	34	12 U	9 U	9 U	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	34	12 U	9 U	9 U	11 U
Styrene	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 UJ	11 U
Tetrachloroethene	UG/KG	0	0.0%	1400	0	0	34	12 U	9 U	9 U	11 U
Toluene	UG/KG	12	88.2%	1500	0	30	34	5 J	8 J	11 J	9 J
Total Xylenes	UG/KG	7	26.5%	1200	0	9	34	3 J	4 J	6 J	3 J
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	34	12 U	9 U	9 U	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	34	12 U	9 U	9 U	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	34	12 U	9 U	9 U	11 U
Semivolatile Organics											
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	34	87 U	75 U	75 UJ	180 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	34	87 UJ	75 UJ	75 UJ	180 UJ

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46				SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	34	87 U	75 U	75 UJ	180 UJ
Carbazole	UG/KG	53	2.9%		0	1	34	87 U	75 U	75 UJ	53 J
Chrysene	UG/KG	950	41.2%	400	1	14	34	6.1 J	29 J	34 J	950 J
Di-n-butylphthalate	UG/KG	1100	26.5%	8100	0	9	34	5.7 J	8.9 J	12 J	180 UJ
Di-n-octylphthalate	UG/KG	0	0.0%	50000	0	0	34	87 U	75 U	75 UJ	180 UJ
Dibenz(a,h)anthracene	UG/KG	120	8.8%	14	1	3	34	87 U	8.4 J	10 J	120 J
Dibenzofuran	UG/KG	9.5	5.9%	6200	0	2	34	87 U	75 U	2.6 J	9.5 J
Diethyl phthalate	UG/KG	11	8.8%	7100	0	3	34	87 U	75 U	2.3 J	180 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	34	87 U	75 U	75 UJ	180 UJ
Fluoranthene	UG/KG	1000	61.8%	50000	0	21	34	13 J	38 J	42 J	1000 J
Fluorene	UG/KG	10	2.9%	50000	0	1	34	87 U	75 U	75 UJ	10 J
Hexachlorobenzene	UG/KG	11	2.9%	410	0	1	34	87 U	75 U	75 UJ	180 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	34	87 U	75 U	75 UJ	180 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	34	87 UJ	75 UJ	75 UJ	180 UJ
Hexachloroethane	UG/KG	9.9	2.9%		0	1	34	87 U	75 U	75 UJ	180 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	310	20.6%	3200	0	7	34	87 U	18 J	19 J	310 J
Isophorone	UG/KG	0	0.0%	4400	0	0	34	87 U	75 U	75 UJ	180 UJ
N-Nitrosodiphenylamine	UG/KG	59	11.8%		0	4	34	87 U	9.3 J	22 J	180 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	34	87 U	75 U	75 UJ	180 UJ
Naphthalene	UG/KG	14	8.8%	13000	0	3	34	87 U	75 U	2.4 J	14 J
Nitrobenzene	UG/KG	0	0.0%	200	0	0	34	87 U	75 U	75 UJ	180 UJ
Pentachlorophenol	UG/KG	130	2.9%	1000	0	1	34	210 U	180 U	180 UJ	130 J
Phenanthrene	UG/KG	110	52.9%	50000	0	18	34	6.2 J	10 J	15 J	110 J
Phenol	UG/KG	22	23.5%	30	0	8	34	87 U	75 U	75 UJ	180 UJ
Pyrene	UG/KG	56	61.8%	50000	0	21	34	8.2 J	31 J	38 J	790 UJ
Explosives											
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	34	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	34	120 U	120 U	120 U	120 U

**Table F-2
ALL SOIL SAMPLE RESULTS
SEAD-46**

**SEAD-46 AND SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46				SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Beryllium	MG/KG	1.2	100.0%	1.1	1	34	34	0.46 J	0.31 J	0.61 J	0.79 J
Cadmium	MG/KG	0.09	2.9%	2.3	0	1	34	0.07 U	0.06 U	0.07 U	0.06 U
Calcium	MG/KG	56200	100.0%	121000	0	34	34	23200 J	56200 J	47900	7490
Chromium	MG/KG	26.3	100.0%	29.6	0	34	34	17.3 J	17.6 J	16.6	18.2
Cobalt	MG/KG	16.2	100.0%	30	0	34	34	11.1	8.8 J	9.1 J	9.7 J
Copper	MG/KG	203	100.0%	33	7	34	34	24.4	203	147	70
Cyanide	MG/KG	0	0.0%	0.35	0	0	34	0.61 U	0.55 U	0.53 U	0.61 U
Iron	MG/KG	32300	100.0%	36500	0	34	34	22400 J	21000 J	21600 J	24800 J
Lead	MG/KG	913	100.0%	24.8	18	34	34	49.7	810	913 J	185 J
Magnesium	MG/KG	20400	100.0%	21500	0	34	34	11100	20400	12800	4820
Manganese	MG/KG	1170	97.1%	1060	1	33	34	611 J	553 J	468	585
Mercury	MG/KG	0.17	79.4%	0.1	14	27	34	0.08 J	0.06 UJ	0.11 J	0.14 J
Nickel	MG/KG	44.7	100.0%	49	0	34	34	29.4 J	29.5 J	28	25.1
Potassium	MG/KG	1770	100.0%	2380	0	34	34	1500	1320	1060 J	1230
Selenium	MG/KG	0.81	5.9%	2	0	2	34	0.53 U	0.52 U	0.53 UJ	0.47 UJ
Silver	MG/KG	0.46	2.9%	0.75	0	1	34	0.42 UJ	0.41 UJ	0.25 UJ	0.34 UJ
Sodium	MG/KG	272	47.1%	172	5	16	34	97.8 U	152 J	230 J	93.9 J
Thallium	MG/KG	3.4	97.1%	0.7	33	33	34	1.7 J	1.5 J	1.5 J	1.6 J
Vanadium	MG/KG	28.6	100.0%	150	0	34	34	20.3	16.1	17	19.6
Zinc	MG/KG	115	100.0%	110	1	34	34	71 J	75.6 J	78	72.9
Conventional Analyses											
Nitrate/Nitrite Nitrogen	MG/KG	4.5	92.6%		0	25	27	0.7	0.27		4.5
Percent Solids	% WW	89.5	100.0%		0	34	34	75.7	87.8	88.3	75.4

1 Technical and Administrative Guidance Memorandum # 4046

**Table F-3
SURFACE WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SW/SD46-1	SW/SD46-2	SW/SD46-3	SW/SD46-4
								SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER
								461000	461001	461002	461003
								0	0	0	0
								N/A	N/A	N/A	N/A
								12/17/99	12/17/99	12/17/99	12/16/99
								SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics											
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	4	25 UJ	25 U	25 U	25 U
Acetone	UG/L	6.4	25.0%		0	1	4	5 U	6.4	5 U	5 U
Acrylonitrile	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-3
SURFACE WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46				SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Methyl isobutyl ketone	UG/L	0	0.0%		0	0	4	2.5 UJ	2.5 U	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
Methylene bromide	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0.0%		0	0	4	25 U	25 U	25 U	25 U
Ortho Xylene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Propionitrile	UG/L	0	0.0%		0	0	4	25 U	25 U	25 U	25 U
Propylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0.0%		0	0	4	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	UG/L	1.4	100.0%	6000	0	4	4	0.29 J	1.4	0.32 J	0.63
Total Xylenes	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0.0%		0	0	4	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Trichloroethene	UG/L	0	0.0%	40	0	0	4	0.5 UJ	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	4	0.5 U	0.5 U	0.5 U	0.5 U
Semivolatile Organics											
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	4	1.1 U	1.1 U	1.2 U	1.1 U

**Table F-3
SURFACE WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46				SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(a)anthracene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Benzo(a)pyrene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Benzo(b)fluoranthene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Benzo(ghi)perylene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Benzo(k)fluoranthene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0.0%		0	0	4	1.1 UJ	1.1 UJ	1.2 UJ	1.1 U
Bis(2-Chloroethyl)ether	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Bis(2-Ethylhexyl)phthalate	UG/L	0	0.0%	0.6	0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Butylbenzylphthalate	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Carbazole	UG/L	0	0.0%		0	0	4	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ
Chrysene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Di-n-butylphthalate	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Di-n-octylphthalate	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Dibenz(a,h)anthracene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Dibenzofuran	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Diethyl phthalate	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Dimethylphthalate	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Fluoranthene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Fluorene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Hexachlorobenzene	UG/L	0	0.0%	0.00003	0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Hexachlorobutadiene	UG/L	0	0.0%	0.01	0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Hexachlorocyclopentadiene	UG/L	0	0.0%	0.45	0	0	4	1.1 U	1.1 U	1.2 U	1.1 UJ
Hexachloroethane	UG/L	0	0.0%	0.6	0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Isophorone	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
N-Nitrosodiphenylamine	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
N-Nitrosodipropylamine	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U
Naphthalene	UG/L	0	0.0%		0	0	4	1.1 U	1.1 U	1.2 U	1.1 U

**Table F-3
SURFACE WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46				SEAD-46					
		Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	4	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1242	UG/L	0	0.0%		0	0	4	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	4	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1254	UG/L	0	0.0%	0.000001	0	0	4	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	4	0.11 U	0.11 U	0.11 U	0.11 U
Beta-BHC	UG/L	0	0.0%		0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Delta-BHC	UG/L	0	0.0%		0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Dieldrin	UG/L	0	0.0%	0.0000006	0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Endrin	UG/L	0	0.0%	0.002	0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Endrin aldehyde	UG/L	0	0.0%		0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Endrin ketone	UG/L	0	0.0%		0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Gamma-Chlordane	UG/L	0	0.0%		0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Heptachlor	UG/L	0	0.0%	0.0002	0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Heptachlor epoxide	UG/L	0	0.0%	0.0003	0	0	4	0.0056 U	0.0056 U	0.0057 U	0.0057 U
Hexachlorobenzene	UG/L	0	0.0%	0.00003	0	0	4	0.011 U	0.011 U	0.011 U	0.011 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	4	0.056 U	0.056 U	0.057 U	0.057 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	4	0.56 U	0.56 U	0.57 U	0.57 U
Metals and Cyanide											
Aluminum	UG/L	4610	100.0%	100	4	4	4	353 J	857 J	896 J	4610 J
Antimony	UG/L	2.3	25.0%		0	1	4	2.2 U	2.2 U	2.3 J	2.2 U
Arsenic	UG/L	3.1	25.0%	150	0	1	4	3.1 J	2.5 U	2.5 U	2.5 U
Barium	UG/L	58.6	100.0%		0	4	4	20.9 J	20.7 J	28.6 J	58.6 J
Beryllium	UG/L	0.31	50.0%	1100	0	2	4	0.1 U	0.1 U	0.11 J	0.31 J
Cadmium	UG/L	0	0.0%	3.84	0	0	4	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	UG/L	96600	100.0%		0	4	4	87200	48900	46800	96600

**Table F-4a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria(1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46 SW/SD46-1 SEDIMENT 463000		SEAD-46 SW/SD46-2 SEDIMENT 463001		SEAD-46 SW/SD46-3 SEDIMENT 463002		SEAD-46 SW/SD46-4 SEDIMENT 463003	
									Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
									0	0	0	0	0	0	0	0
									0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
									12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/16/99	12/16/99
									SA	SA	SA	SA	SA	SA	SA	SA
									RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0	NYSHHB	11.7315	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,1-Dichloroethane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,1-Dichloroethene	UG/KG	0	0	NYSHHB	0.7821	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,2-Dichloroethane	UG/KG	0	0	NYSHHB	27.3735	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
1,2-Dichloropropane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Acetone	UG/KG	280	1			0	4	4	280 J	250 J	27 J	160 J	160 J	27 J	160 J	160 J
Benzene	UG/KG	0	0	NYSHHB	23.463	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Bromodichloromethane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Bromoform	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Carbon disulfide	UG/KG	2	0.5			0	2	4	2 J	13 UJ	2 J	12 UJ	12 UJ	13 UJ	12 UJ	12 UJ
Carbon tetrachloride	UG/KG	0	0	NYSHHB	23.463	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Chlorobenzene	UG/KG	0	0	NYSHHB	136.8675	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Chlorodibromomethane	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Chloroethane	UG/KG	0	0			0	0	4	12 UJ	13 UJ	14 UR	12 UJ	12 UJ	14 UR	12 UJ	12 UJ
Chloroform	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Ethyl benzene	UG/KG	0	0	NYSHHB	938.52	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Methyl bromide	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Methyl butyl ketone	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Methyl chloride	UG/KG	0	0			0	0	4	12 UJ	13 UJ	14 UR	12 UJ	12 UJ	14 UR	12 UJ	12 UJ
Methyl ethyl ketone	UG/KG	25	0.75			0	3	4	22 J	25 J	14 UR	19 J	19 J	14 UR	19 J	19 J
Methyl isobutyl ketone	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Methylene chloride	UG/KG	0	0			0	0	4	12 UJ	13 UJ	14 UR	12 UJ	12 UJ	14 UR	12 UJ	12 UJ
Styrene	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Tetrachloroethene	UG/KG	0	0	NYSHHB	31.284	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Toluene	UG/KG	13	1	NYSHHB	1916.145	0	4	4	6 J	13 J	12 J	13	13	12 J	13	13
Total Xylenes	UG/KG	3	0.25	NYSHHB	3597.66	0	1	4	12 U	13 U	3 J	12 U	12 U	14 UR	12 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0			0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Trichloroethene	UG/KG	0	0	NYSHHB	78.21	0	0	4	12 U	13 U	14 UR	12 U	12 U	14 UR	12 U	12 U
Vinyl chloride	UG/KG	0	0	NYSHHB	2.73735	0	0	4	12 UJ	13 UJ	14 UR	12 UJ	12 UJ	14 UR	12 UJ	12 UJ
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ
1,2-Dichlorobenzene	UG/KG	0	0	NYSHHB	469.26	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ
1,3-Dichlorobenzene	UG/KG	0	0	NYSHHB	469.26	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ
1,4-Dichlorobenzene	UG/KG	0	0	NYSHHB	469.26	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ
2,4,5-Trichlorophenol	UG/KG	0	0			0	0	4	200 UJ	240 UJ	250 UJ	220 UJ	220 UJ	250 UJ	220 UJ	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ
2,4-Dichlorophenol	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ	92 UJ	100 UJ	92 UJ	92 UJ

**Table F-4a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria(1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46 SW/SD46-1 SEDIMENT 463000		SEAD-46 SW/SD46-2 SEDIMENT 463001		SEAD-46 SW/SD46-3 SEDIMENT 463002		SEAD-46 SW/SD46-4 SEDIMENT 463003	
									Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
									12/17/99 SA RI PHASE 1 STEP 1	12/17/99 SA RI PHASE 1 STEP 1	12/17/99 SA RI PHASE 1 STEP 1	12/16/99 SA RI PHASE 1 STEP 1				
Fluorene	UG/KG	0	0	NYSALC	312.84	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Hexachlorobenzene	UG/KG	0	0	NYSHHB	5.86575	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Hexachlorobutadiene	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Hexachlorocyclopentadiene	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Hexachloroethane	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Indeno(1,2,3-cd)pyrene	UG/KG	0	0	NYSHHB	50.8365	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Isophorone	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
N-Nitrosodiphenylamine	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
N-Nitrosodipropylamine	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Naphthalene	UG/KG	0	0	NYSALC	1173.15	0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Nitrobenzene	UG/KG	0	0			0	0	4	80 UJ	97 UJ	100 UJ	92 UJ				
Pentachlorophenol	UG/KG	0	0	NYSALC	1564.2	0	0	4	200 UJ	240 UJ	250 UJ	220 UJ				
Phenanthrene	UG/KG	5	0.25	NYSALC	4692.6	0	1	4	80 UJ	5 J	100 UJ	92 UJ				
Phenol	UG/KG	33	1	NYSALC	19.5525	1	4	4	4.2 J	7.6 J	8.9 J	33 J				
Pyrene	UG/KG	8	0.25	NYSALC	37579.905	0	1	4	80 UJ	8 J	100 UJ	92 UJ				
Explosives																
1,3,5-Trinitrobenzene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
1,3-Dinitrobenzene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
2,4,6-Trinitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
2,4-Dinitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
2,6-Dinitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
2-Nitrotoluene	UG/KG	0	0			0	0	4	120 UJ	120 UJ	120 UJ	120 UJ				
2-amino-4,6-Dinitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
3-Nitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
4-Nitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
4-amino-2,6-Dinitrotoluene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
HMX	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
Nitrobenzene	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
RDX	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
Tetryl	UG/KG	0	0			0	0	4	120 U	120 U	120 U	120 U				
Pesticides/PCBs																
4,4'-DDD	UG/KG	0	0	NYSHHB	0.39105	0	0	4	4 U	4.8 U	5.1 U	4.5 U				
4,4'-DDE	UG/KG	0	0	NYSHHB	0.39105	0	0	4	4 U	4.8 U	5.1 U	4.5 U				
4,4'-DDT	UG/KG	0	0	NYSHHB	0.39105	0	0	4	4 U	4.8 U	5.1 U	4.5 U				
Aldrin	UG/KG	0	0	NYSHHB	3.9105	0	0	4	2.1 U	2.5 U	2.6 U	2.3 U				
Alpha-BHC	UG/KG	0	0			0	0	4	2.1 U	2.5 U	2.6 U	2.3 U				
Alpha-Chlordane	UG/KG	0	0	NYSHHB	0.039105	0	0	4	2.1 U	2.5 U	2.6 U	2.3 U				
Aroclor-1016	UG/KG	0	0	NYSHHB	0.031284	0	0	4	40 U	48 U	51 U	45 U				
Aroclor-1221	UG/KG	0	0	NYSHHB	0.031284	0	0	4	82 U	98 U	100 U	92 U				
Aroclor-1232	UG/KG	0	0	NYSHHB	0.031284	0	0	4	40 U	48 U	51 U	45 U				
Aroclor-1242	UG/KG	0	0	NYSHHB	0.031284	0	0	4	40 U	48 U	51 U	45 U				
Aroclor-1248	UG/KG	0	0	NYSHHB	0.031284	0	0	4	40 U	48 U	51 U	45 U				

**Table F-4a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria(1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46 SW/SD46-1 SEDIMENT 463000		SEAD-46 SW/SD46-2 SEDIMENT 463001		SEAD-46 SW/SD46-3 SEDIMENT 463002		SEAD-46 SW/SD46-4 SEDIMENT 463003	
									Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Cation exchange capacity	MEQ/100G	18.7	1			0	4	4	10.7		14.4		18.7		17.3	
Nitrate/Nitrite Nitrogen	MG/KG	0.09	1			0	4	4	0.09		0.09		0.06		0.03	
Percent Solids	% WW	81.8	1			0	4	4	81.8		67.9		64.9		72.7	
Total Organic Carbon	MG/KG	37300	1			0	4	4	3960		17600		37300		10100	
pH	pH units	7.97	1			0	4	4	7.89		7.73		7.97		7.52	

(1) NYSALC = NYSALC
 NYSHHB = NYS Human Health Bioaccumulation Criteria
 NYSLEL = NYS Lowest Effect Level
 NYSWB = NYS Wildlife Bioaccumulation Criteria

**Table F-4b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SW/SD46-1 SEDIMENT 463000	SW/SD46-2 SEDIMENT 463001	SW/SD46-3 SEDIMENT 463002	SW/SD46-4 SEDIMENT 463003
							0	0	0	0	
							0.2	0.2	0.2	0.2	
							12/17/99	12/17/99	12/17/99	12/16/99	
							SA	SA	SA	SA	
							RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
							STEP 1	STEP 1	STEP 1	STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Volatile Organic Compounds											
Acetone	UG/KG	280	100.0%	200	2	4	4	280 J	250 J	27 J	160 J
Carbon disulfide	UG/KG	2	50.0%	2700	0	2	4	2 J	13 UJ	2 J	12 UJ
Methyl ethyl ketone	UG/KG	25	75.0%	300	0	3	4	22 J	25 J	14 UR	19 J
Toluene	UG/KG	13	100.0%	1500	0	4	4	6 J	13 J	12 J	13
Total Xylenes	UG/KG	3	25.0%	1200	0	1	4	12 U	13 U	3 J	12 U
Semivolatile Organic Compounds											
Benzo(a)anthracene	UG/KG	3.3	25.0%	224	0	1	4	80 UJ	3.3 J	100 UJ	92 UJ
Benzo(b)fluoranthene	UG/KG	6	25.0%	1100	0	1	4	80 UJ	6 J	100 UJ	92 UJ
Benzo(k)fluoranthene	UG/KG	7.4	25.0%	1100	0	1	4	80 UJ	7.4 J	100 UJ	92 UJ
Chrysene	UG/KG	7.2	25.0%	400	0	1	4	80 UJ	7.2 J	100 UJ	92 UJ
Fluoranthene	UG/KG	8.9	25.0%	50000	0	1	4	80 UJ	8.9 J	100 UJ	92 UJ
Phenanthrene	UG/KG	5	25.0%	50000	0	1	4	80 UJ	5 J	100 UJ	92 UJ
Phenol	UG/KG	33	100.0%	30	1	4	4	4.2 J	7.6 J	8.9 J	33 J
Pyrene	UG/KG	8	25.0%	50000	0	1	4	80 UJ	8 J	100 UJ	92 UJ
Metals											
Aluminum	MG/KG	16500	100.0%	19300	0	4	4	14600	15200	16500	16000
Antimony	MG/KG	0.73	50.0%	5.9	0	2	4	0.73 J	0.64 UR	0.66 J	0.57 UR
Arsenic	MG/KG	7.2	100.0%	8.2	0	4	4	3.9	6.1	7.2	6.2
Barium	MG/KG	152	100.0%	300	0	4	4	56.1	152	127	84.7
Beryllium	MG/KG	1.2	100.0%	1.1	1	4	4	0.88	1.1 J	1.2	1.1 J
Calcium	MG/KG	69300	100.0%	121000	0	4	4	4940 J	3470 J	69300 J	2640 J
Chromium	MG/KG	23.1	100.0%	29.6	0	4	4	19.3 J	15.9 J	23.1 J	22.6 J
Cobalt	MG/KG	20	100.0%	30	0	4	4	12.1	12.8 J	20	13.9
Copper	MG/KG	32.5	100.0%	33	0	4	4	21.5 J	19.5 J	32.5 J	29.9
Iron	MG/KG	39100	100.0%	36500	1	4	4	30300 J	29700 J	39100 J	30100 J
Lead	MG/KG	22	100.0%	24.8	0	4	4	21.3	15.4	22	20.2

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-1	MW46-1	MW46-2	MW46-2	MW46-3	MW46-3
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
								462000	462100	462004	462101	462005	462102	
								16	16	10.5	10.5	13	13	
								16	16	10.5	10.5	13	13	
								01/22/00	04/25/00	01/22/00	04/25/00	01/23/00	04/25/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
								1	2	1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2,2-Tetrachloroethane	UG/L	0	0.0%			0	0	12	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UR
1,1,2-Trichloroethane	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%	GA	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%	GA	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%	GA	0.0006	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%	GA	0.6	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%			0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%			0	0	12	25 U	25 U	25 U	25 U	25 U	25 UJ
Acetone	UG/L	0	0.0%			0	0	12	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%			0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%			0	0	12	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0	0.0%	GA	7	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0.0%	GA	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-1	MW46-1	MW46-2	MW46-2	MW46-3	MW46-3
									GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
								462000	462100	462004	462101	462005	462102	
								16	16	10.5	10.5	13	13	
								16	16	10.5	10.5	13	13	
								01/22/00	04/25/00	01/22/00	04/25/00	01/23/00	04/25/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
								1	2	1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%			0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U	2.5 U
2,4,6-Trichlorophenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0.0%			0	0	12	2.6 UJ	2.6 U	2.5 UJ	2.5 U	2.6 UJ	2.5 U
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U	2.5 U
2-Nitrophenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 UR	1 U	1 UR	1 U	1 UR
3-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.6 UJ	2.6 UJ	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%			0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U	2.5 U
4-Bromophenyl phenyl ether	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 UJ	1 U	1 UJ	1 U	1 UJ
4-Chlorophenyl phenyl ether	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.6 UJ	2.6 UJ	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ
4-Nitrophenol	UG/L	0	0.0%			0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U	2.5 U
Acenaphthene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	UG/L	0	0.0%	GA	0	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(b)fluoranthene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(ghi)perylene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	UG/L	0	0.0%			0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroethyl)ether	UG/L	0	0.0%	GA	1	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Ethylhexyl)phthalate	UG/L	0	0.0%	GA	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U	1 U
Butylbenzylphthalate	UG/L	0.057	8.3%			0	1	12	0.057 J	1 U	1 U	1 U	1 U	1 U
Carbazole	UG/L	0	0.0%			0	0	12	1.1 U	1 UJ	1 U	1 UJ	1 U	1 UJ

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-1	MW46-1	MW46-2	MW46-2	MW46-3	MW46-3
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
									462000	462100	462004	462101	462005	462102
								16	16	10.5	10.5	13	13	13
								16	16	10.5	10.5	13	13	13
								01/22/00	04/25/00	01/22/00	04/25/00	01/23/00	04/25/00	04/25/00
								SA	SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								1	2	1	2	1	2	2
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aldrin	UG/L	0	0.0%	GA	0	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Alpha-BHC	UG/L	0	0.0%	GA	0.01	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Alpha-Chlordane	UG/L	0	0.0%			0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Aroclor-1016	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	GA	0.09	0	0	12	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Delta-BHC	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Dieldrin	UG/L	0	0.0%	GA	0.004	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%			0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Endosulfan II	UG/L	0	0.0%			0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%			0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	GA	0	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0	0.0%	GA	5	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0	0.0%	GA	5	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%	GA	0.05	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Gamma-Chlordane	UG/L	0	0.0%			0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Heptachlor	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Heptachlor epoxide	UG/L	0	0.0%	GA	0.03	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U	0.0052 U
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0.0%	GA	35	0	0	12	0.052 U	0.05 U	0.051 U	0.05 U	0.052 U	0.052 U
Toxaphene	UG/L	0	0.0%	GA	0.06	0	0	12	0.52 U	0.5 U	0.51 U	0.5 U	0.52 U	0.52 U
Metals and Cyanide														
Aluminum	UG/L	500	100.0%	MCL	50	12	12	12	73.9 J	342 J	498 J	170 J	500	120 J
Antimony	UG/L	5.5	8.3%	GA	3	1	1	12	5.5 J	4.6 U	5.4 U	4.6 U	5.4 U	4.6 U
Arsenic	UG/L	4	25.0%	MCL	5	0	3	12	2.6 J	2.5 U	2.4 U	2.5 U	2.4 U	2.5 U
Barium	UG/L	79.5	100.0%	GA	1000	0	12	12	79.5 J	70.2 J	43.3 J	41.2 J	45.4 J	37.8 J
Beryllium	UG/L	0	0.0%	MCL	4	0	0	12	0.6 U	0.3 U	0.6 U	0.3 U	0.6 U	0.3 U
Cadmium	UG/L	0	0.0%	GA	5	0	0	12	0.8 U	0.3 U	0.8 U	0.3 U	0.8 U	0.3 U
Calcium	UG/L	98400	100.0%			0	12	12	81700	86500 J	83500	87200 J	88100	77900 J
Chromium	UG/L	2.5	50.0%	GA	50	0	6	12	1.4 J	2.2 U	2.4 J	2.2 U	2.5 J	2.2 U
Cobalt	UG/L	0	0.0%			0	0	12	3.5 U	3 U	3.5 U	3 U	3.5 U	3 U
Copper	UG/L	7	8.3%	GA	200	0	1	12	1.6 U	2.1 U	1.6 U	2.1 U	1.6 U	2.1 U
Cyanide	UG/L	0	0.0%			0	0	12	10 U	10 U	10 U	10 U	10 U	10 U
Iron	UG/L	568	100.0%	GA	300	4	12	12	204 J	398 J	485 J	120 J	568 J	89.2 J
Lead	UG/L	0	0.0%	MCL	15	0	0	12	1 U	2.3 U	1 U	2.3 U	1 U	2.3 U
Magnesium	UG/L	24600	100.0%			0	12	12	24600	22800	17200	17400	17400	15000
Manganese	UG/L	104	100.0%	SEC	50	5	12	12	104	99.1	28.8	8.1 J	73.4	10.3 J

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-4	MW46-4	MW46-5	MW46-5	MW46-6	MW46-6
									GROUND WATER 462003 23 23 01/22/00 SA RI PHASE 1 STEP 1	GROUND WATER 462103 23 23 04/25/00 SA RI PHASE 1 STEP 1	GROUND WATER 462002 10 10 01/22/00 SA RI PHASE 1 STEP 1	GROUND WATER 462104 10 10 04/25/00 SA RI PHASE 1 STEP 1	GROUND WATER 462001 13 13 01/22/00 SA RI PHASE 1 STEP 1	GROUND WATER 462105 13 13 04/26/00 SA RI PHASE 1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)									
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%			0	0	12	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UR
1,1,2-Trichloroethane	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%	GA	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%	GA	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dibromoethane	UG/L	0	0.0%	GA	0.0006	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%	GA	0.6	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%			0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%			0	0	12	25 U	25 U	25 U	25 U	25 U	25 UJ
Acetone	UG/L	0	0.0%			0	0	12	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%	GA	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%			0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%			0	0	12	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%	MCL	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0	0.0%	GA	7	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0.0%	GA	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0.0%	GA	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-4	MW46-4	MW46-5	MW46-5	MW46-6	MW46-6
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
								462003	462103	462002	462104	462001	462105	
								23	23	10	10	13	13	
								23	23	10	10	13	13	
								01/22/00	04/25/00	01/22/00	04/25/00	01/22/00	04/26/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
								1	2	1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%			0	0	12	2.5 U	2.5 U	2.6 U	2.5 U	2.6 U	2.7 U
2,4,6-Trichlorophenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2,4-Dichlorophenol	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2,4-Dimethylphenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2,4-Dinitrophenol	UG/L	0	0.0%			0	0	12	2.5 UJ	2.5 U	2.6 UJ	2.5 U	2.6 UJ	2.7 U
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Chloronaphthalene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Chlorophenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Methylnaphthalene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Methylphenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
2-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.5 U	2.5 U	2.6 U	2.5 U	2.6 U	2.7 U
2-Nitrophenol	UG/L	0	0.0%			0	0	12	1 UJ	1 U	1 U	1 U	1 U	1.1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 UR	1 U	1 UR	1 U	1.1 UR
3-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.7 UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%			0	0	12	2.5 U	2.5 U	2.6 U	2.5 U	2.6 U	2.7 U
4-Bromophenyl phenyl ether	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
4-Chloroaniline	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 UJ	1 U	1 UJ	1 U	1.1 UJ
4-Chlorophenyl phenyl ether	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
4-Methylphenol	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
4-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	12	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.7 UJ
4-Nitrophenol	UG/L	0	0.0%			0	0	12	2.5 U	2.5 U	2.6 U	2.5 U	2.6 U	2.7 U
Acenaphthene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Acenaphthylene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Anthracene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(a)anthracene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(a)pyrene	UG/L	0	0.0%	GA	0	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(b)fluoranthene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(ghi)perylene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Benzo(k)fluoranthene	UG/L	0	0.0%			0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Bis(2-Chloroethyl)ether	UG/L	0	0.0%	GA	1	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Bis(2-Ethylhexyl)phthalate	UG/L	0	0.0%	GA	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Butylbenzylphthalate	UG/L	0.057	8.3%			0	1	12	1 U	1 U	1 U	1 U	1 U	1.1 U
Carbazole	UG/L	0	0.0%			0	0	12	1 U	1 UJ	1 U	1 UJ	1 U	1.1 UJ

**Table F-5
GROUND WATER SAMPLE RESULTS
SEAD-46**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus NY**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
									MW46-4	MW46-4	MW46-5	MW46-5	MW46-6	MW46-6
									GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
									WATER	WATER	WATER	WATER	WATER	WATER
								462003	462103	462002	462104	462001	462105	
								23	23	10	10	13	13	
								23	23	10	10	13	13	
								01/22/00	04/25/00	01/22/00	04/25/00	01/22/00	04/26/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	
								1	2	1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Aldrin	UG/L	0	0.0%	GA	0	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Alpha-BHC	UG/L	0	0.0%	GA	0.01	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Alpha-Chlordane	UG/L	0	0.0%			0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Aroclor-1016	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	GA	0.09	0	0	12	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	GA	0.09	0	0	12	0.1 U	0.11 U	0.1 U	0.12 U	0.1 U	0.1 U
Beta-BHC	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Delta-BHC	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Dieldrin	UG/L	0	0.0%	GA	0.004	0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%			0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Endosulfan II	UG/L	0	0.0%			0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%			0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	GA	0	0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0	0.0%	GA	5	0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Endrin ketone	UG/L	0	0.0%	GA	5	0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%	GA	0.05	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Gamma-Chlordane	UG/L	0	0.0%			0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Heptachlor	UG/L	0	0.0%	GA	0.04	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Heptachlor epoxide	UG/L	0	0.0%	GA	0.03	0	0	12	0.0052 U	0.0054 U	0.0053 U	0.0058 U	0.0052 U	0.0053 U
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	12	0.01 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0.0%	GA	35	0	0	12	0.052 U	0.054 U	0.053 U	0.058 U	0.052 U	0.053 U
Toxaphene	UG/L	0	0.0%	GA	0.06	0	0	12	0.52 U	0.54 U	0.53 U	0.58 U	0.52 U	0.53 U
Metals and Cyanide														
Aluminum	UG/L	500	100.0%	MCL	50	12	12	12	105 J	205 J	206	123 J	341	86.2 J
Antimony	UG/L	5.5	8.3%	GA	3	1	1	12	5.4 U	4.6 U	5.4 U	4.6 U	5.4 U	4.6 U
Arsenic	UG/L	4	25.0%	MCL	5	0	3	12	2.4 U	2.5 U	4 J	2.5 U	2.7 J	2.5 U
Barium	UG/L	79.5	100.0%	GA	1000	0	12	12	45.6 J	43.9 J	50.3 J	50 J	42.6 J	40.6 J
Beryllium	UG/L	0	0.0%	MCL	4	0	0	12	0.6 U	0.3 U	0.6 U	0.3 U	0.6 U	0.3 U
Cadmium	UG/L	0	0.0%	GA	5	0	0	12	0.8 U	0.3 U	0.8 U	0.3 U	0.8 U	0.3 U
Calcium	UG/L	98400	100.0%			0	12	12	90500	85600 J	98400	97400 J	82200	81000 J
Chromium	UG/L	2.5	50.0%	GA	50	0	6	12	1.5 J	2.2 U	1.1 J	2.2 U	1.9 J	2.2 U
Cobalt	UG/L	0	0.0%			0	0	12	3.5 U	3 U	3.5 U	3 U	3.5 U	3 U
Copper	UG/L	7	8.3%	GA	200	0	1	12	1.6 U	2.1 U	1.6 U	2.1 U	7 J	2.1 U
Cyanide	UG/L	0	0.0%			0	0	12	10 U	10 U	10 U	10 U	10 U	10 U
Iron	UG/L	568	100.0%	GA	300	4	12	12	183 J	208 J	267 J	111 J	337 J	88.9 J
Lead	UG/L	0	0.0%	MCL	15	0	0	12	1 U	2.3 U	1 U	2.3 U	1 U	2.3 U
Magnesium	UG/L	24600	100.0%			0	12	12	16100	14700	17100	16200	15200	14500
Manganese	UG/L	104	100.0%	SEC	50	5	12	12	50.3	9.8 J	74.4	6.7 J	13.6 J	4.1 J

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	ESI
								SB57-1	SB57-2	SB57-3	SB57-4	SB57-5	SB57-6	SB57-7	SS57-1	
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
								574013	574010	574007	574004	574002	574019	574016	574016	SS57-1-1
								0	0	0	0	0	0	0	0	0
								2	2	2	2	2	2	2	2	0.2
								12/03/99	12/03/99	12/02/99	12/03/99	12/01/99	12/05/99	12/03/99	10/26/93	10/26/93
								SA	SA	SA	SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,1-Dichloroethane	UG/KG	0	0.0%	400	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,2-Dichloroethane (total)	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Acetone	UG/KG	350	75.0%	200	23	54	72	300 J	83 J	350 J	210 J	68 J	77 J	160 J	13 U	
Benzene	UG/KG	0	0.0%	60	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Bromoform	UG/KG	0	0.0%	0	0	0	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	22	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Chloroform	UG/KG	7	1.4%	300	0	1	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	11 UJ	10 UJ	12 UJ	13 UJ	12 UJ	12 U	10 UJ	13 U	
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	32 J	10 UJ	24	22 J	8 J	8 J	15 J	13 U	
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Styrene	UG/KG	0	0.0%	0	0	0	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	2 J	
Toluene	UG/KG	33	63.9%	1500	0	46	72	2 J	10 U	2 J	13 U	12 U	12 U	10 U	13 U	
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	11 UJ	10 U	12 U	13 U	12 U	12 U	10 UJ	13 U	
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	11 U	10 U	12 U	13 U	12 U	12 U	10 U	13 U	
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U	
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U	
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U	
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U	
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9								420 U	
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	200 U	220 U	240 U	200 U	210 U	220 U	1900 U	1000 U	
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U	
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	84 UJ	93 UJ	98 UJ	82 UJ	86 UJ	90 U	780 UJ	420 U	
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	84 UJ	93 UJ	98 UJ	82 UJ	86 UJ	90 U	780 UJ	420 U	
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	200 UJ	220 UJ	240 UR	200 UR	210 UR	220 UJ	1900 UR	1000 U	
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	84 UJ	93 UJ	98 U	82 U	86 U	90 U	780 U	420 U	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	84 U	93 U	98 UJ	82 UJ	86 UJ	90 U	780 UJ	420 U	

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	SEAD-57								SEAD-57 SB57-6 SOIL 574019 780 U	SEAD-57 SB57-7 SOIL 574016 780 U	SEAD-57 SS57-1 SOIL SS57-1-1 0			
		SB57-1	SB57-2	SB57-3	SB57-4	SB57-5	SB57-6	SB57-7	SS57-1						
		SOIL 574013	SOIL 574010	SOIL 574007	SOIL 574004	SOIL 574002	SOIL 574019	SOIL 574016	SOIL SS57-1-1						
		0	0	0	0	0	0	0	0	0	0	0			
		2	2	2	2	2	2	2	2	2	2	0.2			
		12/03/99	12/03/99	12/02/99	12/03/99	12/01/99	12/03/99	12/05/99	12/03/99	12/03/99	12/03/99	10/26/93			
		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA			
		RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI			
Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)			
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	200 UJ	220 UJ	240 UJ	200 UJ	210 UJ	220 U	1900 UJ	1000 U
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	84 U	93 U	98 U	82 U	86 U	10 J	780 U	420 U
Phenol	UG/KG	8.3	19.0%	30	0	12	63	84 U	93 U	98 U	82 U	86 U	90 U	780 U	420 U
Pyrene	UG/KG	49	66.7%	50000	0	42	63	84 UJ	93 UJ	98 U	82 UJ	86 UJ	9.9 J	780 UJ	420 U
Explosives															
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
HMX	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	
RDX	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	130 U
Tetryl	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	
Pesticides/PCBs															
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	1.7 J	4.3 U
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	2.8 J	4.3 U
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	5	4.3 U
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	2	2.2 U
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	1.1 J	2.2 U
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	2	2.2 U
Aroclor-1016	UG/KG	0	0.0%		0	0	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	43 U
Aroclor-1221	UG/KG	0	0.0%		0	0	63	85 U	94 U	100 U	84 U	88 U	92 U	78 U	86 U
Aroclor-1232	UG/KG	0	0.0%		0	0	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	43 U
Aroclor-1242	UG/KG	0	0.0%		0	0	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	43 U
Aroclor-1248	UG/KG	0	0.0%		0	0	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	43 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	43 U
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	42 U	46 U	49 U	41 U	43 U	45 U	39 U	24 J
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	2	2.2 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	2	2.2 U
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	2.6 J
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.2 U	2.4 U	2.5 U	2.1 U	2.2 U	2.3 U	2	2.2 U
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	4.3 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	4.3 U
Endrin	UG/KG	0	0.0%	100	0	0	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	4.3 U
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	4.3 U
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.2 U	4.6 U	4.9 U	4.1 U	4.3 U	4.5 U	3.9 U	4.3 U

Table F-6
 SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
 SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
 Seneca Army Depot Activity - Romulus New York

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-1	SS57-10	SS57-11	SS57-12	SS57-13	SS57-14	SS57-15	SS57-16	SS57-17
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574023	574024	574025	574026	574027	574028	574029	574030	
								0	0	0	0	0	0	0	0	
								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
								12/08/93	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	
								SA	SA	SA	SA	SA	SA	SA	SA	
							ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%	400	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,2-Dichloroethane (total)	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Acetone	UG/KG	350	75.0%	200	23	54	72	14 U	76 J	160 J	170 J	140 J	270 J	280 J	110 J	270 J
Benzene	UG/KG	0	0.0%	60	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Bromoform	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	14 U	11 UJ	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U	13 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	14 U	11 UJ	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U	13 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	14 U	11 UJ	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U	13 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	14 U	10 J	15 J	18 J	17 J	25 J	20	11 J	20
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	14 U	11 UJ	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U	13 U
Styrene	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	14 U	8 J	8 J	10 J	6 J	7 J	8 J	4 J	5 J
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	14 U	11 U	14 U	13 U	13 U	12 U	13 U	12 U	13 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	14 U	11 UJ	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U	13 U
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63		86 UJ	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ	89 UJ
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9									
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63		210 U	220 U	230 U	220 U	210 U	200 U	210 U	220 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63		210 UJ	220 UR	230 UR	220 UR	210 UR	200 UR	210 UR	220 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63		86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	SEAD-57									SEAD-57								
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESL Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)		
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	0	86 UJ	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ	89 UJ			
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	0	86 U	93 U	94 U	90 U	86 U	85 U	87 U	89 U			
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	0	210 UJ	220 UJ	230 UJ	220 UJ	210 UJ	200 UJ	210 UJ	220 UJ			
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	5.9 J	6.5 J	3.6 J	90 U	6.7 J	6.8 J	5.7 J	89 U				
Phenol	UG/KG	8.3	19.0%	30	0	12	63	0	86 U	93 U	94 U	90 U	86 U	85 U	8.3 J	5.9 J			
Pyrene	UG/KG	49	66.7%	50000	0	42	63	0	11 J	6.3 J	4.8 J	4.3 J	9.9 J	8.9 J	7.5 J	4 J			
Explosives																			
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
HMX	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
RDX	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
Tetryl	UG/KG	0	0.0%		0	0	63	0	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
Pesticides/PCBs																			
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Aldrin	UG/KG	0	0.0%	41	0	0	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Aroclor-1016	UG/KG	0	0.0%		0	0	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Aroclor-1221	UG/KG	0	0.0%		0	0	63	0	87 U	94 U	94 U	91 U	88 U	86 U	87 U	90 U			
Aroclor-1232	UG/KG	0	0.0%		0	0	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Aroclor-1242	UG/KG	0	0.0%		0	0	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Aroclor-1248	UG/KG	0	0.0%		0	0	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	0	43 U	46 U	46 U	45 U	43 U	42 U	43 U	44 U			
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Dieldrin	UG/KG	27	11.1%	44	0	7	63	0	4.3 U	10 J	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	0	2.2 U	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U			
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Endrin	UG/KG	0	0.0%	100	0	0	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			
Endrin ketone	UG/KG	0	0.0%		0	0	63	0	4.3 U	4.6 U	4.6 U	4.5 U	4.3 U	4.2 U	4.3 U	4.4 U			

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	SEAD-57														
		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57						
		SS57-18	SS57-19	SS57-2	SS57-2	SS57-20	SS57-21	SS57-22	SS57-23	SS57-24						
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL							
574031	574032	574033	574034	574035	574036	574037	574038	574039	574040							
0	0	0	0	0	0	0	0	0	0							
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2							
12/19/99	12/19/99	10/26/93	12/08/93	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99							
SA	SA	SA	SA	SA	SA	SA	SA	SA	SA							
RI PHASE	RI PHASE	ESI	ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE							
1 STEP 1	1 STEP 1			1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1							
Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Detect	Detection	Value(1)	Exceedences	Detections	Sampies											
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Acetone	UG/KG	350	75.0%	200	23	54	72	120 J	170 J	12 U	13 U	220 J	210 J	200 J	63 J	280 J
Benzene	UG/KG	0	0.0%	60	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Bromoform	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	12	16	12 U	13 U	18	22	20	6 J	35
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Styrene	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	12 U	11 U	2 J	13 U	11 U	13 U	11 U	13 U	16 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	4 J	4 J	12 U	13 U	27	4 J	4 J	5 J	16 U
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	12 U	11 U	12 U	13 U	11 U	13 U	11 U	13 U	16 U
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	87 UJ	84 UJ	410 U	85 UJ	86 UJ	85 UJ	88 UJ	88 UJ	98 U
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9			410 U						
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	210 U	200 U	990 U	200 U	210 U	200 U	210 U	210 U	240 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	210 UR	200 UR	990 U	200 UR	210 UJ	200 UR	210 UR	210 UR	240 UJ
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	88 U	98 U

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57															
		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57	
		SS57-18	SS57-19	SS57-2	SS57-2	SS57-20	SS57-21	SS57-22	SS57-23	SS57-24	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	87 UJ	84 UJ	410 U	85 UJ	86 UJ	85 UJ	88 UJ	98 U	98 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	87 U	84 U	410 U	85 U	86 U	85 U	88 U	98 U	98 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	210 UJ	200 UJ	990 U	200 UJ	210 UJ	200 U	210 UJ	240 U	240 U	
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	87 U	84 U	410 U	85 U	11 J	85 U	88 U	8.1 J	8.1 J	
Phenol	UG/KG	8.3	19.0%	30	0	12	63	87 U	84 U	410 U	5.4 J	86 U	6.9 J	8.1 J	98 UJ	98 UJ	
Pyrene	UG/KG	49	66.7%	50000	0	42	63	7.6 J	6.4 J	410 U	4.6 J	19 J	7.4 J	10 J	14 J	14 J	
Explosives																	
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U		120 U	120 U	120 U	120 U	120 U	120 U	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U		120 U	120 U	120 U	120 U	120 U	120 U	
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U		120 U	120 U	120 U	120 U	120 U	120 U	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
HMX	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 U	120 U		120 U	120 U	120 U	120 U	120 U	120 U	
RDX	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
Tetryl	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	120 U	120 U	120 U	120 U	120 U	120 U	
Pesticides/PCBs																	
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	54	54	
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	5.4 J	5.4 J	
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	2.5 U	2.5 U	
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	2.5 U	2.5 U	
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.2 U	2.2 U	2.1 U	2.8	2.2 U	2.2 U	2.2 U	5.2	5.2	
Aroclor-1016	UG/KG	0	0.0%		0	0	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Aroclor-1221	UG/KG	0	0.0%		0	0	63	88 U	86 U	84 U	86 U	87 U	85 U	88 U	100 U	100 U	
Aroclor-1232	UG/KG	0	0.0%		0	0	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Aroclor-1242	UG/KG	0	0.0%		0	0	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Aroclor-1248	UG/KG	0	0.0%		0	0	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	43 U	42 U	41 U	42 U	43 U	42 U	43 U	49 U	49 U	
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	2.5 U	2.5 U	
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	2.5 U	2.5 U	
Dieldrin	UG/KG	27	11.1%	44	0	7	63	3.4 J	4.2 U	9.5	4.3 J	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	5.2 J	5.2 J	
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	3.1 J	3.1 J	
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	
Endrin	UG/KG	0	0.0%	100	0	0	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.3 U	4.2 U	4.1 U	4.2 U	4.3 U	4.2 U	4.3 U	4.9 U	4.9 U	

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-25 SOIL 574038	SS57-26 SOIL 574039	SS57-27 SOIL 574041	SS57-27 SOIL 574040	SS57-28 SOIL 574042	SS57-29 SOIL 574043	SS57-3 SOIL SS57-3-1	SS57-3 SOIL SS57-3-2	SS57-30 SOIL 574001	
								0	0	0	0	0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/20/99	12/20/99	12/20/99	12/20/99	10/26/93	12/08/93	12/08/93	11/30/99
								SA	SA	DU	SA	SA	SA	SA	SA	SA	DU
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI	ESI		RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics																	
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Acetone	UG/KG	350	75.0%	200	23	54	72	190 J	290 J	340 J	260 J	220 J	110 J	12 U	13 U	13 U	280 J
Benzene	UG/KG	0	0.0%	60	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Bromolorm	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	7 J	15 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 UJ
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	17	22	23	17	16	12 U	12 U	13 U	13 U	26 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Styrene	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	13 U	12 U	13 U	13 U	14 U	12 U	2 J	13 U	13 U	15 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	14	20	32 J	11 J	22	5 J	12 U	13 U	13 U	15 U
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	13 U	12 U	1 J	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	13 U	12 U	13 U	13 U	14 U	12 U	12 U	13 U	13 U	15 U
Semivolatile Organics																	
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	90 U	89 U	90 U	88 UJ	86 U	87 U	420 U			90 UJ
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9							420 U			
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	220 U	220 U	220 U	210 U	210 U	210 U	1000 U			220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	220 UJ	220 UJ	220 UJ	210 UJ	210 UJ	210 UJ	1000 U			220 UJ
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 UJ
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U			90 U

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57										SEAD-57		SEAD-57		
		SS57-25		SS57-26		SS57-27		SS57-28		SS57-29		SS57-3	SS57-3	SS57-3-1	SS57-3-2	SS57-30
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		574038	574039	574041	574040	574042	574043									
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		12/19/99	12/19/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	10/26/93	12/08/93	12/08/93	11/30/99	
		SA	SA	DU	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	DU	
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	ESI	RI PHASE	RI PHASE	
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1			1 STEP 1	1 STEP 1	
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
		Detect	Detection	Value(1)	Exceedences	Detections	Samples									
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	90 U	89 U	90 U	88 UJ	86 U	87 U	420 U	90 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	90 U	89 U	90 U	88 U	86 U	87 U	420 U	90 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	220 U	220 U	220 U	210 UJ	210 U	210 U	1000 U	220 UJ	
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	4.8 J	4.9 J	5.6 J	88 U	7.4 J	3.7 J	420 U	90 U	
Phenol	UG/KG	8.3	19.0%	30	0	12	63	90 U	89 U	90 U	7.2 J	86 U	87 U	420 U	90 U	
Pyrene	UG/KG	49	66.7%	50000	0	42	63	11 J	9.1 J	12 J	8.8 J	12 J	8.4 J	420 U	90 UJ	
Explosives																
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
HMX	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
RDX	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
Tetryl	UG/KG	0	0.0%		0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	130 U	120 U	
Pesticides/PCBs																
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.5 U	4.4 U	4.5 UJ	9.1 J	4.3 U	4.4 U	4.2 U	4.5 U	
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 U	
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 U	
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.4 J	
Aroclor-1016	UG/KG	0	0.0%		0	0	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Aroclor-1221	UG/KG	0	0.0%		0	0	63	91 U	90 U	91 U	88 U	88 U	89 U	86 U	92 U	
Aroclor-1232	UG/KG	0	0.0%		0	0	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Aroclor-1242	UG/KG	0	0.0%		0	0	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Aroclor-1248	UG/KG	0	0.0%		0	0	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	45 U	44 U	45 U	44 U	43 U	44 U	42 U	45 U	
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 U	
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 U	
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.5 U	4.4 U	4.5 U	18 J	4.3 U	4.4 U	4.2 U	4.5 U	
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.3 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 U	
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
Endrin	UG/KG	0	0.0%	100	0	0	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.5 U	4.4 U	4.5 U	4.4 U	4.3 U	4.4 U	4.2 U	4.5 U	

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57														
		SS57-30	SS57-31	SS57-32	SS57-33	SS57-34	SS57-35	SS57-36	SS57-37	SS57-38						
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL					
		574000	574044	574045	574046	574047	574048	574049	574050	574051						
		0	0	0	0	0	0	0	0	0						
		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2						
		11/30/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99						
		SA	SA	SA	SA	SA	SA	SA	SA	SA						
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE						
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1						
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
		Detect	Detection	Value(1)	Exceedences	Detections	Samples									
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Acetone	UG/KG	350	75.0%	200	23	54	72	240 J	100 J	160 J	150 J	260 J	310 J	160 J	280 J	210 J
Benzene	UG/KG	0	0.0%	60	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Bromoform	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	17 UJ	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	27 J	13 UJ	12	15 U	23 J	24	17 J	22 J	19 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Styrene	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	17 U	11 J	33	26	4 J	23	6 J	11 J	8 J
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	17 U	13 U	10 U	15 U	14 U	13 U	14 U	14 U	12 U
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9									
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	210 U	220 U	200 U	220 U	210 U	220 U	200 U	230 U	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	87 UJ	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	87 UJ	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	210 UJ	220 UJ	200 UJ	220 UJ	210 UJ	220 UJ	200 UJ	230 UJ	220 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units	SEAD-57						SEAD-57								
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	89 UJ
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	210 UJ	220 U	200 U	220 U	210 U	220 U	200 U	230 U	220 UJ
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	87 U	90 U	84 U	92 U	88 U	2.9 J	4.3 J	5 J	4.9 J
Phenol	UG/KG	8.3	19.0%	30	0	12	63	87 U	90 U	84 U	92 U	88 U	93 U	84 U	94 U	7 J
Pyrene	UG/KG	49	66.7%	50000	0	42	63	87 UJ	7.9 J	5.8 J	4.9 J	4.8 J	5.5 J	8 J	9.4 J	9 J
Explosives																
1,3,5-Trinitrobenzene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
1,3-Dinitrobenzene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
2,4,6-Trinitrotoluene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
2-Nitrotoluene	UG/KG	0	0.0%	0	0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
3-Nitrotoluene	UG/KG	0	0.0%	0	0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
4-Nitrotoluene	UG/KG	0	0.0%	0	0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
HMX	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
RDX	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
Tetryl	UG/KG	0	0.0%	0	0	0	63	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 UJ
Pesticides/PCBs																
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 U	2.3 U
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 U	2.3 U
Alpha-Chlordane	UG/KG	16	9.5%	0	6	63	2.2 J	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 J	2.3 U	
Aroclor-1016	UG/KG	0	0.0%	0	0	0	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Aroclor-1221	UG/KG	0	0.0%	0	0	0	63	90 U	92 U	86 U	94 U	90 U	94 U	86 U	96 U	90 U
Aroclor-1232	UG/KG	0	0.0%	0	0	0	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Aroclor-1242	UG/KG	0	0.0%	0	0	0	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Aroclor-1248	UG/KG	0	0.0%	0	0	0	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	44 U	45 U	42 U	46 U	44 U	46 U	42 U	47 U	44 U
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 U	2.3 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 U	2.3 U
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U	2.4 U	2.3 U
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Endrin	UG/KG	0	0.0%	100	0	0	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Endrin aldehyde	UG/KG	0	0.0%	0	0	0	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U
Endrin ketone	UG/KG	0	0.0%	0	0	0	63	4.4 U	4.5 U	4.2 U	4.6 U	4.4 U	4.6 U	4.2 U	4.7 U	4.4 U

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
SS57-39	SS57-4	SS57-4	SS57-40	SS57-41	SS57-42	SS57-43	SS57-44	SS57-45	
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
574052	SS57-4-1	SS57-4-2	574053	574054	574055	574056	574057	574059	
0	0	0	0	0	0	0	0	0	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
12/20/99	10/26/93	12/08/93	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99	12/21/99	
SA	SA	SA	SA	SA	SA	SA	SA	DU	

RI PHASE	ESI	ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
1 STEP 1			1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Acetone	UG/KG	350	75.0%	200	23	54	72	98 J	12 U	13 U	180 J	350 J	170 J	93 J	100 J	88 J
Benzene	UG/KG	0	0.0%	60	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	12 UJ	12 U	13 U	16 J	26 J	17 J	10	10 J	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Styrene	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	5 J	12 U	13 U	7 J	9 J	4 J	2 J	6 J	9 J
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	12 U	12 U	13 U	13 U	13 U	12 U	9 U	10 U	12 U
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%		0	0	9		430 U							
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	220 UJ	1000 U		230 UJ	220 UJ	200 UJ	220 UJ	210 U	220 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%		0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
2,4-Dimethylphenol	UG/KG	0	0.0%		0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	220 UR	1000 U		230 UR	220 UR	200 UR	220 UR	210 UR	220 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	91 UJ	430 U		94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57													
		SEAD-57 SS57-39 SOIL 574052 0 0.2 12/20/99 SA	SEAD-57 SS57-4 SOIL 574052 0 0.2 10/26/93 SA	SEAD-57 SS57-4 SOIL 574053 0 0.2 12/08/93 SA	SEAD-57 SS57-40 SOIL 574053 0 0.2 12/20/99 SA	SEAD-57 SS57-41 SOIL 574054 0 0.2 12/20/99 SA	SEAD-57 SS57-42 SOIL 574055 0 0.2 12/21/99 SA	SEAD-57 SS57-43 SOIL 574056 0 0.2 12/21/99 SA	SEAD-57 SS57-44 SOIL 574057 0 0.2 12/21/99 SA	SEAD-57 SS57-45 SOIL 574059 0 0.2 12/21/99 DU					
		RI PHASE 1 STEP 1	ESI	ESI	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1					
Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	91 UJ	430 U	94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	91 UJ	430 U	94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	220 UJ	1000 U	230 UJ	220 UJ	200 UJ	220 UJ	210 U	220 U
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	4.6 J	430 U	94 UJ	90 UJ	83 UJ	89 UJ	86 U	92 U
Phenol	UG/KG	8.3	19.0%	30	0	12	63	4.5 J	430 U	94 UJ	5.4 J	3.9 J	4.5 J	86 U	92 U
Pyrene	UG/KG	49	66.7%	50000	0	42	63	5.8 J	430 U	94 UJ	4.7 J	83 UJ	89 UJ	86 U	4.7 J
Explosives															
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
HMX	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
RDX	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	63	120 UJ	130 U	120 UJ	120 UJ	120 UJ	120 UJ	120 U	120 U
Pesticides/PCBs															
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.6 U	4.3 U	4.7 U	4.5 U	2.1 J	2.2 J	4.3 U	4.6 U
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Aroclor-1016	UG/KG	0	0.0%		0	0	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Aroclor-1221	UG/KG	0	0.0%		0	0	63	93 U	88 U	95 U	91 U	84 U	90 U	87 U	93 U
Aroclor-1232	UG/KG	0	0.0%		0	0	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Aroclor-1242	UG/KG	0	0.0%		0	0	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Aroclor-1248	UG/KG	0	0.0%		0	0	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	46 U	43 U	47 U	45 U	41 U	44 U	43 U	46 U
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.4 U	2.2 U	2.4 U	2.3 U	2.1 U	2.3 U	2.2 U	2.4 U
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Endrin	UG/KG	0	0.0%	100	0	0	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.6 U	4.3 U	4.7 U	4.5 U	4.1 U	4.4 U	4.3 U	4.6 U

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57										ESI		RI PHASE																																																																																																																																										
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE																																																																																																																																									
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1																																																																																																																																								
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> <td>SEAD-57</td> </tr> <tr> <td>SS57-45</td> <td>SS57-46</td> <td>SS57-47</td> <td>SS57-48</td> <td>SS57-49</td> <td>SS57-5</td> <td>SS57-5</td> <td>SS57-50</td> <td>SS57-51</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> <td>SOIL</td> </tr> <tr> <td>574058</td> <td>574060</td> <td>574061</td> <td>574062</td> <td>574063</td> <td>SS57-5-1</td> <td>SS57-5-2</td> <td>574064</td> <td>574065</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>12/21/99</td> <td>12/21/99</td> <td>12/21/99</td> <td>12/21/99</td> <td>12/21/99</td> <td>10/26/93</td> <td>12/08/93</td> <td>12/21/99</td> </tr> <tr> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td>SA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> <td>RI PHASE</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> <td>1 STEP 1</td> </tr> </table>																																		SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SS57-45	SS57-46	SS57-47	SS57-48	SS57-49	SS57-5	SS57-5	SS57-50	SS57-51	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	574058	574060	574061	574062	574063	SS57-5-1	SS57-5-2	574064	574065	0	0	0	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	10/26/93	12/08/93	12/21/99	SA	SA	SA	SA	SA	SA	SA	SA	SA																		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE										1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57																																																																																																																																								
SS57-45	SS57-46	SS57-47	SS57-48	SS57-49	SS57-5	SS57-5	SS57-50	SS57-51	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL																																																																																																																																								
574058	574060	574061	574062	574063	SS57-5-1	SS57-5-2	574064	574065	0	0	0	0	0	0	0	0																																																																																																																																								
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	10/26/93	12/08/93	12/21/99																																																																																																																																								
SA	SA	SA	SA	SA	SA	SA	SA	SA																																																																																																																																																
									RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE																																																																																																																																								
									1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1																																																																																																																																								
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>Value (Q)</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> <td>Value (Q)</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> <td>Value (Q)</td> <td>Value (Q)</td> <td>Value (Q)</td> </tr> </table>																																		Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)																																																																																																						
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)																																																																																																																																								
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>12 U</td> <td>13 U</td> <td>11 U</td> <td>12 U</td> <td>13 U</td> <td>11 U</td> <td>12 U</td> <td>13 U</td> <td>14 U</td> <td>13 U</td> <td>14 U</td> <td>15 U</td> <td>14 U</td> <td>15 U</td> <td>14 U</td> <td>15 U</td> <td>16 U</td> </tr> </table>																																		12 U	13 U	11 U	12 U	13 U	11 U	12 U	13 U	14 U	13 U	14 U	15 U	14 U	15 U	14 U	15 U	16 U																																																																																																						
12 U	13 U	11 U	12 U	13 U	11 U	12 U	13 U	14 U	13 U	14 U	15 U	14 U	15 U	14 U	15 U	16 U																																																																																																																																								
Volatile Organics																																																																																																																																																								
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,2-Dichloroethene (total)	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Acetone	UG/KG	350	75.0%	200	23	54	72	97 J	98 J	83 J	230 J	180 J	14 U	15 U	200 J	190 J																																																																																																																																								
Benzene	UG/KG	0	0.0%	60	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Bromoform	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Chloroform	UG/KG	7	1.4%	300	0	1	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	12 UJ	13 UJ	9 J	18 J	16 J	14 U	15 U	16	18																																																																																																																																								
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Styrene	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	12 U	13 U	11 U	12 U	13 U	2 J	15 U	14 U	16 U																																																																																																																																								
Toluene	UG/KG	33	63.9%	1500	0	46	72	5 J	9 J	5 J	6 J	7 J	14 U	15 U	13 J	7 J																																																																																																																																								
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	12 U	13 U	11 U	12 U	13 U	14 U	15 U	14 U	16 U																																																																																																																																								
Semivolatile Organics																																																																																																																																																								
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9						470 U																																																																																																																																											
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	220 UJ	210 U	200 U	220 U	220 U	1100 U		230 U	250 U																																																																																																																																								
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	220 UR	210 U	200 U	220 U	220 U	1100 U		230 U	250 UR																																																																																																																																								
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U		94 U	100 U																																																																																																																																								

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION															
		SEAD-46		SEAD-46		SEAD-46		SEAD-46		SEAD-46		SEAD-46		SEAD-46		SEAD-46	
		SS57-45	SS57-46	SS57-47	SS57-48	SS57-49	SS57-5	SS57-5	SS57-50	SS57-51	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		574058	574060	574061	574062	574063	SS57-5-1	SS57-5-2	574064	574065							
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
		12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	
		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	ESI	RI PHASE	RI PHASE			
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1			1 STEP 1	1 STEP 1			
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
		Detect	Detection	Value(1)	Exceedences	Detections	Samples										
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U	94 U	100 U	100 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	90 UJ	86 U	82 U	92 U	90 U	470 U	94 U	100 U	100 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	220 UJ	210 U	200 U	220 U	220 U	1100 U	230 U	250 UJ	250 UJ	
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	90 UJ	86 U	82 U	4.8 J	4.7 J	470 U	4.7 J	5.5 J	5.5 J	
Phenol	UG/KG	8.3	19.0%	30	0	12	63	4.3 J	86 U	82 U	92 U	90 U	470 U	94 U	100 U	100 U	
Pyrene	UG/KG	49	66.7%	50000	0	42	63	90 UJ	86 U	82 U	5.4 J	6.5 J	470 U	6.6 J	7.6 J	7.6 J	
Explosives																	
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 UJ	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
HMX	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
RDX	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
Tetryl	UG/KG	0	0.0%		0	0	63	120 UJ	120 U	120 U	120 U	120 U	130 U	120 U	120 U	120 U	
Pesticides/PCBs																	
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Aroclor-1016	UG/KG	0	0.0%		0	0	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Aroclor-1221	UG/KG	0	0.0%		0	0	63	91 U	88 U	83 U	93 U	92 U	95 U	96 U	100 U	100 U	
Aroclor-1232	UG/KG	0	0.0%		0	0	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Aroclor-1242	UG/KG	0	0.0%		0	0	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Aroclor-1248	UG/KG	0	0.0%		0	0	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	45 U	43 U	41 U	46 U	45 U	47 U	47 U	51 U	51 U	
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U	2.4 U	2.4 U	2.6 U	2.6 U	
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Endrin	UG/KG	0	0.0%	100	0	0	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.5 U	4.3 U	4.1 U	4.6 U	4.5 U	4.7 U	4.7 U	5.1 U	5.1 U	

**Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units							SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	SS57-52	SS57-53	SS57-6	SS57-6	SS57-7	SS57-7	SS57-8	SS57-8	SS57-9
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
							574066	574067	SS57-6-1	SS57-6-2	SS57-7-1	SS57-7-2	SS57-8-1	SS57-8-2	SS57-9-1	
							0	0	0	0	0	0	0	0	0	
							0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
							12/21/99	12/21/99	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	
							SA	SA	SA	SA	SA	SA	SA	SA	SA	
							RI PHASE	RI PHASE	ESI	ESI	ESI	ESI	ESI	ESI	ESI	
							1 STEP 1	1 STEP 1								
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Volatile Organics																
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Acetone	UG/KG	350	75.0%	200	23	54	72	230 J	220 J	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Benzene	UG/KG	0	0.0%	60	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Bromoform	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	22	18	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Styrene	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	14 U	15 U	1 J	14 U	11 U	11 U	6 J	12 U	1 J
Toluene	UG/KG	33	63.9%	1500	0	46	72	23	29	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	14 U	15 U	13 U	14 U	11 U	11 U	11 U	12 U	11 U
Semivolatile Organics																
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%		0	0	9			420 U		360 U		360 UR		350 U
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	230 U	240 U	1000 U		880 U		860 UR		860 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%		0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
2,4-Dimethylphenol	UG/KG	0	0.0%		0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	230 UR	240 UR	1000 U		880 U		860 UR		860 U
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	96 U	100 U	420 U		360 U		360 UR		350 U

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

Parameter	Units			SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI	ESI	ESI	ESI	ESI	ESI	ESI
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	96 U	100 U	420 U	360 U	360 UR	360 UR	360 UR	350 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	96 U	100 U	420 U	360 U	360 UR	360 UR	360 UR	350 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	230 UJ	240 UJ	1000 U	880 U	860 UR	860 UR	860 U	860 U	
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	7.2 J	7.8 J	420 U	20 J	360 UR	360 UR	360 UR	36 J	
Phenol	UG/KG	8.3	19.0%	30	0	12	63	96 U	100 U	420 U	360 U	360 UR	360 UR	360 UR	350 U	
Pyrene	UG/KG	49	66.7%	50000	0	42	63	10 J	10 J	23 J	20 J	360 UR	360 UR	360 UR	49 J	
Explosives																
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	130 U	130 U	130 U	130 U	130 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	130 U	130 U	130 U	130 U	130 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	130 U	130 U	130 U	130 U	130 U	
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U	130 U	130 U	130 U	130 U	130 U	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	120 U	120 U	130 U	130 U	130 U	130 U	130 U	130 U	
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U							
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U		130 U			130 U	
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U							
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	120 U	120 U							
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U		130 U		130 U	130 U	
HMX	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U		130 U		130 U	130 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	120 U	120 U							
RDX	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U		130 U		130 U	130 U	
Tetryl	UG/KG	0	0.0%		0	0	63	120 U	120 U	130 U		130 U		130 U	130 U	
Pesticides/PCBs																
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	4.8 U	5 U	2.5 J		4.7 J		32	4.5 J	
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	4.8 U	5 U	4.3 U		3.6 U		4.9	3.5 UJ	
Aldrin	UG/KG	0	0.0%	41	0	0	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Aroclor-1016	UG/KG	0	0.0%		0	0	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Aroclor-1221	UG/KG	0	0.0%		0	0	63	97 U	100 U	87 U		73 U		73 U	72 UJ	
Aroclor-1232	UG/KG	0	0.0%		0	0	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Aroclor-1242	UG/KG	0	0.0%		0	0	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Aroclor-1248	UG/KG	0	0.0%		0	0	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	48 U	50 U	43 U		36 U		36 U	35 UJ	
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Dieldrin	UG/KG	27	11.1%	44	0	7	63	4.8 U	5 U	4.3 U		27 J		3.6 U	3.5 UJ	
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	2.5 U	2.6 U	2.2 U		1.9 U		1.8 U	1.8 UJ	
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	
Endrin	UG/KG	0	0.0%	100	0	0	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	
Endrin ketone	UG/KG	0	0.0%		0	0	63	4.8 U	5 U	4.3 U		3.6 U		3.6 U	3.5 UJ	

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

SEAD-57
SS57-9
SOIL
SS57-9-2
0
0.2
12/08/93
SA

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESI
								Value (Q)
Volatile Organics								
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	72	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	72	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%	0	0	0	72	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	72	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	72	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	72	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%	0	0	0	72	11 U
1,2-Dichloropropane	UG/KG	0	0.0%	0	0	0	72	11 U
Acetone	UG/KG	350	75.0%	200	23	54	72	11 U
Benzene	UG/KG	0	0.0%	60	0	0	72	11 U
Bromodichloromethane	UG/KG	0	0.0%	0	0	0	72	11 U
Bromoform	UG/KG	0	0.0%	0	0	0	72	11 U
Carbon disulfide	UG/KG	22	1.4%	2700	0	1	72	11 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	72	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	72	11 U
Chlorodibromomethane	UG/KG	0	0.0%	0	0	0	72	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	72	11 U
Chloroform	UG/KG	7	1.4%	300	0	1	72	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	72	11 U
Methyl bromide	UG/KG	0	0.0%	0	0	0	72	11 U
Methyl butyl ketone	UG/KG	0	0.0%	0	0	0	72	11 U
Methyl chloride	UG/KG	0	0.0%	0	0	0	72	11 U
Methyl ethyl ketone	UG/KG	35	63.9%	300	0	46	72	11 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	72	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	72	11 U
Styrene	UG/KG	0	0.0%	0	0	0	72	11 U
Tetrachloroethene	UG/KG	6	9.7%	1400	0	7	72	11 U
Toluene	UG/KG	33	63.9%	1500	0	46	72	11 U
Total Xylenes	UG/KG	1	1.4%	1200	0	1	72	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%	0	0	0	72	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	72	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	72	11 U
Semivolatile Organics								
1,2,4-Trichlorobenzene	UG/KG	0	0.0%	3400	0	0	63	
1,2-Dichlorobenzene	UG/KG	0	0.0%	7900	0	0	63	
1,3-Dichlorobenzene	UG/KG	0	0.0%	1600	0	0	63	
1,4-Dichlorobenzene	UG/KG	0	0.0%	8500	0	0	63	
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0.0%	0	0	0	9	
2,4,5-Trichlorophenol	UG/KG	0	0.0%	100	0	0	63	
2,4,6-Trichlorophenol	UG/KG	0	0.0%	0	0	0	63	
2,4-Dichlorophenol	UG/KG	0	0.0%	400	0	0	63	
2,4-Dimethylphenol	UG/KG	0	0.0%	0	0	0	63	
2,4-Dinitrophenol	UG/KG	0	0.0%	200	0	0	63	
2,4-Dinitrotoluene	UG/KG	0	0.0%	0	0	0	63	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	

Table F-6
SHALLOW SOIL (0-2 ft bgs) SAMPLE RESULTS
SEAD-57

SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

SEAD-57
SS57-9
SOIL
SS57-9-2
0
0.2
12/08/93
SA

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESI
								Value (Q)
Naphthalene	UG/KG	0	0.0%	13000	0	0	63	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	63	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	63	
Phenanthrene	UG/KG	36	42.9%	50000	0	27	63	
Phenol	UG/KG	8.3	19.0%	30	0	12	63	
Pyrene	UG/KG	49	66.7%	50000	0	42	63	
Explosives								
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	63	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	63	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	63	
2,4-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	
2,6-Dinitrotoluene	UG/KG	0	0.0%	1000	0	0	63	
2-Nitrotoluene	UG/KG	0	0.0%		0	0	54	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	
3-Nitrotoluene	UG/KG	0	0.0%		0	0	54	
4-Nitrotoluene	UG/KG	0	0.0%		0	0	54	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%		0	0	63	
HMX	UG/KG	0	0.0%		0	0	63	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	54	
RDX	UG/KG	0	0.0%		0	0	63	
Tetryl	UG/KG	0	0.0%		0	0	63	
Pesticides/PCBs								
4,4'-DDD	UG/KG	54	7.9%	2900	0	5	63	
4,4'-DDE	UG/KG	32	9.5%	2100	0	6	63	
4,4'-DDT	UG/KG	5	3.2%	2100	0	2	63	
Aldrin	UG/KG	0	0.0%	41	0	0	63	
Alpha-BHC	UG/KG	1.1	1.6%	110	0	1	63	
Alpha-Chlordane	UG/KG	16	9.5%		0	6	63	
Aroclor-1016	UG/KG	0	0.0%		0	0	63	
Aroclor-1221	UG/KG	0	0.0%		0	0	63	
Aroclor-1232	UG/KG	0	0.0%		0	0	63	
Aroclor-1242	UG/KG	0	0.0%		0	0	63	
Aroclor-1248	UG/KG	0	0.0%		0	0	63	
Aroclor-1254	UG/KG	0	0.0%	10000	0	0	63	
Aroclor-1260	UG/KG	27	3.2%	10000	0	2	63	
Beta-BHC	UG/KG	0	0.0%	200	0	0	63	
Delta-BHC	UG/KG	0	0.0%	300	0	0	63	
Dieldrin	UG/KG	27	11.1%	44	0	7	63	
Endosulfan I	UG/KG	5.2	1.6%	900	0	1	63	
Endosulfan II	UG/KG	3.1	1.6%	900	0	1	63	
Endosulfan sulfate	UG/KG	0	0.0%	1000	0	0	63	
Endrin	UG/KG	0	0.0%	100	0	0	63	
Endrin aldehyde	UG/KG	0	0.0%		0	0	63	
Endrin ketone	UG/KG	0	0.0%		0	0	63	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-1	SB57-1	SB57-1	SB57-2	SB57-2	SB57-2
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574013	574014	574015	574010	574011	574012
								0	2	4	0	2	4
								2	4	6	2	4	6
								12/03/99	12/03/99	12/03/99	12/03/99	12/03/99	12/03/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Acetone	UG/KG	350	63.9%	200	23	62	97	300 J	22 UJ	25 UJ	83 J	9 UJ	17 J
Benzene	UG/KG	1	2.1%	60	0	2	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Bromoform	UG/KG	0	0.0%		0	0	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	22	2 J	9 U	10 U	9 UJ	1 J
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Chloroform	UG/KG	7	1.0%	300	0	1	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
Methyl bromide	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	11 UJ	9 UJ	9 UJ	10 UJ	9 UR	9 UJ
Methyl chloride	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	32 J	9 UJ	9 UJ	10 UJ	9 UR	9 UJ
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ
Styrene	UG/KG	0	0.0%		0	0	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Toluene	UG/KG	33	50.5%	1500	0	49	97	2 J	9 UJ	9 U	10 U	1 J	9 UJ
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	11 UJ	9 UJ	9 UJ	10 U	9 UJ	9 UJ
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	11 U	9 UJ	9 U	10 U	9 UR	9 UJ
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	11 U	9 UJ	9 U	10 U	9 UJ	9 UJ

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum	Frequency of	Criteria	Number of	Number of	Number of	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SB57-1 SOIL 574013 0 2 12/03/99 SA RI PHASE 1 STEP 1	SB57-1 SOIL 574014 2 4 12/03/99 SA RI PHASE 1 STEP 1	SB57-1 SOIL 574015 4 6 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574010 0 2 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574011 2 4 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574012 4 6 12/03/99 SA RI PHASE 1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	84 UJ	78 UJ	74 UJ	93 UJ	76 UJ	74 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	84 U	78 U	74 U	93 U	76 U	74 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	84 U	78 U	74 U	93 U	76 U	170 J
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Carbazole	UG/KG	0	0.0%		0	0	88	84 UJ	78 UJ	74 UJ	93 UJ	76 UJ	74 UJ
Chrysene	UG/KG	42	23.9%	400	0	21	88	84 U	78 U	74 U	93 U	76 U	12 J
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	84 UJ	78 UJ	74 UJ	93 UJ	76 UJ	74 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	84 U	78 UJ	74 UJ	93 U	76 UJ	74 UJ
Fluorene	UG/KG	120	1.1%	50000	0	1	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	84 U	78 UJ	74 UJ	93 U	76 UJ	74 UJ
Isophorone	UG/KG	0	0.0%	4400	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	84 U	78 U	74 U	93 U	76 U	74 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	200 UJ	190 UJ	180 UJ	220 UJ	180 UJ	180 UJ
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Phenol	UG/KG	51	14.8%	30	1	13	88	84 U	78 U	74 U	93 U	76 U	74 UJ
Pyrene	UG/KG	49	48.9%	50000	0	43	88	84 UJ	78 UJ	74 UJ	93 UJ	76 UJ	74 UJ
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-1 SOIL 574013 0 2 12/03/99 SA RI PHASE 1 STEP 1	SB57-1 SOIL 574014 2 4 12/03/99 SA RI PHASE 1 STEP 1	SB57-1 SOIL 574015 4 6 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574010 0 2 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574011 2 4 12/03/99 SA RI PHASE 1 STEP 1	SB57-2 SOIL 574012 4 6 12/03/99 SA RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.2 U	2 U	1.9 U	2.4 U	2 U	1.9 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.2 U	2 U	1.9 U	2.4 U	2 U	1.9 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.2 U	2 U	1.9 U	2.4 U	2 U	1.9 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	22 U	20 U	19 U	24 U	20 U	19 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	220 U	200 U	190 U	240 U	200 U	190 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%	0	0	0	20						
Dalapon	UG/KG	0	0.0%	0	0	0	20						
Dicamba	UG/KG	0	0.0%	0	0	0	20						
Dichloroprop	UG/KG	0	0.0%	0	0	0	20						
Dinoseb	UG/KG	0	0.0%	0	0	0	20						
MCPA	UG/KG	0	0.0%	0	0	0	20						
MCPP	UG/KG	0	0.0%	0	0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	14200	13500	10700	13700	12500	11100
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.1 J	1.7 J	0.91 J	1.3 UR	1.1 UR	1.2 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.9	2.6	3.5	5.5	4.4	4.2
Barium	MG/KG	202	100.0%	300	0	88	88	129	121	42	105	84.8	68.9
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.7 J	0.63 J	0.48 J	0.62 J	0.62 J	0.48 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.07 J	0.06 U	0.05 U	0.08 U	0.07 U	0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	4090	75300	3240	3970	73900	68300
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	21.3	22.3	18.7	18.6	21.8	24.4
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	11.5	6.9 J	11.1	9.5 J	11.4	8.7 J
Copper	MG/KG	2930	100.0%	33	9	88	88	25.1	26.6	27	23.1	33.9	20
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.63 U	0.57 U	0.53 U	0.69 U	0.53 U	0.53 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	26100 J	24400 J	23100 J	23700 J	27200 J	19700 J
Lead	MG/KG	1860	100.0%	24.8	12	88	88	20.4	9.7	6.7	25	13.3	5.5
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4530	8530	4800	3480	11900	7490
Manganese	MG/KG	2270	100.0%	1060	9	88	88	915	178	550	508	314	330
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.11 J	0.06 J	0.09 J	0.11 J	0.06 J	0.05 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	29.3	35.1	33.1	19.5	41.5	29.1
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1470 J	1350 J	1020 J	1750 J	1920 J	1680 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
								SB57-3 SOIL 574007 0 2 12/02/99 SA	SB57-3 SOIL 574008 2 4 12/02/99 SA	SB57-3 SOIL 574009 4 6 12/02/99 SA	SB57-4 SOIL 574004 0 2 12/03/99 SA	SB57-4 SOIL 574005 2 4 12/03/99 SA	SB57-4 SOIL 574006 4 6 12/03/99 SA	
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Volatile Organics														
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 UJ	
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Acetone	UG/KG	350	63.9%	200	23	62	97	350 J	9 UJ	8 UJ	210 J	24 UJ	17 UJ	
Benzene	UG/KG	1	2.1%	60	0	2	97	12 U	8 UJ	8 UJ	13 U	1 J	9 U	
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Bromoform	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 UJ	
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	12 U	8 UJ	3 J	13 U	10 U	9 U	
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 UJ	
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Chloroform	UG/KG	7	1.0%	300	0	1	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 UJ	
Methyl bromide	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	12 UJ	8 UJ	8 UJ	13 UJ	10 UJ	9 UJ	
Methyl chloride	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	24	8 UJ	8 UJ	22 J	10 UJ	9 UJ	
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	
Styrene	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 UJ	
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Toluene	UG/KG	33	50.5%	1500	0	49	97	2 J	8 UJ	8 UJ	13 U	2 J	9 U	
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	12 U	8 UJ	8 UJ	13 U	1 J	9 UJ	
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	12 U	8 UJ	8 UJ	13 U	10 UJ	9 U	
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	12 U	8 UJ	8 UJ	13 U	10 U	9 U	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-3 SOIL 574007 0 2 12/02/99 SA	SB57-3 SOIL 574008 2 4 12/02/99 SA	SB57-3 SOIL 574009 4 6 12/02/99 SA	SB57-4 SOIL 574004 0 2 12/03/99 SA	SB57-4 SOIL 574005 2 4 12/03/99 SA	SB57-4 SOIL 574006 4 6 12/03/99 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	98 U	73 U	70 U	82 U	76 U	72 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	98 U	73 U	70 U	82 U	76 U	72 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 UJ	82 U	76 U	72 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	98 U	73 U	70 U	82 U	76 U	72 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	98 U	73 U	70 U	82 U	76 U	72 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Carbazole	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 UJ	82 U	76 U	72 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	98 U	73 U	70 U	82 U	76 U	72 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	98 U	73 U	70 U	82 U	76 U	72 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	98 U	73 U	70 U	82 U	76 U	72 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	98 U	73 U	70 U	82 U	76 U	72 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	98 UJ	73 UJ	70 UJ	82 UJ	76 UJ	72 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	98 U	73 U	70 UJ	82 U	76 U	72 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	98 U	73 U	70 U	82 U	76 U	72 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	98 U	73 U	70 UJ	82 U	76 U	72 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	75 J	9.2 J	70 U	82 U	76 U	72 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	98 U	73 U	70 U	82 U	76 U	72 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	98 U	73 U	70 U	82 U	76 U	72 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	240 UJ	180 UJ	170 UJ	200 UJ	180 UJ	180 UJ
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	98 U	73 U	70 U	82 U	76 U	72 U
Phenol	UG/KG	51	14.8%	30	1	13	88	98 U	73 U	70 U	82 U	76 U	72 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	98 U	73 UJ	70 UJ	82 UJ	76 UJ	72 UJ
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57					
		SB57-3		SB57-3		SB57-3		SB57-4		SB57-4		SB57-4	
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.5 U	1.9 U	1.8 U	2.1 U	2 U	1.9 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.5 U	1.9 U	1.8 U	2.1 U	2 U	1.9 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.5 U	1.9 U	1.8 U	2.1 U	2 U	1.9 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	25 U	19 U	18 U	21 U	20 U	19 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	250 U	190 U	180 U	210 U	200 U	190 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%	0	0	0	20						
Dalapon	UG/KG	0	0.0%	0	0	0	20						
Dicamba	UG/KG	0	0.0%	0	0	0	20						
Dichloroprop	UG/KG	0	0.0%	0	0	0	20						
Dinoseb	UG/KG	0	0.0%	0	0	0	20						
MCPA	UG/KG	0	0.0%	0	0	0	20						
MCPP	UG/KG	0	0.0%	0	0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	16400	12500	18100	14800	10400	11300
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.3 J	1.3 J	1 J	1 UR	1.1 J	0.83 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	6.3	3.7	6.3	4.7	3.7	5.3
Barium	MG/KG	202	100.0%	300	0	88	88	101	77.5	68.9	129	85.8	64
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.71 J	0.58 J	0.7 J	0.79 J	0.53 J	0.53 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.08 U	0.06 U	0.09 U	0.06 U	0.05 U	0.04 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	2590	27600	27000	22800	94000	77400
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	22.5	19.6	32.1	22.4	17.2	19.3
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	9.5 J	11.1	18.8	11	9.4	13.8
Copper	MG/KG	2930	100.0%	33	9	88	88	26.5	32.3	36.1	29.8	24.5	24.8
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.72 U	0.55 U	0.52 U	0.56 U	0.54 U	0.52 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	32700 J	24900 J	39800 J	26100 J	21700 J	25700 J
Lead	MG/KG	1860	100.0%	24.8	12	88	88	23.3	16.8	4.4	12.3	8.5	10.1
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4090	6850	8610	13500	9870	10300
Manganese	MG/KG	2270	100.0%	1060	9	88	88	640	520	451	493	492	573
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.13 J	0.09 J	0.07 J	0.1 J	0.07 J	0.07 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	20.3	36.7	53.8	41.1	31.1	39.2
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1430 J	1290 J	1530 J	1370 J	1410 J	1370 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-5	SB57-5	SB57-5	SB57-6	SB57-6	SB57-6
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574002	574022	574003	574019	574020	574021
								0	2	4	0	2	4
								2	4	5.2	2	4	6
								12/01/99	12/07/99	12/01/99	12/05/99	12/05/99	12/05/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	12 U	8 UJ	8 U	12 U	8 UJ	9 UJ
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Acetone	UG/KG	350	63.9%	200	23	62	97	68 J	8 UJ	14 J	77 J	8 U	15 J
Benzene	UG/KG	1	2.1%	60	0	2	97	12 U	8 UJ	8 U	12 U	1 J	9 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Bromoform	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	12 U	1 J	8 U	12 U	8 U	9 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	12 U	8 UJ	8 U	12 U	8 UJ	9 UJ
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	12 U	8 UJ	8 U	12 U	8 UJ	9 UJ
Methyl bromide	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 U	12 U	8 UJ	9 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	12 UJ	8 UR	8 UJ	12 U	8 U	9 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	8 J	8 UR	8 U	8 J	8 UJ	9 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U
Styrene	UG/KG	0	0.0%		0	0	97	12 U	8 UJ	8 U	12 U	8 UJ	9 UJ
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	12 U	8 UR	8 U	12 U	1 J	9 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	12 U	8 UJ	8 U	12 U	2 J	9 UJ
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	12 U	8 UR	8 U	12 U	8 UJ	9 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	12 U	8 UJ	8 U	12 U	8 U	9 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57					
		SB57-5		SB57-5		SB57-5		SB57-6		SB57-6		SB57-6	
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Maximum	Frequency of	Criteria	Number of	Number of	Number of	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Detect	Detection	Value(1)	Exceedences	Detections	Samples								
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	86 U	75 U	74 U	90 U	74 U	74 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	86 U	75 U	74 U	90 U	74 U	74 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	86 U	75 U	74 U	90 U	74 U	74 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	86 U	75 U	74 U	82 J	32 J	74 UJ
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	86 U	75 U	74 U	90 U	74 UJ	74 UJ
Carbazole	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 UJ	90 U	74 U	74 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	86 U	75 U	74 U	10 J	74 U	74 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	86 U	75 U	74 U	90 U	74 U	74 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	86 U	75 U	74 U	90 UJ	74 UJ	74 UJ
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	86 U	75 U	74 U	90 U	74 UJ	74 UJ
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	86 UJ	75 UJ	74 UJ	90 UJ	74 UJ	74 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	86 U	75 U	74 U	90 UJ	74 UJ	74 UJ
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	86 U	75 U	74 U	10 J	74 U	74 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	86 U	75 U	74 U	90 U	74 U	74 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	86 U	75 U	74 U	90 UJ	74 UJ	74 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 UJ	90 U	74 U	74 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	86 U	75 U	74 U	90 U	74 U	74 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	86 U	75 U	74 U	90 U	74 U	74 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	86 U	75 U	74 U	90 U	74 U	74 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	86 U	75 U	74 U	90 U	74 U	74 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	210 UJ	180 UJ	180 UJ	220 U	180 U	180 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	86 U	75 U	74 U	10 J	74 U	74 U
Phenol	UG/KG	51	14.8%	30	1	13	88	86 U	75 U	74 U	90 U	74 U	74 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	86 UJ	75 UJ	74 UJ	9.9 J	74 U	74 U
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 UJ	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 UJ	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 UJ	120 U	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-5	SB57-5	SB57-5	SB57-6	SB57-6	SB57-6
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574002	574022	574003	574019	574020	574021
								0	2	4	0	2	4
								2	4	5.2	2	4	6
								12/01/99	12/07/99	12/01/99	12/05/99	12/05/99	12/05/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.2 U	1.9 U	1.9 U	2.3 U	1.9 U	1.9 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.2 U	1.9 U	1.9 U	2.3 U	1.9 U	1.9 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.2 U	1.9 U	1.9 U	2.3 U	1.9 U	1.9 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	22 U	19 U	19 U	23 U	19 U	19 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	220 U	190 U	190 U	230 U	190 U	190 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%	0	0	0	20						
Dalapon	UG/KG	0	0.0%	0	0	0	20						
Dicamba	UG/KG	0	0.0%	0	0	0	20						
Dichloroprop	UG/KG	0	0.0%	0	0	0	20						
Dinoseb	UG/KG	0	0.0%	0	0	0	20						
MCPA	UG/KG	0	0.0%	0	0	0	20						
MCPP	UG/KG	0	0.0%	0	0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	15600	15400	12200	16400	12300	14900
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.1 UR	1.5 J	1.5 J	0.73 J	0.61 J	0.82 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.2	5.6	3.3	4.5	5.5	4.6
Barium	MG/KG	202	100.0%	300	0	88	88	93.6	62.7	38.4	126	66.5	62
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.69 J	0.66 J	0.56 J	1.1 J	0.8 J	0.93 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.06 U	0.06 U	0.05 U	0.06 U	0.05 U	0.06 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	8570	17800	12400	5590	60600	2580
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	23.9	25.2	21.9	22.2	22.4	27.4
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	10.8 J	17	12.4	11.7 J	13.1	14.9
Copper	MG/KG	2930	100.0%	33	9	88	88	20.9	26.1	18.3	25.8	27.1	19.4
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.61 U	0.55 U	0.56 U	0.66 U	0.56 U	0.56 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	28700 J	32300	25500 J	28700	27900	34400
Lead	MG/KG	1860	100.0%	24.8	12	88	88	18.5	7.9 J	3.6	21.5 J	9.8 J	4.4 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4470	7560	5910	4330	14300	6740
Manganese	MG/KG	2270	100.0%	1060	9	88	88	555	543	427	644	483	555
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.09 J	0.04 U	0.06 J	0.09 J	0.08 J	0.1 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	26.7	44.5	34.9	33.4	42.9	45.7
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1580 J	1230	1080 J	1250	1180	1180

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-7	SB57-7	SB57-7	SS57-1	SS57-1	SS57-10
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574016	574017	574018	SS57-1-1	SS57-1-2	574023
								0	2	4	0	0	0
								2	4	6	0.2	0.2	0.2
								12/03/99	12/03/99	12/03/99	10/26/93	12/08/93	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	ESI	ESI	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1			1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Acetone	UG/KG	350	63.9%	200	23	62	97	160 J	11 UJ	28 UJ	13 U	14 U	76 J
Benzene	UG/KG	1	2.1%	60	0	2	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Bromoform	UG/KG	0	0.0%		0	0	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	10 U	0.9 J	4 J	13 U	14 U	11 UJ
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 UJ
Chloroform	UG/KG	7	1.0%	300	0	1	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	10 UJ	9 UR	8 UJ	13 U	14 U	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 UJ
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	15 J	9 UR	8 UJ	13 U	14 U	10 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 UJ
Styrene	UG/KG	0	0.0%		0	0	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	10 U	9 UR	8 UJ	2 J	14 U	11 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	10 U	9 UR	8 UJ	13 U	14 U	8 J
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	10 UJ	9 UJ	8 UJ	13 U	14 U	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	10 U	9 UR	8 UJ	13 U	14 U	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	10 U	9 UJ	8 UJ	13 U	14 U	11 UJ

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57					
		SB57-7		SB57-7		SB57-7		SS57-1		SS57-1		SS57-10	
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	780 U	85 U	74 U	420 U	86 U	
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	780 U	85 U	74 U	420 U	86 UJ	
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	780 U	85 U	74 U		86 U	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	3400	85 U	74 U	480 U	86 U	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	780 U	85 U	74 U	420 U	86 UJ	
Carbazole	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Chrysene	UG/KG	42	23.9%	400	0	21	88	780 U	85 U	74 U	420 U	86 U	
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	780 U	85 U	74 U	420 U	86 UJ	
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	780 U	85 U	74 U	420 U	86 UJ	
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	780 U	85 U	74 U	420 U	86 U	
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	780 U	85 U	74 U	420 U	86 U	
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	780 UJ	8.8 J	74 UJ	420 U	86 U	
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	780 U	85 U	74 U	420 U	86 UJ	
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	780 U	85 U	74 U	420 U	11 J	
Fluorene	UG/KG	120	1.1%	50000	0	1	88	780 U	85 U	74 U	420 U	86 U	
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	780 U	85 U	74 U	420 U	86 UJ	
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Hexachloroethane	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	780 U	85 U	74 U	420 U	86 U	
Isophorone	UG/KG	0	0.0%	4400	0	0	88	780 U	85 U	74 U	420 U	86 U	
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	780 U	85 U	74 U	420 U	86 U	
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	780 U	85 U	74 U	420 U	86 U	
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	780 U	85 U	74 U	420 U	86 UJ	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	780 U	85 U	74 U	420 U	86 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	1900 UJ	210 UJ	180 UJ	1000 U	210 UJ	
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	780 U	85 U	74 U	420 U	5.9 J	
Phenol	UG/KG	51	14.8%	30	1	13	88	780 U	51 J	74 U	420 U	86 U	
Pyrene	UG/KG	49	48.9%	50000	0	43	88	780 UJ	85 UJ	74 UJ	420 U	11 J	
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SB57-7 SOIL 574016 0 2 12/03/99 SA	SB57-7 SOIL 574017 2 4 12/03/99 SA	SB57-7 SOIL 574018 4 6 12/03/99 SA	SS57-1 SOIL SS57-1-1 0 0.2 10/26/93 SA	SS57-1 SOIL SS57-1-2 0 0.2 12/08/93 SA	SS57-10 SOIL 574023 0 0.2 12/19/99 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI	ESI	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2 U	2.2 U	1.9 U	2.2 U	2.2 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2 U	2.2 U	1.9 U	2.2 U	2.2 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2 U	2.2 U	1.9 U	2.2 U	2.2 U	2.2 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	20 U	22 U	19 U	22 U	22 U	22 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	200 U	220 U	190 U	220 U	220 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20				6.5 U		
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20				6.5 U		
2,4-D	UG/KG	0	0.0%	500	0	0	20				65 U		
2,4-DB	UG/KG	0	0.0%	0	0	0	20				65 U		
Dalapon	UG/KG	0	0.0%	0	0	0	20				160 U		
Dicamba	UG/KG	0	0.0%	0	0	0	20				6.5 U		
Dichloroprop	UG/KG	0	0.0%	0	0	0	20				65 U		
Dinoseb	UG/KG	0	0.0%	0	0	0	20				33 U		
MCPA	UG/KG	0	0.0%	0	0	0	20				6500 U		
MCPP	UG/KG	0	0.0%	0	0	0	20				6500 U		
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	9910	12600	13600	12000		12100
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.4 J	1.3 J	2.5 J	11.9 UJ		0.66 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	3.7 J	4.9 J	5 J	4.8 UR		4.1
Barium	MG/KG	202	100.0%	300	0	88	88	49.9	78.2	84.3	82.4		74.2
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.45 J	0.58 J	0.58 J	0.56 J		0.76 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.05 U	0.07 U	0.07 U	0.74 U		0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	8920	81800	63700	2770		11900
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	17.4	20.7	23.4	15.7		17
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	10.6	12.5	12.2	8.4 J		9.4 J
Copper	MG/KG	2930	100.0%	33	9	88	88	52.7	32.8	26.4	10.9		26.4
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.58 U	0.6 U	0.55 U	0.77 U		0.61 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	21200	25700	28000	19300		19900
Lead	MG/KG	1860	100.0%	24.8	12	88	88	45.1	13.8	4.4	24		24.4 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4410	11600	14500	2680		3820 J
Manganese	MG/KG	2270	100.0%	1060	9	88	88	332	362	415	592		486
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.07 J	0.13 J	0.04 J	0.06 J		0.06 U
Nickel	MG/KG	54.1	100.0%	49	4	88	88	36.7	39.1	37.9	14.3		24
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1350 J	1940 J	1820 J	892 J		1130 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-11 SOIL 574024 0 12/19/99 SA RI PHASE 1 STEP 1	SS57-12 SOIL 574025 0 12/19/99 SA RI PHASE 1 STEP 1	SS57-13 SOIL 574026 0 12/19/99 SA RI PHASE 1 STEP 1	SS57-14 SOIL 574027 0 12/19/99 SA RI PHASE 1 STEP 1	SS57-15 SOIL 574028 0 12/19/99 SA RI PHASE 1 STEP 1	SS57-16 SOIL 574029 0 12/19/99 SA RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	160 J	170 J	140 J	270 J	280 J	110 J
Benzene	UG/KG	1	2.1%	60	0	2	97	14 U	13 U	13 U	12 U	13 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	14 U	13 U	13 U	12 U	13 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	15 J	18 J	17 J	25 J	20	11 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	14 U	13 U	13 U	12 U	13 U	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	8 J	10 J	6 J	7 J	8 J	4 J
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	14 U	13 U	13 U	12 U	13 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	14 U	13 U	13 U	12 U	13 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	14 UJ	13 UJ	13 UJ	12 UJ	13 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-11	SS57-12	SS57-13	SS57-14	SS57-15	SS57-16
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574024	574025	574026	574027	574028	574029
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	6.5 J	5.4 J	90 U	6.8 J	6.4 J	87 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	93 U	94 U	90 U	86 U	85 U	87 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	93 U	94 U	90 U	86 U	85 U	87 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Carbazole	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	5 J	94 U	90 U	86 U	85 U	87 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	4.2 J	94 U	90 U	86 U	85 U	87 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	6.9 J	5.9 J	4.8 J	10 J	10 J	7.9 J
Fluorene	UG/KG	120	1.1%	50000	0	1	88	93 U	94 U	90 U	86 U	85 U	87 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	6.8 J	6 J	90 U	6.7 J	7.1 J	87 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	93 U	94 U	90 U	86 U	85 U	87 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	93 UJ	94 UJ	90 UJ	86 UJ	85 UJ	87 UJ
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	93 U	94 U	90 U	86 U	85 U	87 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 UJ	230 UJ	220 UJ	210 UJ	200 UJ	210 UJ
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	6.5 J	3.6 J	90 U	6.7 J	6.8 J	5.7 J
Phenol	UG/KG	51	14.8%	30	1	13	88	93 U	94 U	90 U	86 U	85 U	8.3 J
Pyrene	UG/KG	49	48.9%	50000	0	43	88	6.3 J	4.8 J	4.3 J	9.9 J	8.9 J	7.5 J
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units							SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	SS57-11	SS57-12	SS57-13	SS57-14	SS57-15	SS57-16
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
							574024	574025	574026	574027	574028	574029	
							0	0	0	0	0	0	
							0.2	0.2	0.2	0.2	0.2	0.2	
							12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	
							SA	SA	SA	SA	SA	SA	
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.4 U	2.4 U	2.3 U	2.2 U	2.2 U	2.2 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	24 U	24 U	23 U	22 U	22 U	22 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	240 U	240 U	230 U	220 U	220 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%	0	0	0	20						
Dalapon	UG/KG	0	0.0%	0	0	0	20						
Dicamba	UG/KG	0	0.0%	0	0	0	20						
Dichloroprop	UG/KG	0	0.0%	0	0	0	20						
Dinoseb	UG/KG	0	0.0%	0	0	0	20						
MCPA	UG/KG	0	0.0%	0	0	0	20						
MCPP	UG/KG	0	0.0%	0	0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	14400	15400	14100	9110	10100	11100
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	0.85 J	0.81 J	0.86 J	0.51 UR	0.54 UR	0.75 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.2	5.4	4	2.7	0.61 UJ	2.6
Barium	MG/KG	202	100.0%	300	0	88	88	81.4	122	93.9	38.5 J	39.9 J	64.6
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.9 J	1.4	0.97 J	0.32 J	0.32 J	0.56 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.05 U	0.06 U	0.05 U	0.05 U	0.05 U	0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	2990	3800	3110	925 J	974 J	1700
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	20.7	18.6	18.1	7.5	7.8	12.8
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	10.4 J	9.9 J	8.5 J	3.6 J	3.9 J	6.2 J
Copper	MG/KG	2930	100.0%	33	9	88	88	17.4	16.7	15.3	7.9	7.6	12.9
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.65 U	0.68 U	0.62 U	0.64 U	0.6 U	0.63 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	25100	24000	21200	10600	10800	15600
Lead	MG/KG	1860	100.0%	24.8	12	88	88	19.6 J	22.2 J	18.6 J	17.3 J	13.9 J	16.5 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4270 J	3350 J	3380 J	1420 J	1830 J	2300 J
Manganese	MG/KG	2270	100.0%	1060	9	88	88	599	1260	519	142	99.3	388
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.06 U	0.08 J	0.07 J	0.07 J	0.08 J	0.07 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	23.9	18.4	17.8	6.8 J	6.5 J	12.8
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1220 J	1300 J	1150 J	507 J	351 J	933 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-17 SOIL 574030 0 0.2 12/19/99 SA	SS57-18 SOIL 574031 0 0.2 12/19/99 SA	SS57-19 SOIL 574032 0 0.2 12/19/99 SA	SS57-2 SOIL SS57-2-1 0 0.2 10/26/93 SA	SS57-2 SOIL SS57-2-2 0 0.2 12/08/93 SA	SS57-20 SOIL 574033 0 0.2 12/19/99 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI	ESI	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Acetone	UG/KG	350	63.9%	200	23	62	97	270 J	120 J	170 J	12 U	13 U	220 J
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	12 U	11 U	12 U	13 U	11 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	12 U	11 U	12 U	13 U	11 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	12 U	11 U	12 U	13 U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	20	12	16	12 U	13 U	18
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	13 U	12 U	11 U	2 J	13 U	11 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	5 J	4 J	4 J	12 U	13 U	27
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	13 U	12 U	11 U	12 U	13 U	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	12 U	11 U	12 U	13 U	11 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-17	SS57-18	SS57-19	SS57-2	SS57-2	SS57-20
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574030	574031	574032	SS57-2-1	SS57-2-2	574033
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/19/99	10/26/93	12/08/93	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	ESI	ESI	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1			1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	89 U	87 U	84 U	410 U	85 U	
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	89 UJ	87 UJ	6.9 UJ	410 U	85 UJ	
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	89 U	87 U	84 U		85 U	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	89 U	87 U	84 U	410 U	85 U	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	89 U	87 U	84 U	410 U	85 U	
Carbazole	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Chrysene	UG/KG	42	23.9%	400	0	21	88	89 UJ	87 UJ	84 UJ	410 U	85 UJ	
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	89 U	87 U	84 U	410 U	4.1 J	
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	89 UJ	87 UJ	84 UJ	410 U	85 UJ	
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	89 U	87 U	84 U	410 U	85 U	
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	89 U	87 U	84 U	410 U	85 U	
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	89 UJ	87 UJ	84 U	410 U	85 U	
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	89 UJ	87 UJ	84 UJ	410 U	85 UJ	
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	4.6 J	4.1 J	4.7 J	410 U	85 UJ	
Fluorene	UG/KG	120	1.1%	50000	0	1	88	89 U	87 U	84 U	410 U	85 U	
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	89 UJ	87 UJ	84 UJ	410 U	85 UJ	
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Hexachloroethane	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	89 U	87 U	84 U	410 U	85 U	
Isophorone	UG/KG	0	0.0%	4400	0	0	88	89 U	87 U	84 U	410 U	85 U	
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	89 U	87 U	84 U	410 U	85 U	
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	89 U	87 U	84 U	410 U	85 U	
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	89 UJ	87 UJ	84 UJ	410 U	85 UJ	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	89 U	87 U	84 U	410 U	85 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 UJ	210 UJ	200 UJ	990 U	200 UJ	
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	89 U	87 U	84 U	410 U	85 U	
Phenol	UG/KG	51	14.8%	30	1	13	88	5.9 J	87 U	84 U	410 U	5.4 J	
Pyrene	UG/KG	49	48.9%	50000	0	43	88	4 J	7.6 J	6.4 J	410 U	4.6 J	
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	130 U	120 U	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-17	SS57-18	SS57-19	SS57-2	SS57-2	SS57-20
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574030	574031	574032	SS57-2-1	SS57-2-2	574033
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/19/99	10/26/93	12/08/93	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	ESI	ESI	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1			1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.3 U	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.3 U	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.3 U	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	23 U	22 U	22 U	21 U	22 U	22 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	230 U	220 U	220 U	210 U	220 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20				6.3 U		
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20				6.3 U		
2,4-D	UG/KG	0	0.0%	500	0	0	20				63 U		
2,4-DB	UG/KG	0	0.0%	0	0	0	20				63 U		
Dalapon	UG/KG	0	0.0%	0	0	0	20				150 U		
Dicamba	UG/KG	0	0.0%	0	0	0	20				6.3 U		
Dichloroprop	UG/KG	0	0.0%	0	0	0	20				63 U		
Dinoseb	UG/KG	0	0.0%	0	0	0	20				32 U		
MCPA	UG/KG	0	0.0%	0	0	0	20				6300 U		
MCPP	UG/KG	0	0.0%	0	0	0	20				6300 U		
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	11400	12600	12600	17300		13400
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.1 J	1.6 J	0.62 J	11.8 UJ		0.54 UR
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	3.7	5.1 J	2.7	4.6 UR		3.4
Barium	MG/KG	202	100.0%	300	0	88	88	65.4	98.4	74.1	65.8		76.2
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.71 J	1.1 J	0.72 J	0.62 J		1 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.04 U	0.05 U	0.04 U	0.74 U		0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	1580	1750	1010	1950		835 J
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	14.1	15.5	14.3	24.2		16.1
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	7.5 J	15.3	9.4 J	9.6 J		12.8
Copper	MG/KG	2930	100.0%	33	9	88	88	13.1	13.3	12.6	18.3		12.5
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.63 U	0.62 U	0.57 U	0.73 U		0.64 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	18600	23500	16600	28400		20000
Lead	MG/KG	1860	100.0%	24.8	12	88	88	21.5 J	23.5 J	19.9 J	17.7		18.8 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	1960 J	2330 J	2530 J	4580		2510 J
Manganese	MG/KG	2270	100.0%	1060	9	88	88	561	1400	556	319		1160
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.07 J	0.08 J	0.08 J	0.04 J		0.06 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	13.2	13.3	14.3	27.3		16.9
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1030 J	990 J	913 J	1240		961 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-21	SS57-22	SS57-23	SS57-24	SS57-25	SS57-26
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574034	574035	574036	574037	574038	574039
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	210 J	200 J	63 J	280 J	190 J	290 J
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	11 U	13 U	16 U	13 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	11 U	13 U	16 U	13 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	11 U	13 U	16 U	13 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	22	20	6 J	35	17	22
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	13 U	11 U	13 U	16 U	13 U	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	4 J	4 J	5 J	16 U	14	20
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	13 U	11 U	13 U	16 U	13 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	11 U	13 U	16 U	13 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-21	SS57-22	SS57-23	SS57-24	SS57-25	SS57-26
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574034	574035	574036	574037	574038	574039
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/19/99	12/19/99	12/19/99	12/19/99	12/19/99	12/19/99
								SA	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	9.2 J	85 U	88 U	10 J	90 U	6.6 J
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	86 UJ	85 UJ	88 UJ	12 J	9.9 J	7 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	86 U	85 U	88 U	98 U	90 U	89 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	86 U	85 U	88 U	98 U	41 J	91
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	86 UJ	85 U	88 U	98 UJ	90 UJ	89 UJ
Carbazole	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	86 UJ	85 UJ	88 UJ	12 J	7.7 J	6.3 J
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	86 U	85 U	4.7 J	7 J	13 J	190
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	86 UJ	85 UJ	88 UJ	98 UJ	90 UJ	89 UJ
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	86 U	85 U	88 U	6.4 J	90 U	89 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	86 U	85 U	88 U	98 UJ	90 UJ	89 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	86 UJ	85 UJ	88 UJ	98 U	90 U	89 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	20 J	4.5 J	4.9 J	15 J	9.8 J	8.6 J
Fluorene	UG/KG	120	1.1%	50000	0	1	88	86 U	85 U	88 U	98 U	90 U	89 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	86 UJ	85 UJ	88 UJ	98 UJ	90 UJ	89 UJ
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	9.8 J	85 U	88 U	9.6 J	90 U	7.2 J
Isophorone	UG/KG	0	0.0%	4400	0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	86 U	85 U	88 U	98 U	90 U	89 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	86 UJ	85 UJ	88 UJ	98 U	90 U	89 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	86 U	85 U	88 U	98 U	90 U	89 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	210 UJ	200 U	210 UJ	240 U	220 U	220 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	11 J	85 U	88 U	8.1 J	4.8 J	4.9 J
Phenol	UG/KG	51	14.8%	30	1	13	88	86 U	6.9 J	8.1 J	98 UJ	90 U	89 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	19 J	7.4 J	10 J	14 J	11 J	9.1 J
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-21 SOIL 574034 0 0.2 12/19/99 SA	SS57-22 SOIL 574035 0 0.2 12/19/99 SA	SS57-23 SOIL 574036 0 0.2 12/19/99 SA	SS57-24 SOIL 574037 0 0.2 12/19/99 SA	SS57-25 SOIL 574038 0 0.2 12/19/99 SA	SS57-26 SOIL 574039 0 0.2 12/19/99 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.2 U	2.2 U	2.2 U	2.5 U	2.3 U	2.3 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.2 U	2.2 U	2.2 U	2.5 U	2.3 U	2.3 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.2 U	2.2 U	2.2 U	2.5 U	2.3 U	2.3 U
Methoxychlor	UG/KG	0	0.0%	0	0	0	88	22 U	22 U	22 U	25 U	23 U	23 U
Toxaphene	UG/KG	0	0.0%	0	0	0	88	220 U	220 U	220 U	250 U	230 U	230 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%	0	0	0	20						
Dalapon	UG/KG	0	0.0%	0	0	0	20						
Dicamba	UG/KG	0	0.0%	0	0	0	20						
Dichloroprop	UG/KG	0	0.0%	0	0	0	20						
Dinoseb	UG/KG	0	0.0%	0	0	0	20						
MCPA	UG/KG	0	0.0%	0	0	0	20						
MCPP	UG/KG	0	0.0%	0	0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	12100	14400	10700	16900	15000	14300
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	1.3 J	0.68 J	0.52 UR	0.58 UR	0.86 J	0.92 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.1 J	4.2	3.5 J	4.2	4.3	3.9
Barium	MG/KG	202	100.0%	300	0	88	88	93.5	79.6	53	164	139	90.7
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.76 J	0.91 J	0.53 J	1.4	1.2	1 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.05 U	6	0.05 U	0.05 U	0.05 U	0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	1470	1490	2100	4110	2410	1950
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	15.1	18.7	11.9	22.8 J	19.8 J	17.4 J
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	6.5 J	11.4 J	6.6 J	12.4 J	13.5	11.6 J
Copper	MG/KG	2930	100.0%	33	9	88	88	10	14	13.4	22	15	13.8
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.64 U	0.62 U	0.63 U	0.73 U	0.68 U	0.68 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	20300	23800	15000	27100 J	26700 J	22800 J
Lead	MG/KG	1860	100.0%	24.8	12	88	88	20.9 J	66.8 J	16.1 J	24.5	24.3	21.9
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	2590 J	2970 J	2080 J	3750	3170	2880
Manganese	MG/KG	2270	100.0%	1060	9	88	88	454	746	306	1040 J	1180 J	916 J
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.1 J	0.07 J	0.06 J	0.12	0.11 J	0.1 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	13.5	20.7	11.9	27.9 J	20.3 J	18.2 J
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1100 J	1060 J	768 J	1660	1280	1170 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-27	SS57-27	SS57-28	SS57-29	SS57-3	SS57-3
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574041	574040	574042	574043	SS57-3-1	SS57-3-2
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/20/99	12/20/99	12/20/99	12/20/99	10/26/93	12/08/93
								DU	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	ESI
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1		
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Acetone	UG/KG	350	63.9%	200	23	62	97	340 J	260 J	220 J	110 J	12 U	13 U
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	13 U	14 U	12 U	12 U	13 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	13 U	14 U	12 U	12 U	13 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	13 U	14 U	12 U	12 U	7 J
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	23	17	16	12 U	12 U	13 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	13 U	13 U	14 U	12 U	2 J	13 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	32 J	11 J	22	5 J	12 U	13 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	1 J	13 U	14 U	12 U	12 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	13 U	14 U	12 U	12 U	13 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	SS57-27	SS57-27	SS57-28	SS57-29	SS57-3	SS57-3
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
							574041	574040	574042	574043	SS57-3-1	SS57-3-2	
							0	0	0	0	0	0	
							0.2	0.2	0.2	0.2	0.2	0.2	
							12/20/99	12/20/99	12/20/99	12/20/99	10/26/93	12/08/93	
							DU	SA	SA	SA	SA	SA	
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	ESI	
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1			
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	90 U	88 U	86 U	87 U	420 U	
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	7.5 J	88 UJ	6.6 J	5.9 J	420 U	
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	20 J	88 U	18 J	11 J	420 U	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	90 U	88 U	86 UJ	87 UJ	420 U	
Carbazole	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Chrysene	UG/KG	42	23.9%	400	0	21	88	12 J	88 UJ	8.1 J	5.4 J	420 U	
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	170 J	6.9 J	160	120	420 U	
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	90 UJ	88 UJ	86 UJ	87 UJ	420 U	
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	90 U	88 U	86 U	87 U	420 U	
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	90 U	88 U	86 U	87 U	420 U	
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	90 UJ	2.6 J	86 UJ	87 UJ	420 U	
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	90 U	88 UJ	86 U	87 U	420 U	
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	9.1 J	5.1 J	11 J	7.7 J	420 U	
Fluorene	UG/KG	120	1.1%	50000	0	1	88	90 U	88 U	86 U	87 U	420 U	
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	90 U	88 UJ	86 UJ	87 UJ	420 U	
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Hexachloroethane	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	90 U	88 U	86 U	87 U	420 U	
Isophorone	UG/KG	0	0.0%	4400	0	0	88	90 U	88 U	86 U	87 U	420 U	
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	90 U	88 U	86 U	87 U	420 U	
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	90 U	88 U	86 U	87 U	420 U	
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	90 U	88 UJ	86 U	87 U	420 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	90 U	88 U	86 U	87 U	420 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 U	210 UJ	210 U	210 U	1000 U	
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	5.6 J	88 U	7.4 J	3.7 J	420 U	
Phenol	UG/KG	51	14.8%	30	1	13	88	90 U	7.2 J	86 U	87 U	420 U	
Pyrene	UG/KG	49	48.9%	50000	0	43	88	12 J	8.8 J	12 J	8.4 J	420 U	
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	130 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	130 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	130 U	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-27 SOIL 574041 0 0.2 12/20/99 DU	SS57-27 SOIL 574040 0 0.2 12/20/99 SA	SS57-28 SOIL 574042 0 0.2 12/20/99 SA	SS57-29 SOIL 574043 0 0.2 12/20/99 SA	SS57-3 SOIL SS57-3-1 0 0.2 10/26/93 SA	SS57-3 SOIL SS57-3-2 0 0.2 12/08/93 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	23 U	22 U	22 U	23 U	22 U	22 U
Toxaphene	UG/KG	0	0.0%		0	0	88	230 U	220 U	220 U	230 U	220 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						6.4 U
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						6.4 U
2,4-D	UG/KG	0	0.0%	500	0	0	20						64 U
2,4-DB	UG/KG	0	0.0%		0	0	20						64 U
Dalapon	UG/KG	0	0.0%		0	0	20						160 U
Dicamba	UG/KG	0	0.0%		0	0	20						6.4 U
Dichloroprop	UG/KG	0	0.0%		0	0	20						64 U
Dinoseb	UG/KG	0	0.0%		0	0	20						32 U
MCPA	UG/KG	0	0.0%		0	0	20						6400 U
MCPP	UG/KG	0	0.0%		0	0	20						6400 U
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	16400	15900	12600	14100		17400
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	0.55 UR	0.8 J	0.54 UR	0.8 J		7.7 UJ
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	3	3.1	3.5	4		5 UR
Barium	MG/KG	202	100.0%	300	0	88	88	84.8	81.7	65.3	123		72.6
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.94 J	0.98 J	0.68 J	1.1		0.81
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.05 U	0.05 U	0.05 U	0.04 U		0.48 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	1500	1350	3690	3300		1590
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	23.4 J	22.7	17.6 J	19 J		24.5
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	11.4 J	12.4	9.2 J	10.6 J		9.9
Copper	MG/KG	2930	100.0%	33	9	88	88	14.5	13.9	17.1	17.7		24.8
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.63 U	0.64 U	0.63 U	0.62 U		0.73 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	28300 J	27900	22600 J	26200 J		29100
Lead	MG/KG	1860	100.0%	24.8	12	88	88	21.3	18 J	21.5	18.6		30.9
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3900	3950 J	3340	3260		4510
Manganese	MG/KG	2270	100.0%	1060	9	88	88	677 J	757	346 J	786 J		418
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.1 J	0.08 J	0.08 J	0.09 J		0.06 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	25.5 J	24.7	22.7 J	19.9 J		29.2
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1370	1450	1390	1340		1370

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-30	SS57-30	SS57-31	SS57-32	SS57-33	SS57-34
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574001	574000	574044	574045	574046	574047
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								11/30/99	11/30/99	12/20/99	12/20/99	12/20/99	12/20/99
								DU	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Acetone	UG/KG	350	63.9%	200	23	62	97	280 J	240 J	100 J	160 J	150 J	260 J
Benzene	UG/KG	1	2.1%	60	0	2	97	15 U	17 U	13 U	10 U	15 U	14 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Bromoform	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	15 U	17 U	13 U	10 U	15 U	14 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	15 U	17 U	13 U	10 U	15 U	14 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	15 UJ	17 UJ	13 U	10 U	15 U	14 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	26 J	27 J	13 UJ	12	15 U	23 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Styrene	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	15 U	17 U	13 U	10 U	15 U	14 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	15 U	17 U	11 J	33	26	4 J
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	15 U	17 U	13 U	10 U	15 U	14 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	15 U	17 U	13 U	10 U	15 U	14 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-30 SOIL 574001	SS57-30 SOIL 574000	SS57-31 SOIL 574044	SS57-32 SOIL 574045	SS57-33 SOIL 574046	SS57-34 SOIL 574047
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								11/30/99	11/30/99	12/20/99	12/20/99	12/20/99	12/20/99
								DU	SA	SA	SA	SA	SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	90 U	87 U	90 U	84 U	92 U	88 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	90 U	87 U	90 UJ	84 UJ	9 J	88 UJ
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	90 UJ	87 UJ	90 U	84 U	92 U	88 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	90 U	87 U	90 U	84 U	92 U	88 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	90 U	87 U	90 U	84 U	9.7 J	13 J
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	90 U	87 U	90 UJ	84 UJ	92 U	88 U
Carbazole	UG/KG	0	0.0%		0	0	88	90 UJ	87 UJ	90 U	84 U	92 U	88 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	90 U	87 U	5 J	84 U	5.5 J	4.4 J
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	90 U	87 U	99	110	93	18 J
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	90 U	87 U	90 UJ	84 UJ	92 UJ	88 UJ
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	90 U	87 U	90 U	84 U	92 U	88 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	90 UJ	87 UJ	90 UJ	84 UJ	92 UJ	88 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	90 U	87 UJ	7.4 J	4.8 J	5.4 J	4.5 J
Fluorene	UG/KG	120	1.1%	50000	0	1	88	90 U	87 U	90 U	84 U	92 U	88 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	90 U	87 U	90 UJ	84 UJ	92 U	88 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	90 U	87 UJ	90 U	84 U	92 U	88 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	90 U	87 U	90 U	84 U	92 U	88 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	90 U	87 U	90 U	84 U	92 U	88 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	90 U	87 U	90 U	84 U	92 U	88 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 UJ	210 UJ	220 U	200 U	220 U	210 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	90 U	87 U	90 U	84 U	92 U	88 U
Phenol	UG/KG	51	14.8%	30	1	13	88	90 U	87 U	90 U	84 U	92 U	88 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	90 UJ	87 UJ	7.9 J	5.8 J	4.9 J	4.8 J
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SS57-30 SOIL 574001	SS57-30 SOIL 574000	SS57-31 SOIL 574044	SS57-32 SOIL 574045	SS57-33 SOIL 574046	SS57-34 SOIL 574047
							0	0	0	0	0	0	
							0.2	0.2	0.2	0.2	0.2	0.2	
							11/30/99	11/30/99	12/20/99	12/20/99	12/20/99	12/20/99	
							DU	SA	SA	SA	SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.3 U	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.3 U	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.3 U	2.3 U	2.3 U	2.2 U	2.4 U	2.3 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	23 U	23 U	23 U	22 U	24 U	23 U
Toxaphene	UG/KG	0	0.0%		0	0	88	230 U	230 U	230 U	220 U	240 U	230 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%		0	0	20						
Dalapon	UG/KG	0	0.0%		0	0	20						
Dicamba	UG/KG	0	0.0%		0	0	20						
Dichloroprop	UG/KG	0	0.0%		0	0	20						
Dinoseb	UG/KG	0	0.0%		0	0	20						
MCPA	UG/KG	0	0.0%		0	0	20						
MCPP	UG/KG	0	0.0%		0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	11900	12100	13700	10200	14700	14900
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	0.92 UR	1.2 J	0.56 UR	0.5 UR	0.54 UR	0.59 UR
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.2	5.3 J	3.9	1.6 J	3.7	3.9
Barium	MG/KG	202	100.0%	300	0	88	88	103	115	136	64.7	129	136
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.7 J	0.72 J	0.8 J	0.55 J	0.99 J	1.2 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.06 U	0.07 U	0.05 U	0.05 U	0.05 U	0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	4070	4100	3130	2070	3270	3760
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	16.4	16.8	16.8 J	12 J	18.3 J	20.3 J
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	8 J	11.4 J	6 J	5.4 J	8.6 J	11.1 J
Copper	MG/KG	2930	100.0%	33	9	88	88	21.9	21.6	14.9	10.1	16.8	19.2
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.67 U	0.62 U	0.66 U	0.62 U	0.67 U	0.66 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	20500 J	22400	20300 J	15100 J	24700 J	25300 J
Lead	MG/KG	1860	100.0%	24.8	12	88	88	21.9	22.6	13.8	12.4	16.8	18.3
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3130	3180	3040	2230	3160	3970
Manganese	MG/KG	2270	100.0%	1060	9	88	88	376 J	725 J	246 J	180 J	585 J	772 J
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.1 J	0.11 J	0.1 J	0.11 J	0.08 J	0.13
Nickel	MG/KG	54.1	100.0%	49	4	88	88	18.3	19.1	17.3 J	12 J	18.4 J	24.2 J
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1360 J	1450 J	1140 J	774 J	1290	1420

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-35 SOIL 574048 0 0.2 12/20/99 SA RI PHASE 1 STEP 1	SS57-36 SOIL 574049 0 0.2 12/20/99 SA RI PHASE 1 STEP 1	SS57-37 SOIL 574050 0 0.2 12/20/99 SA RI PHASE 1 STEP 1	SS57-38 SOIL 574051 0 0.2 12/20/99 SA RI PHASE 1 STEP 1	SS57-39 SOIL 574052 0 0.2 12/20/99 SA RI PHASE 1 STEP 1	SS57-4 SOIL SS57-4-1 0 0.2 10/26/93 SA ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatiles Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	310 J	160 J	280 J	210 J	98 J	12 U
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	14 U	14 U	12 U	12 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	14 U	14 U	12 U	12 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	14 U	14 U	12 U	12 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	24	17 J	22 J	19 J	12 UJ	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	13 U	14 U	14 U	12 U	12 U	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	23	6 J	11 J	8 J	5 J	12 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	13 U	14 U	14 U	12 U	12 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	14 U	14 U	12 U	12 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-35 SOIL 574048 0 0.2 12/20/99 SA	SS57-36 SOIL 574049 0 0.2 12/20/99 SA	SS57-37 SOIL 574050 0 0.2 12/20/99 SA	SS57-38 SOIL 574051 0 0.2 12/20/99 SA	SS57-39 SOIL 574052 0 0.2 12/20/99 SA	SEAD-57 SS57-4 SOIL SS57-4-1 0 0.2 10/26/93 SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	7.9 J	10 J	5.5 J	7.5 J	91 UJ	430 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	11 J	84 UJ	94 UJ	89 UJ	91 UJ	470 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Carbazole	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	93 U	6.4 J	7 J	7.2 J	91 UJ	430 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	28 J	30 J	39 J	89 UJ	91 UJ	430 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	93 UJ	84 UJ	94 UJ	89 UJ	91 UJ	430 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	93 UJ	84 UJ	94 UJ	89 UJ	91 UJ	430 U
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	5.9 J	7.6 J	8.6 J	13 J	7.4 J	430 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	93 U	84 U	94 U	89 UJ	91 UJ	430 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 U	200 U	230 U	220 UJ	220 UJ	1000 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	2.9 J	4.3 J	5 J	4.9 J	4.6 J	430 U
Phenol	UG/KG	51	14.8%	30	1	13	88	93 U	84 U	94 U	7 J	4.5 J	430 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	5.5 J	8 J	9.4 J	9 J	5.8 J	430 U
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 UJ	120 UJ	130 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 UJ	120 UJ	130 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 U	120 U	120 UJ	120 UJ	130 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-35	SS57-36	SS57-37	SS57-38	SS57-39	SS57-4
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574048	574049	574050	574051	574052	SS57-4-1
							0	0	0	0	0	0	0
							0.2	0.2	0.2	0.2	0.2	0.2	0.2
							12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	10/26/93
							SA	SA	SA	SA	SA	SA	SA
							RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE		ESI
							1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1		
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.4 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.4 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.4 U	2.2 U	2.4 U	2.3 U	2.4 U	2.2 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	24 U	22 U	24 U	23 U	24 U	22 U
Toxaphene	UG/KG	0	0.0%		0	0	88	240 U	220 U	240 U	230 U	240 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						6.6 U
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						6.6 U
2,4-D	UG/KG	0	0.0%	500	0	0	20						66 U
2,4-DB	UG/KG	0	0.0%		0	0	20						66 U
Dalapon	UG/KG	0	0.0%		0	0	20						160 U
Dicamba	UG/KG	0	0.0%		0	0	20						6.6 U
Dichloroprop	UG/KG	0	0.0%		0	0	20						66 U
Dinoseb	UG/KG	0	0.0%		0	0	20						33 U
MCPA	UG/KG	0	0.0%		0	0	20						6600 U
MCPP	UG/KG	0	0.0%		0	0	20						6600 U
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	13500	12100	16500	11800	15100	13900
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	0.59 UR	0.52 UR	0.61 J	0.59 UR	0.61 UR	11.2 UJ
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.5	4.3	4.9	2 J	4.1	4.2 UR
Barium	MG/KG	202	100.0%	300	0	88	88	187	108	168	83.5	202	168
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	1.2 J	0.93 J	1.5	0.7 J	1.5	0.69 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.05 U	0.05 U	0.06 U	0.05 U	0.06 U	0.7 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	5050	2890	4820	2910	2900	9270
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	18.9 J	16.3 J	21 J	16	20.1	22.5
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	12 J	11.5 J	15	6.9 J	17.1	13.2
Copper	MG/KG	2930	100.0%	33	9	88	88	17	16.7	21.7	14.1	18.7	27.3
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.7 U	0.61 U	0.72 U	0.68 U	0.66 U	0.73 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	23800 J	23000 J	27300 J	20200	27200	26500
Lead	MG/KG	1860	100.0%	24.8	12	88	88	20.1	18	21.7	18.4	18	23.8
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3500	3360	3780	2760	3340	4640
Manganese	MG/KG	2270	100.0%	1060	9	88	88	1220 J	931 J	1540 J	335 J	1990 J	628
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.11 J	0.09	0.11	0.09 J	0.14 J	0.04 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	22.8 J	18.4 J	27.4 J	16.4 J	25.3 J	30.9
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1400	1290	1830	1280 J	1480	1670

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-4	SS57-40	SS57-41	SS57-42	SS57-43	SS57-44
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574054	574053	574054	574055	574056	574057
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/08/93	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99
								SA	SA	SA	SA	SA	SA
								ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								Value (Q)	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Acetone	UG/KG	350	63.9%	200	23	62	97	13 U	180 J	350 J	170 J	93 J	100 J
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	13 U	13 U	12 U	9 U	10 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	13 U	13 U	12 U	9 U	10 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	13 U	13 U	12 U	9 U	10 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	13 U	16 J	26 J	17 J	10	10 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	13 U	13 U	13 U	12 U	9 U	10 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	13 U	7 J	9 J	4 J	2 J	6 J
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	13 U	13 U	13 U	12 U	9 U	10 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	13 U	13 U	12 U	9 U	10 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-4	SS57-40	SS57-41	SS57-42	SS57-43	SS57-44
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								SS57-4-2	574053	574054	574055	574056	574057
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/08/93	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99
								SA	SA	SA	SA	SA	SA
								ESI	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	94 UJ	90 UJ	83 UJ	89 UJ	86 UJ	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Carbazole	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Chrysene	UG/KG	42	23.9%	400	0	21	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	94 UJ	90 UJ	83 UJ	89 UJ	86 UJ	
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	94 UJ	6.2 J	83 UJ	89 UJ	86 U	
Fluorene	UG/KG	120	1.1%	50000	0	1	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 UJ	
Hexachloroethane	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Isophorone	UG/KG	0	0.0%	4400	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	230 UJ	220 UJ	200 UJ	220 UJ	210 U	
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	94 UJ	90 UJ	83 UJ	89 UJ	86 U	
Phenol	UG/KG	51	14.8%	30	1	13	88	94 UJ	5.4 J	3.9 J	4.5 J	86 U	
Pyrene	UG/KG	49	48.9%	50000	0	43	88	94 UJ	4.7 J	83 UJ	89 UJ	86 U	
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88		120 UJ	120 UJ	120 UJ	120 UJ	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88		120 UJ	120 UJ	120 UJ	120 UJ	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88		120 UJ	120 UJ	120 UJ	120 UJ	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-4	SS57-40	SS57-41	SS57-42	SS57-43	SS57-44
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/08/93	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99
								SA	SA	SA	SA	SA	SA
								ESI	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88		2.4 U	2.3 U	2.1 U	2.3 U	2.2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88		2.4 U	2.3 U	2.1 U	2.3 U	2.2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88		2.4 U	2.3 U	2.1 U	2.3 U	2.2 U
Methoxychlor	UG/KG	0	0.0%		0	0	88		24 U	23 U	21 U	23 U	22 U
Toxaphene	UG/KG	0	0.0%		0	0	88		240 U	230 U	210 U	230 U	220 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%		0	0	20						
Dalapon	UG/KG	0	0.0%		0	0	20						
Dicamba	UG/KG	0	0.0%		0	0	20						
Dichloroprop	UG/KG	0	0.0%		0	0	20						
Dinoseb	UG/KG	0	0.0%		0	0	20						
MCPA	UG/KG	0	0.0%		0	0	20						
MCPP	UG/KG	0	0.0%		0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88		16100	13300	11800	11800	11300
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88		0.51 J	0.57 UR	0.53 UR	0.53 UR	0.49 U
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88		3.7	2.5 J	3.2	5.1	4.8
Barium	MG/KG	202	100.0%	300	0	88	88		141	91.9	106	200	115
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88		1.1	0.79 J	0.84 J	1.4	0.88 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88		0.04 U	0.05 U	0.05 U	0.05 U	0.06 J
Calcium	MG/KG	213000	100.0%	121000	1	88	88		3660	3430	2950	3450	2950
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88		20.4	18.2 J	15.4 J	16.2 J	15.2 J
Cobalt	MG/KG	19.2	100.0%	30	0	88	88		8.2 J	8.5 J	7.2 J	15.8	9 J
Copper	MG/KG	2930	100.0%	33	9	88	88		20.8	17.7	15.1	15.8	14.6
Cyanide	MG/KG	0	0.0%	0.35	0	0	88		0.71 U	0.66 U	0.61 U	0.65 U	0.63 U
Iron	MG/KG	44400	100.0%	36500	2	88	88		24600	22800	19000	25000	19600
Lead	MG/KG	1860	100.0%	24.8	12	88	88		12.5	22.1	12.8	17.6	13.3 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88		3310	3150	2970	3420	2910
Manganese	MG/KG	2270	100.0%	1060	9	88	88		406 J	359 J	568 J	2270 J	728
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88		0.1 J	0.13	0.09 J	0.11 J	0.05 U
Nickel	MG/KG	54.1	100.0%	49	4	88	88		25.2 J	21 J	17.2 J	19.6 J	17.1
Potassium	MG/KG	3250	100.0%	2380	1	88	88		1440	1370	1170 J	1190 J	1030 J

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-45	SS57-45	SS57-46	SS57-47	SS57-48	SS57-49
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574059	574058	574060	574061	574062	574063
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
								DU	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Acetone	UG/KG	350	63.9%	200	23	62	97	88 J	97 J	98 J	83 J	230 J	180 J
Benzene	UG/KG	1	2.1%	60	0	2	97	12 U	12 U	13 U	11 U	12 U	13 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Bromoform	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	12 U	12 U	13 U	11 U	12 U	13 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	12 U	12 U	13 U	11 U	12 U	13 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	12 U	12 UJ	13 UJ	9 J	18 J	16 J
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Styrene	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	12 U	12 U	13 U	11 U	12 U	13 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	9 J	5 J	9 J	5 J	6 J	7 J
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	12 U	12 U	13 U	11 U	12 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	12 U	12 U	13 U	11 U	12 U	13 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-45	SS57-45	SS57-46	SS57-47	SS57-48	SS57-49
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574059	574058	574060	574061	574062	574063
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
								DU	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	92 U	90 UJ	86 UJ	82 UJ	92 UJ	5.4 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	92 U	90 UJ	86 U	82 U	92 U	90 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	92 UJ	90 UJ	86 UJ	82 UJ	92 UJ	90 UJ
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	92 U	90 UJ	86 UJ	82 UJ	92 UJ	90 UJ
Carbazole	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 UJ	82 UJ	92 UJ	90 UJ
Chrysene	UG/KG	42	23.9%	400	0	21	88	92 U	90 UJ	86 U	82 U	4.8 J	4.8 J
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	92 UJ	90 UJ	86 UJ	82 UJ	92 UJ	90 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	92 U	90 UJ	86 UJ	82 UJ	8.6 J	7.7 J
Fluorene	UG/KG	120	1.1%	50000	0	1	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	92 UJ	90 UJ	86 UJ	82 UJ	92 UJ	90 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	92 U	90 UJ	86 U	82 U	92 U	90 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	92 U	90 UJ	86 U	82 U	92 U	90 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	220 U	220 UJ	210 U	200 U	220 U	220 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	92 U	90 UJ	86 U	82 U	4.8 J	4.7 J
Phenol	UG/KG	51	14.8%	30	1	13	88	92 U	4.3 J	86 U	82 U	92 U	90 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	4.7 J	90 UJ	86 U	82 U	5.4 J	6.5 J
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	120 U	120 UJ	120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-45	SS57-45	SS57-46	SS57-47	SS57-48	SS57-49
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574059	574058	574060	574061	574062	574063
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
								DU	SA	SA	SA	SA	SA
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.4 U	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.4 U	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.4 U	2.3 U	2.2 U	2.1 U	2.4 U	2.3 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	24 U	23 U	22 U	21 U	24 U	23 U
Toxaphene	UG/KG	0	0.0%		0	0	88	240 U	230 U	220 U	210 U	240 U	230 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20						
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20						
2,4-D	UG/KG	0	0.0%	500	0	0	20						
2,4-DB	UG/KG	0	0.0%		0	0	20						
Dalapon	UG/KG	0	0.0%		0	0	20						
Dicamba	UG/KG	0	0.0%		0	0	20						
Dichloroprop	UG/KG	0	0.0%		0	0	20						
Dinoseb	UG/KG	0	0.0%		0	0	20						
MCPA	UG/KG	0	0.0%		0	0	20						
MCPP	UG/KG	0	0.0%		0	0	20						
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	13400	14900	13100	10600	13200	14200
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	0.51 U	0.57 UR	0.53 J	0.4 U	0.58 J	0.53 U
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	2.8	2.2 J	3.6	3.5	4	5
Barium	MG/KG	202	100.0%	300	0	88	88	132	131	107	92.9	117	130
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.79 J	0.86 J	0.81 J	0.67 J	0.81 J	1 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	2.9	0.05 U	0.04 U	0.04 U	0.96 J	0.05 U
Calcium	MG/KG	213000	100.0%	121000	1	88	88	3230	3660	3260	2790	3740	3170
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	16.7 J	18.2 J	15.9 J	13.6 J	17.2 J	18.2 J
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	6.2 J	6.3 J	6.3 J	6.5 J	7 J	9.4 J
Copper	MG/KG	2930	100.0%	33	9	88	88	16.4	15.9	14	16.2	19.2	18.1
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.62 U	0.62 U	0.66 U	0.59 U	0.69 U	0.69 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	18800	24600	18800	16900	19800	24100
Lead	MG/KG	1860	100.0%	24.8	12	88	88	25.5 J	13.1	12.2 J	9.8 J	23.3 J	17.7 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3040	3670	3040	2450	3200	2930
Manganese	MG/KG	2270	100.0%	1060	9	88	88	224 J	245 J	335	352	298	710
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.07 UJ	0.12	0.07 U	0.06 U	0.07 J	0.07 U
Nickel	MG/KG	54.1	100.0%	49	4	88	88	19.1	26.3 J	16.9	16.1	19.2	19.2
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1110 J	1220 J	1070	887 J	1300	1210

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-5	SS57-5	SS57-50	SS57-51	SS57-52	SS57-53
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								SS57-5-1	SS57-5-2	574064	574065	574066	574067
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								10/26/93	12/08/93	12/21/99	12/21/99	12/21/99	12/21/99
								SA	SA	SA	SA	SA	SA
							ESI	ESI	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Acetone	UG/KG	350	63.9%	200	23	62	97	14 U	15 U	200 J	190 J	230 J	220 J
Benzene	UG/KG	1	2.1%	60	0	2	97	14 U	15 U	14 U	16 U	14 U	15 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Bromoform	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	14 U	15 U	14 U	16 U	14 U	15 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	14 U	15 U	14 U	16 U	14 U	15 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	14 U	15 U	16	18	22	18
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Styrene	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	2 J	15 U	14 U	16 U	14 U	15 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	14 U	15 U	13 J	7 J	23	29
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	14 U	15 U	14 U	16 U	14 U	15 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	14 U	15 U	14 U	16 U	14 U	15 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-5	SS57-5	SS57-50	SS57-51	SS57-52	SS57-53
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								SS57-5-1	SS57-5-2	574064	574065	574066	574067
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								10/26/93	12/08/93	12/21/99	12/21/99	12/21/99	12/21/99
								SA	SA	SA	SA	SA	SA
								ESI	ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE
										1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	470 U		94 U	100 U	96 U	100 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	470 U		5.7 J	100 U	8.5 J	7.2 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	470 U		94 U	100 U	96 U	100 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	470 U		94 U	100 U	96 U	100 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68			94 U	100 U	96 U	100 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	580 U		94 UJ	100 UJ	96 UJ	100 UJ
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	470 U		94 UJ	100 UJ	96 UJ	100 UJ
Carbazole	UG/KG	0	0.0%		0	0	88	470 U		94 UJ	100 U	96 U	100 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	470 U		5.3 J	100 U	8.3 J	9.2 J
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	470 U		94 U	100 U	96 U	100 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	470 U		94 U	100 U	96 U	2.6 J
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	470 U		94 U	100 U	96 U	100 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	470 U		94 U	100 U	96 U	100 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	470 U		94 UJ	100 UJ	96 UJ	100 UJ
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	470 U		94 U	100 U	96 U	100 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	470 U		9.2 J	9.2 J	12 J	14 J
Fluorene	UG/KG	120	1.1%	50000	0	1	88	470 U		94 U	100 U	96 U	100 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	470 U		94 U	100 U	96 U	100 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	470 U		94 U	100 U	96 U	100 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	470 U		94 UJ	100 UJ	96 UJ	100 UJ
Hexachloroethane	UG/KG	0	0.0%		0	0	88	470 U		94 U	100 U	96 U	100 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	470 U		94 U	100 U	96 U	100 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	470 U		94 U	100 U	96 U	100 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	470 U		94 U	100 U	96 U	100 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	470 U		94 U	100 UJ	96 UJ	100 UJ
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	470 U		94 U	100 U	96 U	100 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	470 U		94 U	100 U	96 U	100 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	1100 U		230 U	250 UJ	230 UJ	240 UJ
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	470 U		4.7 J	5.5 J	7.2 J	7.8 J
Phenol	UG/KG	51	14.8%	30	1	13	88	470 U		94 U	100 U	96 U	100 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	470 U		6.6 J	7.6 J	10 J	10 J
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	130 U		120 U	120 U	120 U	120 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-5 SOIL SS57-5-1 0 0.2 10/26/93 SA	SEAD-57 SS57-5 SOIL SS57-5-2 0 0.2 12/08/93 SA	SEAD-57 SS57-50 SOIL 574064 0 0.2 12/21/99 SA	SEAD-57 SS57-51 SOIL 574065 0 0.2 12/21/99 SA	SEAD-57 SS57-52 SOIL 574066 0 0.2 12/21/99 SA	SEAD-57 SS57-53 SOIL 574067 0 0.2 12/21/99 SA
								ESI	ESI	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.4 U	2.4 U	2.4 U	2.6 U	2.5 U	2.6 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.4 U	2.4 U	2.6 U	2.6 U	2.5 U	2.6 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.4 U	2.4 U	2.6 U	2.6 U	2.5 U	2.6 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	24 U	24 U	26 U	26 U	25 U	26 U
Toxaphene	UG/KG	0	0.0%		0	0	88	240 U	240 U	260 U	260 U	250 U	260 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20	7.2 U					
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20	7.2 U					
2,4-D	UG/KG	0	0.0%	500	0	0	20	72 U					
2,4-DB	UG/KG	0	0.0%		0	0	20	72 U					
Dalapon	UG/KG	0	0.0%		0	0	20	180 U					
Dicamba	UG/KG	0	0.0%		0	0	20	7.2 U					
Dichloroprop	UG/KG	0	0.0%		0	0	20	72 U					
Dinoseb	UG/KG	0	0.0%		0	0	20	36 U					
MCPA	UG/KG	0	0.0%		0	0	20	7200 U					
MCPP	UG/KG	0	0.0%		0	0	20	7200 U					
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	14000		14100	14200	12600	12600
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	11.1 UJ	0.44 U	0.57 U	0.63 J	0.47 U	0.47 U
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	3.9 UR	4.8	6.6 J	4.5 J	4.2 J	4.2 J
Barium	MG/KG	202	100.0%	300	0	88	88	110	119	164	115	110	110
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.68 J	0.92 J	1.4	0.84 J	0.87 J	0.87 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.69 U	0.04 U	0.05 U	0.49 J	2.2	2.2
Calcium	MG/KG	213000	100.0%	121000	1	88	88	4440	3420	5030	3800	4370	4370
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	17.8	17.9 J	21.9 J	17.9 J	18.7 J	18.7 J
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	5.9 J	7.7 J	19.2	8.3 J	8.8 J	8.8 J
Copper	MG/KG	2930	100.0%	33	9	88	88	19.8	18.6	27.8	22.5	24.9	24.9
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.78 U	0.64 U	0.77 U	0.7 U	0.74 U	0.74 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	18900	22700	30800	20000	22000	22000
Lead	MG/KG	1860	100.0%	24.8	12	88	88	26.3	19.2 J	24.8 J	21.5 J	33 J	33 J
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3220	3290	3650	2960	3760	3760
Manganese	MG/KG	2270	100.0%	1060	9	88	88	297	404	1670	392	487	487
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.08 J	0.06 U	0.07 U	0.07 U	0.07 J	0.07 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	17.9	18.7	26.3	21.9	27.2	27.2
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1660	1220	1530	1460	1430	1430

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-6 SOIL SS57-6-1 0 0.2 10/26/93 SA	SS57-6 SOIL SS57-6-2 0 0.2 12/08/93 SA	SS57-7 SOIL SS57-7-1 0 0.2 10/26/93 SA	SS57-7 SOIL SS57-7-2 0 0.2 12/08/93 SA	SS57-8 SOIL SS57-8-1 0 0.2 10/26/93 SA	SS57-8 SOIL SS57-8-2 0 0.2 12/08/93 SA
								ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	13 U	14 U	11 U	11 U	11 U	12 U
Benzene	UG/KG	1	2.1%	60	0	2	97	13 U	14 U	11 U	11 U	11 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	13 U	14 U	11 U	11 U	11 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	13 U	14 U	11 U	11 U	11 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	13 U	14 U	11 U	11 U	11 U	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	1 J	14 U	11 U	11 U	6 J	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	13 U	14 U	11 U	11 U	11 U	12 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	13 U	14 U	11 U	11 U	11 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	13 U	14 U	11 U	11 U	11 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-6 SOIL	SS57-6 SOIL	SS57-7 SOIL	SS57-7 SOIL	SS57-8 SOIL	SS57-8 SOIL
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93
								SA	SA	SA	SA	SA	SA
								ESI	ESI	ESI	ESI	ESI	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	420 U		360 U		360 UR	
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	420 U		360 U		360 UR	
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68					360 UR	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	420 U		360 U		360 UR	
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	420 U		360 U		360 UR	
Carbazole	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Chrysene	UG/KG	42	23.9%	400	0	21	88	420 U		360 U		360 UR	
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	420 U		18 J		360 UR	
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	420 U		360 U		360 UR	
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	420 U		360 U		360 UR	
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	420 U		360 U		360 UR	
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	420 U		360 U		360 UR	
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	420 U		360 U		360 UR	
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	29 J		26 J		360 UR	
Fluorene	UG/KG	120	1.1%	50000	0	1	88	420 U		360 U		360 UR	
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	420 U		360 U		360 UR	
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Hexachloroethane	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	420 U		360 U		360 UR	
Isophorone	UG/KG	0	0.0%	4400	0	0	88	420 U		360 U		360 UR	
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	420 U		360 U		360 UR	
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	420 U		360 U		360 UR	
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	420 U		360 U		360 UR	
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	420 U		360 U		360 UR	
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	1000 U		880 U		860 UR	
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	420 U		20 J		360 UR	
Phenol	UG/KG	51	14.8%	30	1	13	88	420 U		360 U		360 UR	
Pyrene	UG/KG	49	48.9%	50000	0	43	88	23 J		20 J		360 UR	
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		130 U		130 U	
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		130 U		130 U	
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	130 U		130 U		130 U	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-6	SS57-6	SS57-7	SS57-7	SS57-8	SS57-8
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								0	0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2	0.2
								10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93
								SA	SA	SA	SA	SA	SA
								ESI	ESI	ESI	ESI	ESI	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2.2 U		1.9 U		1.8 U	
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2.2 U		1.9 U		1.8 U	
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2.2 U		2 J		1.8 U	
Methoxychlor	UG/KG	0	0.0%		0	0	88	22 U		19 U		18 U	
Toxaphene	UG/KG	0	0.0%		0	0	88	220 U		190 U		180 U	
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20	6.5 U		5.5 U		5.4 U	
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20	6.5 U		5.5 U		5.4 U	
2,4-D	UG/KG	0	0.0%	500	0	0	20	65 U		55 U		54 U	
2,4-DB	UG/KG	0	0.0%		0	0	20	65 U		55 U		54 U	
Dalapon	UG/KG	0	0.0%		0	0	20	160 U		140 U		130 U	
Dicamba	UG/KG	0	0.0%		0	0	20	6.5 U		5.5 U		5.4 U	
Dichloroprop	UG/KG	0	0.0%		0	0	20	65 U		55 U		54 U	
Dinoseb	UG/KG	0	0.0%		0	0	20	33 U		28 U		27 U	
MCPA	UG/KG	0	0.0%		0	0	20	6500 U		5500 U		5400 U	
MCPP	UG/KG	0	0.0%		0	0	20	6500 U		5500 U		5400 U	
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	13500		12600		3940	
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	12.1 UJ		10.1 UJ		10.1 UJ	
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	122 UR		4.2 UR		4 UR	
Barium	MG/KG	202	100.0%	300	0	88	88	83.7		64.2		25.5 J	
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.64 J		0.61 J		0.33 J	
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.76 U		0.63 U		0.63 U	
Calcium	MG/KG	213000	100.0%	121000	1	88	88	2790		24300		213000	
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	18.9		24.3		7.4	
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	9.3 J		13.2		7.8 J	
Copper	MG/KG	2930	100.0%	33	9	88	88	17.4		33.4		12	
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.78 U		0.64 U		0.62 U	
Iron	MG/KG	44400	100.0%	36500	2	88	88	21700		28400		7540	
Lead	MG/KG	1860	100.0%	24.8	12	88	88	30.2		18.4		9.5	
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	3230		6660		11600	
Manganese	MG/KG	2270	100.0%	1060	9	88	88	464		347		401	
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.07 J		0.02 J		0.04 U	
Nickel	MG/KG	54.1	100.0%	49	4	88	88	19.8		46		17.2	
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1650		1550		1210	

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-9 SOIL SS57-9-1 0 0.2 10/26/93 SA	SS57-9 SOIL SS57-9-2 0 0.2 12/08/93 SA	TP57-1 SOIL TP57-1 3 3 11/08/93 SA	TP57-10 SOIL TP57-10 3 3 12/02/93 SA	TP57-11 SOIL TP57-11 3 3 11/08/93 SA	TP57-2 SOIL TP57-2 3 3 12/02/93 SA
								ESI	ESI	ESI	ESI	ESI	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	11 U	11 U	13 U	4 J	11 U	20
Benzene	UG/KG	1	2.1%	60	0	2	97	11 U	11 U	13 U	12 U	11 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	11 U	11 U	13 U	12 U	11 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	11 U	11 U	13 U	12 U	11 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	11 U	11 U	13 U	12 U	11 U	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U	11 U	13 U	12 U	11 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	1 J	11 U	13 U	12 U	11 U	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	11 U	11 U	13 U	12 U	11 U	12 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	11 U	11 U	13 U	12 U	11 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	11 U	11 U	13 U	12 U	11 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-9 SOIL SS57-9-1 0 0.2 10/26/93 SA	SEAD-57 SS57-9 SOIL SS57-9-2 0 0.2 12/08/93 SA	TP57-1 SOIL TP57-1 3 3 11/08/93 SA	TP57-10 SOIL TP57-10 3 3 12/02/93 SA	TP57-11 SOIL TP57-11 3 3 11/08/93 SA	TP57-2 SOIL TP57-2 3 3 12/02/93 SA
								ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	350 U		360 U	390 U	410 U	2000 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	20 J		360 U	390 U	410 U	2000 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68						
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	350 U		360 U	390 U	410 U	2000 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	350 U		360 U	390 U	410 U	2000 U
Carbazole	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	42 J		360 U	390 U	410 U	2000 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	35 J		360 U	390 U	410 U	390 J
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	350 U		360 U	390 U	410 U	2000 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	350 U		360 U	390 U	410 U	2000 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	350 U		360 U	390 U	410 U	2000 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	350 U		360 U	390 U	410 U	2000 U
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	350 U		360 U	390 U	410 U	2000 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	56 J		360 U	390 U	410 U	2000 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	350 U		360 U	390 U	410 U	120 J
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	350 U		360 U	390 U	410 U	2000 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	350 U		360 U	390 U	410 U	2000 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	350 U		360 U	390 U	410 U	2000 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	350 U		360 U	390 U	410 U	2000 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	350 U		360 U	390 U	410 U	2000 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	350 U		360 U	390 U	410 U	180 J
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	350 U		360 U	390 U	410 U	2000 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	860 U		880 U	940 U	990 U	4900 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	36 J		360 U	390 U	410 U	230 J
Phenol	UG/KG	51	14.8%	30	1	13	88	350 U		360 U	390 U	410 U	2000 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	49 J		360 U	390 U	410 U	2000 U
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U		130 U	130 U	130 U	130 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	130 U		130 U	130 U	130 U	130 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SS57-9 SOIL SS57-9-1 0 0.2 10/26/93 SA	SEAD-57 SOIL SS57-9-2 0 0.2 12/08/93 SA	TP57-1 SOIL TP57-1 3 3 11/08/93 SA	TP57-10 SOIL TP57-10 3 3 12/02/93 SA	TP57-11 SOIL TP57-11 3 3 11/08/93 SA	TP57-2 SOIL TP57-2 3 3 12/02/93 SA
								ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)	ESI Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	1.8 UJ		1.9 U	2 U	2.1 U	2.1 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	1.8 UJ		1.9 U	2 U	2.1 U	2.1 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	1.8 UJ		1.9 U	2 U	2.1 U	2.1 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	18 UJ		19 U	20 U	21 U	21 U
Toxaphene	UG/KG	0	0.0%		0	0	88	180 UJ		190 U	200 U	210 U	210 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20	5.4 U		5.5 U	6 UJ	6.2 U	6.2 U
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20	5.4 U		5.5 U	6 UJ	6.2 U	6.2 U
2,4-D	UG/KG	0	0.0%	500	0	0	20	54 U		55 U	60 UJ	62 U	62 U
2,4-DB	UG/KG	0	0.0%		0	0	20	54 U		55 U	60 UJ	62 U	62 U
Dalapon	UG/KG	0	0.0%		0	0	20	130 U		140 U	150 UJ	150 U	150 U
Dicamba	UG/KG	0	0.0%		0	0	20	5.4 U		5.5 U	6 UJ	6.2 U	6.2 U
Dichloroprop	UG/KG	0	0.0%		0	0	20	54 U		55 U	60 UJ	62 U	62 U
Dinoseb	UG/KG	0	0.0%		0	0	20	27 UJ		28 U	30 UJ	31 U	31 U
MCPA	UG/KG	0	0.0%		0	0	20	5400 U		5500 U	6000 UJ	6200 U	6200 U
MCPP	UG/KG	0	0.0%		0	0	20	5400 U		5500 U	6000 UJ	6200 U	6200 U
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	10300		10700	12600	14600	17300
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	10.7 UJ		6.4 UJ	3.6 U	11.3 UJ	4.5 U
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	5.6 R		4.9	6.8	5.9	9.5
Barium	MG/KG	202	100.0%	300	0	88	88	56.5		58.7	97.5	120	82.7
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.59 J		0.56 J	0.55 J	0.81 J	0.81 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.67 U		0.4 U	0.35 UR	0.71 U	0.44 UR
Calcium	MG/KG	213000	100.0%	121000	1	88	88	104000		16600	33000	22300	19200
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	20.7		20.5	17.1	20.1	29.9
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	10.6		12.1	8.7	8.8 J	13.7
Copper	MG/KG	2930	100.0%	33	9	88	88	47		34.3	22.4 J	21.7	2930 J
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.61 U		0.52 U	0.71 U	0.54 U	0.68 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	23000		24700	20500	24900	35700
Lead	MG/KG	1860	100.0%	24.8	12	88	88	42.4		28.2	10.9	11.3	1860
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	9650		5050	6400	5360	8930
Manganese	MG/KG	2270	100.0%	1060	9	88	88	356		392	387 J	329	463 J
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.04 J		0.03 J	0.03 J	0.04 J	0.06 J
Nickel	MG/KG	54.1	100.0%	49	4	88	88	38.7		45	24.5	25.7	51.6
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1570		898	1680	1430	2080

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								TP57-3	TP57-4	TP57-5	TP57-6	TP57-7	TP57-8
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								3	3	3	3	3	3
								3	3	3	3	3	3
								11/09/93	11/09/93	12/02/93	12/02/93	12/02/93	12/02/93
								SA	SA	SA	SA	SA	SA
								ESI	ESI	ESI	ESI	ESI	ESI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	12 U	11 U	15	23	6 J	12 U
Benzene	UG/KG	1	2.1%	60	0	2	97	12 U	11 U	13 U	12 U	12 U	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	12 U	11 U	13 U	12 U	12 U	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	12 U	11 U	13 U	12 U	12 U	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	12 U	11 U	13 U	12 U	12 U	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Styrene	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	12 U	11 U	13 U	12 U	12 U	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	12 U	11 U	13 U	12 U	12 U	12 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	12 U	11 U	13 U	12 U	12 U	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	12 U	11 U	13 U	12 U	12 U	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57					
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	ESI	ESI	ESI	ESI	ESI	ESI
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	370 U	370 U	410 U	430 U	390 U	380 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	370 U	370 U	410 U	430 U	390 U	380 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68						
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	370 U	370 U	410 U	430 U	390 U	380 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Carbazole	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	370 U	25 J	410 U	430 U	390 U	380 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	370 U	370 U	410 U	430 U	390 U	380 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	370 U	370 U	410 U	430 U	390 U	380 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	370 U	370 U	410 U	430 U	390 U	380 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	370 U	370 U	410 U	430 U	390 U	380 U
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	370 U	34 J	410 U	430 U	390 U	380 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	370 U	370 U	410 U	430 U	390 U	380 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	370 U	370 U	410 U	430 U	390 U	380 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	370 U	370 U	410 U	430 U	390 U	380 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	370 U	370 U	410 U	430 U	390 U	380 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	370 U	370 U	410 U	430 U	390 U	380 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	900 U	900 U	1000 U	1000 U	950 U	930 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	370 U	20 J	410 U	430 U	390 U	380 U
Phenol	UG/KG	51	14.8%	30	1	13	88	370 U	370 U	410 U	430 U	390 U	380 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	370 U	33 J	410 U	430 U	390 U	380 U
Explosives													
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U	130 U	130 U	130 U	130 U	130 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	130 U	130 U	130 U	130 U	130 U	130 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
		Maximum	Frequency of	Criteria	Number of	Number of	Number of	TP57-3	TP57-4	TP57-5	TP57-6	TP57-7	TP57-8
		Detect	Detection	Value(1)	Exceedences	Detections	Samples	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	1.9 U	1.9 U	2.1 U	2.2 U	2 U	2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	1.9 U	1.9 U	2.1 U	2.2 U	2 U	2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	1.9 U	1.9 U	2.1 U	2.2 U	2 U	2 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	19 U	19 U	21 U	22 U	20 U	20 U
Toxaphene	UG/KG	0	0.0%		0	0	88	190 U	190 U	210 U	220 U	200 U	200 U
Herbicides													
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20	5.6 UR	5.7 UR	6.3 U	6.6 U	6 U	5.8 U
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20	5.6 UR	5.7 UR	6.3 U	6.6 U	6 U	5.8 U
2,4-D	UG/KG	0	0.0%	500	0	0	20	56 UR	57 UR	63 U	66 U	60 U	58 U
2,4-DB	UG/KG	0	0.0%		0	0	20	56 UR	57 UR	63 U	66 U	60 U	58 U
Dalapon	UG/KG	0	0.0%		0	0	20	140 UR	140 UR	150 U	160 U	150 U	140 U
Dicamba	UG/KG	0	0.0%		0	0	20	5.6 UR	5.7 UR	6.3 U	6.6 U	6 U	5.8 U
Dichloroprop	UG/KG	0	0.0%		0	0	20	56 UR	57 UR	63 U	66 U	60 U	58 U
Dinoseb	UG/KG	0	0.0%		0	0	20	28 UR	29 UR	32 U	33 U	30 U	29 U
MCPA	UG/KG	0	0.0%		0	0	20	5600 UR	5700 UR	6300 U	6600 U	6000 U	5800 U
MCPP	UG/KG	0	0.0%		0	0	20	5600 UR	5700 UR	6300 U	6600 U	6000 U	5800 U
Metals and Cyanide													
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	10800	16900	22000	22900	18300	15700
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	8.9 UJ	8.7 UJ	4.3 U	5.8 J	4.9 U	6.5 J
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	4.8	4.2	9.6	7.5	8.5	4.8
Barium	MG/KG	202	100.0%	300	0	88	88	62.8	90.1	114	174	144	113
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.61 J	0.91	1.1	1 J	0.87 J	0.77 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.55 U	0.54 U	0.42 UR	0.53 UR	0.48 UR	0.36 UR
Calcium	MG/KG	213000	100.0%	121000	1	88	88	15300	22400	4380	15200	18700	67000
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	20.2	28.9	34.5	30.8	24.2	25
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	10.4	13.3	19	9.4 J	12.8	12.2
Copper	MG/KG	2930	100.0%	33	9	88	88	32.2	39.2	34.2 J	26.8 J	19.7 J	25.4 J
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.48 U	0.49 U	0.74 U	0.74 U	0.67 U	0.63 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	24300	30500	44400	30200	29300	27600
Lead	MG/KG	1860	100.0%	24.8	12	88	88	60.9	19.5	23.1	21.9	14.7	14.9
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	4920	7890	6860	6640	6060	10000
Manganese	MG/KG	2270	100.0%	1060	9	88	88	350	472	550 J	247 J	818 J	500 J
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.05 J	0.05 J	0.05 J	0.04 J	0.05 J	0.03 U
Nickel	MG/KG	54.1	100.0%	49	4	88	88	38.1	54.1	52.9	37.3	31.8	40.1
Potassium	MG/KG	3250	100.0%	2380	1	88	88	935	2110	2210	3250	2190	1910

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57
TP57-9
SOIL
TP57-9
3
3
12/02/93
SA

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESI
								Value (Q)
Volatile Organics								
1,1,1-Trichloroethane	UG/KG	0	0.0%	800	0	0	97	12 U
1,1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	600	0	0	97	12 U
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	97	12 U
1,1-Dichloroethane	UG/KG	0	0.0%	200	0	0	97	12 U
1,1-Dichloroethene	UG/KG	0	0.0%	400	0	0	97	12 U
1,2-Dichloroethane	UG/KG	0	0.0%	100	0	0	97	12 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	97	12 U
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	97	12 U
Acetone	UG/KG	350	63.9%	200	23	62	97	12 U
Benzene	UG/KG	1	2.1%	60	0	2	97	12 U
Bromodichloromethane	UG/KG	0	0.0%		0	0	97	12 U
Bromoform	UG/KG	0	0.0%		0	0	97	12 U
Carbon disulfide	UG/KG	22	7.2%	2700	0	7	97	12 U
Carbon tetrachloride	UG/KG	0	0.0%	600	0	0	97	12 U
Chlorobenzene	UG/KG	0	0.0%	1700	0	0	97	12 U
Chlorodibromomethane	UG/KG	0	0.0%		0	0	97	12 U
Chloroethane	UG/KG	0	0.0%	1900	0	0	97	12 U
Chloroform	UG/KG	7	1.0%	300	0	1	97	12 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U
Ethyl benzene	UG/KG	0	0.0%	5500	0	0	97	12 U
Methyl bromide	UG/KG	0	0.0%		0	0	97	12 U
Methyl butyl ketone	UG/KG	0	0.0%		0	0	97	12 U
Methyl chloride	UG/KG	0	0.0%		0	0	97	12 U
Methyl ethyl ketone	UG/KG	35	47.4%	300	0	46	97	12 U
Methyl isobutyl ketone	UG/KG	0	0.0%	1000	0	0	97	12 U
Methylene chloride	UG/KG	0	0.0%	100	0	0	97	12 U
Styrene	UG/KG	0	0.0%		0	0	97	12 U
Tetrachloroethene	UG/KG	6	7.2%	1400	0	7	97	12 U
Toluene	UG/KG	33	50.5%	1500	0	49	97	12 U
Total Xylenes	UG/KG	2	3.1%	1200	0	3	97	12 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	97	12 U
Trichloroethene	UG/KG	0	0.0%	700	0	0	97	12 U
Vinyl chloride	UG/KG	0	0.0%	200	0	0	97	12 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57
TP57-9
SOIL
TP57-9
3
3
12/02/93
SA

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESI
								Value (Q)
Benzo(ghi)perylene	UG/KG	10	8.0%	50000	0	7	88	380 U
Benzo(k)fluoranthene	UG/KG	20	18.2%	1100	0	16	88	380 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	88	380 U
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	88	380 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	68	
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	13.6%	50000	0	12	88	380 U
Butylbenzylphthalate	UG/KG	0	0.0%	50000	0	0	88	380 U
Carbazole	UG/KG	0	0.0%		0	0	88	380 U
Chrysene	UG/KG	42	23.9%	400	0	21	88	380 U
Di-n-butylphthalate	UG/KG	390	22.7%	8100	0	20	88	380 U
Di-n-octylphthalate	UG/KG	2.6	1.1%	50000	0	1	88	380 U
Dibenz(a,h)anthracene	UG/KG	6.4	2.3%	14	0	2	88	380 U
Dibenzofuran	UG/KG	0	0.0%	6200	0	0	88	380 U
Diethyl phthalate	UG/KG	8.8	2.3%	7100	0	2	88	380 U
Dimethylphthalate	UG/KG	0	0.0%	2000	0	0	88	380 U
Fluoranthene	UG/KG	56	46.6%	50000	0	41	88	380 U
Fluorene	UG/KG	120	1.1%	50000	0	1	88	380 U
Hexachlorobenzene	UG/KG	0	0.0%	410	0	0	88	380 U
Hexachlorobutadiene	UG/KG	0	0.0%		0	0	88	380 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%		0	0	88	380 U
Hexachloroethane	UG/KG	0	0.0%		0	0	88	380 U
Indeno(1,2,3-cd)pyrene	UG/KG	9.8	8.0%	3200	0	7	88	380 U
Isophorone	UG/KG	0	0.0%	4400	0	0	88	380 U
N-Nitrosodiphenylamine	UG/KG	75	2.3%		0	2	88	380 U
N-Nitrosodipropylamine	UG/KG	0	0.0%		0	0	88	380 U
Naphthalene	UG/KG	180	1.1%	13000	0	1	88	380 U
Nitrobenzene	UG/KG	0	0.0%	200	0	0	88	380 U
Pentachlorophenol	UG/KG	0	0.0%	1000	0	0	88	920 U
Phenanthrene	UG/KG	230	33.0%	50000	0	29	88	380 U
Phenol	UG/KG	51	14.8%	30	1	13	88	380 U
Pyrene	UG/KG	49	48.9%	50000	0	43	88	380 U
Explosives								
1,3,5-Trinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U
1,3-Dinitrobenzene	UG/KG	0	0.0%		0	0	88	130 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%		0	0	88	130 U

**Table F-7
SOIL SAMPLE RESULTS:
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57
TP57-9
SOIL
TP57-9
3
3
12/02/93
SA

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value(1)	Number of Exceedences	Number of Detections	Number of Samples	ESI
								Value (Q)
Gamma-Chlordane	UG/KG	0	0.0%	540	0	0	88	2 U
Heptachlor	UG/KG	0	0.0%	100	0	0	88	2 U
Heptachlor epoxide	UG/KG	2	1.1%	20	0	1	88	2 U
Methoxychlor	UG/KG	0	0.0%		0	0	88	20 U
Toxaphene	UG/KG	0	0.0%		0	0	88	200 U
Herbicides								
2,4,5-T	UG/KG	0	0.0%	1900	0	0	20	5.8 U
2,4,5-TP/Silvex	UG/KG	0	0.0%	700	0	0	20	5.8 U
2,4-D	UG/KG	0	0.0%	500	0	0	20	58 U
2,4-DB	UG/KG	0	0.0%		0	0	20	58 U
Dalapon	UG/KG	0	0.0%		0	0	20	140 U
Dicamba	UG/KG	0	0.0%		0	0	20	5.8 U
Dichloroprop	UG/KG	0	0.0%		0	0	20	58 U
Dinoseb	UG/KG	0	0.0%		0	0	20	29 U
MCPA	UG/KG	0	0.0%		0	0	20	5800 U
MCPP	UG/KG	0	0.0%		0	0	20	5800 U
Metals and Cyanide								
Aluminum	MG/KG	22900	100.0%	19300	2	88	88	10300
Antimony	MG/KG	6.5	44.3%	5.9	1	39	88	3.5 U
Arsenic	MG/KG	9.6	88.6%	8.2	4	78	88	8.6
Barium	MG/KG	202	100.0%	300	0	88	88	70.8
Beryllium	MG/KG	1.5	100.0%	1.1	9	88	88	0.49 J
Cadmium	MG/KG	6	8.0%	2.3	2	7	88	0.34 UR
Calcium	MG/KG	213000	100.0%	121000	1	88	88	84000
Chromium	MG/KG	34.5	100.0%	29.6	4	88	88	16.5
Cobalt	MG/KG	19.2	100.0%	30	0	88	88	8
Copper	MG/KG	2930	100.0%	33	9	88	88	22.6 J
Cyanide	MG/KG	0	0.0%	0.35	0	0	88	0.62 U
Iron	MG/KG	44400	100.0%	36500	2	88	88	19900
Lead	MG/KG	1860	100.0%	24.8	12	88	88	16.2
Magnesium	MG/KG	27600	100.0%	21500	1	88	88	27600
Manganese	MG/KG	2270	100.0%	1060	9	88	88	323 J
Mercury	MG/KG	0.14	84.1%	0.1	15	74	88	0.02 U
Nickel	MG/KG	54.1	100.0%	49	4	88	88	29.8
Potassium	MG/KG	3250	100.0%	2380	1	88	88	1350

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-1	SW57-10	SW57-10	SW57-11	SW57-11	SW57-13
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571035	571031	571030	571008	571007	571001
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/11/00	01/10/00	01/10/00	01/06/00	01/06/00	01/04/00
								SA	DU	SA	DU	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	3	7.4%		0	2	27	5 U	3 J	2.6 J	5 UJ	5 U	5 U
Acrylonitrile	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-1	SW57-10	SW57-10	SW57-11	SW57-11	SW57-13
								SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
								571035	571031	571030	571008	571007	571001
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/11/00	01/10/00	01/10/00	01/06/00	01/06/00	01/04/00
								SA	DU	SA	DU	SA	SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Trichlorofluoromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Semivolatile Organics													
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%	0	0	0	27	2.6 U	2.6 U	2.6 U	2.5 U	2.6 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0.0%	1	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0.0%	1000	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0.0%	400	0	0	27	2.6 UR	2.6 UR	2.6 UR	2.5 U	2.6 UR	2.6 UR
2,4-Dinitrotoluene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0.0%	4.7	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0.0%	0	0	0	27	2.6 U	2.6 U	2.6 U	2.5 U	2.6 U	2.6 U
2-Nitrophenol	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
3-Nitroaniline	UG/L	0	0.0%	0	0	0	27	2.6 UJ	2.6 U	2.6 U	2.5 U	2.6 U	2.6 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%	0	0	0	27	2.6 UJ	2.6 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.6 UJ
4-Bromophenyl phenyl ether	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%	0	0	0	27	1.1 UJ	1 U	1.1 U	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0.091	7.4%	0	0	2	27	1.1 U	1 U	1.1 U	0.088 J	0.091 J	1 U
4-Nitroaniline	UG/L	0	0.0%	0	0	0	27	2.6 UJ	2.6 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.6 UJ
4-Nitrophenol	UG/L	0	0.0%	0	0	0	27	2.6 UR	2.6 UR	2.6 UR	2.5 UR	2.6 UR	2.6 UR
Acenaphthene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%	0	0	0	27	1.1 U	1 U	1.1 U	1 U	1 U	1 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57 SW57-1 SURFACE WATER 571035		SEAD-57 SW57-10 SURFACE WATER 571031		SEAD-57 SW57-10 SURFACE WATER 571030		SEAD-57 SW57-11 SURFACE WATER 571008		SEAD-57 SW57-11 SURFACE WATER 571007		SEAD-57 SW57-13 SURFACE WATER 571001	
		Maximum Detect	Frequency of Detection	Maximum Detect	Frequency of Detection	Maximum Detect	Frequency of Detection	Maximum Detect	Frequency of Detection	Maximum Detect	Frequency of Detection	Maximum Detect	Frequency of Detection
2-Nitrotoluene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
3-Nitrotoluene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
4-Nitrotoluene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
HMX	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Nitrobenzene	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RDX	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tetryl	UG/L	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pesticides/PCBs													
4,4'-DDD	UG/L	0	0.0%	0.00008	0	0	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27	0.0052 U	0.0052 U	0.0043 J	0.0054 U	0.0052 U	0.0051 U
Alpha-BHC	UG/L	0.008	7.4%		0	2	27	0.0052 U	0.0044 J	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Alpha-Chlordane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Aroclor-1016	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	0.000001	0	0	27	0.21 U	0.21 U	0.2 U	0.22 U	0.21 U	0.2 U
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U
Beta-BHC	UG/L	0.0027	3.7%		0	1	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Delta-BHC	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	0.002	0	0	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0.0092	7.4%		0	2	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Endrin ketone	UG/L	0.038	3.7%		0	1	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Gamma-Chlordane	UG/L	0.0032	3.7%		0	1	27	0.0052 U	0.0032 J	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27	0.0052 U	0.0052 U	0.0051 U	0.0054 U	0.0052 U	0.0051 U
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	27	0.052 U	0.052 U	0.051 U	0.054 U	0.052 U	0.051 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	27	0.52 U	0.52 U	0.51 U	0.54 U	0.52 U	0.51 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-14	SW57-16	SW57-17	SW57-18	SW57-19	SW57-2
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571003	571000	571004	571005	571033	571013
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/05/00	01/04/00	01/05/00	01/05/00	01/10/00	01/07/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	3	7.4%		0	2	27	5 UJ	5 U	5 UJ	5 UJ	5 U	5 UJ
Acrylonitrile	UG/L	0	0.0%		0	0	27	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-14	SW57-16	SW57-17	SW57-18	SW57-19	SW57-2
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571003	571000	571004	571005	571033	571013
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/05/00	01/04/00	01/05/00	01/05/00	01/10/00	01/07/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Trichlorofluoromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Semivolatile Organics													
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%		0	0	27	2.5 U	2.6 U	2.5 U	2.5 U	2.6 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0.0%	1	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0.0%	1000	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0.0%	400	0	0	27	2.5 U	2.6 UR	2.5 U	2.5 U	2.6 UR	2.6 UR
2,4-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0.0%	4.7	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0.0%		0	0	27	2.5 U	2.6 U	2.5 U	2.5 U	2.6 U	2.6 U
2-Nitrophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	UG/L	0	0.0%		0	0	27	2.5 U	2.6 U	2.5 U	2.5 U	2.6 U	2.6 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%		0	0	27	2.5 U	2.6 UJ	2.5 U	2.5 U	2.6 UJ	2.6 UJ
4-Bromophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0.091	7.4%		0	2	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0.0%		0	0	27	2.5 U	2.6 UJ	2.5 U	2.5 U	2.6 UJ	2.6 UJ
4-Nitrophenol	UG/L	0	0.0%		0	0	27	2.5 U	2.6 UR	2.5 U	2.5 U	2.6 UR	2.6 UR
Acenaphthene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-14	SW57-16	SW57-17	SW57-18	SW57-19	SW57-2
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571003	571000	571004	571005	571033	571013
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/05/00	01/04/00	01/05/00	01/05/00	01/10/00	01/07/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
HMX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Tetryl	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Pesticides/PCBs													
4,4'-DDD	UG/L	0	0.0%	0.00008	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Alpha-BHC	UG/L	0.008	7.4%		0	2	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Alpha-Chlordane	UG/L	0	0.0%		0	0	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Aroclor-1016	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	0.000001	0	0	27	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0.0027	3.7%		0	1	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Delta-BHC	UG/L	0	0.0%		0	0	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	0.002	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0.0092	7.4%		0	2	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0.038	3.7%		0	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Gamma-Chlordane	UG/L	0.0032	3.7%		0	1	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27	0.0051 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27	0.01 U	0.01 U	0.01 U	0.01 U	0.012	0.01 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	27	0.051 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	27	0.51 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-20	SW57-21	SW57-22	SW57-24	SW57-25	SW57-26
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571034	571014	571015	571002	571036	571006
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/10/00	01/07/00	01/07/00	01/04/00	01/11/00	01/05/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	3	7.4%		0	2	27	5 U	5 UJ	5 UJ	5 UJ	5 U	5 UJ
Acrylonitrile	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
Allyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-20	SW57-21	SW57-22	SW57-24	SW57-25	SW57-26
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571034	571014	571015	571002	571036	571006
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/10/00	01/07/00	01/07/00	01/04/00	01/11/00	01/05/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Trichlorofluoromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Semivolatile Organics													
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%		0	0	27	2.6 U	2.6 U	2.6 U	2.5 U	2.6 U	2.5 U
2,4,6-Trichlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0.0%	1	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0.0%	1000	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0.0%	400	0	0	27	2.6 UR	2.6 UR	2.6 UR	2.5 U	2.6 UR	2.5 U
2,4-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0.0%	4.7	0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 U	2.6 U	2.6 U	2.5 U	2.6 U	2.5 U
2-Nitrophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 UJ	2.6 U	2.6 U	2.5 U	2.6 UJ	2.5 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%		0	0	27	2.6 UJ	2.6 UJ	2.6 UJ	2.5 U	2.6 UJ	2.5 U
4-Bromophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%		0	0	27	1 UJ	1 U	1 U	1 U	1 UJ	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0.091	7.4%		0	2	27	1 U	1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 UJ	2.6 UJ	2.6 UJ	2.5 U	2.6 UJ	2.5 U
4-Nitrophenol	UG/L	0	0.0%		0	0	27	2.6 UR	2.6 UR	2.6 UR	2.5 U	2.6 UR	2.5 U
Acenaphthene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1 U	1 U	1 U	1 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57					
		Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
HMX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
RDX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
Tetryl	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 UR	0.25 U	0.25 U	0.25 U
Pesticides/PCBs													
4,4'-DDD	UG/L	0	0.0%	0.00008	0	0	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27	0.01 U	0.01 U	0.011 U	0.01 U	0.02	0.01 U
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27	0.01 U	0.01 U	0.011 U	0.01 U	0.014 J	0.01 U
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Alpha-BHC	UG/L	0.008	7.4%		0	2	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.008 J	0.0052 U
Alpha-Chlordane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Aroclor-1016	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	0.000001	0	0	27	0.21 U	0.21 U	0.22 U	0.21 U	0.2 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0.0027	3.7%		0	1	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Delta-BHC	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	0.002	0	0	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0.0092	7.4%		0	2	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0.038	3.7%		0	1	27	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.038 J
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Gamma-Chlordane	UG/L	0.0032	3.7%		0	1	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27	0.0052 U	0.0052 U	0.0054 U	0.0052 U	0.0051 U	0.0052 U
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27	0.01 U	0.01 U	0.011 U	0.01 U	0.0172 J	0.01 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	27	0.052 U	0.052 U	0.054 U	0.052 U	0.051 U	0.052 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	27	0.52 U	0.52 U	0.54 U	0.52 U	0.51 U	0.52 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SW57-27	SW57-28	SW57-29	SW57-3	SW57-4	SW57-5
								SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
								WATER	WATER	WATER	WATER	WATER	WATER
								571023	571024	571025	571012	571011	571016
								0	0	0	0	0	0
								N/A	N/A	N/A	N/A	N/A	N/A
								01/11/00	01/11/00	01/11/00	01/07/00	01/06/00	01/07/00
								SA	SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics													
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	3	7.4%		0	2	27	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
		Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples						
Trichlorofluoromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Semivolatile Organics													
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%		0	0	27	2.8 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0.0%	1	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0.0%	1000	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0.0%	400	0	0	27	2.8 UR	2.6 UR	2.6 UR	2.6 UR	2.6 UR	2.6 UR
2,4-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0.0%	4.7	0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0.0%		0	0	27	2.8 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2-Nitrophenol	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	UG/L	0	0.0%		0	0	27	2.8 U	2.6 UJ	2.6 UJ	2.6 U	2.6 U	2.6 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%		0	0	27	2.8 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ
4-Bromophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%		0	0	27	1.1 U	1 UJ	1 UJ	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0.091	7.4%		0	2	27	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0.0%		0	0	27	2.8 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ
4-Nitrophenol	UG/L	0	0.0%		0	0	27	2.8 UR	2.6 UR	2.6 UR	2.6 UR	2.6 UR	2.6 UR
Acenaphthene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%		0	0	27	1.1 U	1 U	1 U	1 U	1 U	1 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
		Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples						
2-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
HMX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Tetryl	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Pesticides/PCBs													
4,4'-DDD	UG/L	0	0.0%	0.00008	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Alpha-BHC	UG/L	0.008	7.4%		0	2	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Alpha-Chlordane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Aroclor-1016	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	0.000001	0	0	27	0.21 U	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0.0027	3.7%		0	1	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Delta-BHC	UG/L	0	0.0%		0	0	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0.0%	0.002	0	0	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0.0092	7.4%		0	2	27	0.0092 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0.038	3.7%		0	1	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Gamma-Chlordane	UG/L	0.0032	3.7%		0	1	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27	0.0052 U	0.0051 U	0.0051 U	0.0053 U	0.0053 U	0.0053 U
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	27	0.052 U	0.051 U	0.051 U	0.053 U	0.053 U	0.053 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	27	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.53 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57	SEAD-57	SEAD-57
SW57-7	SW57-8	SW57-9
SURFACE	SURFACE	SURFACE
WATER	WATER	WATER
571010	571009	571032
0	0	0
N/A	N/A	N/A
01/06/00	01/06/00	01/10/00
SA	SA	SA
RI PHASE 1	RI PHASE 1	RI PHASE 1
STEP 1	STEP 1	STEP 1

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)
Volatile Organics										
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U
Acetone	UG/L	3	7.4%		0	2	27	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Chloracetoneitrile	UG/L	0	0.0%		0	0	27	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0.0%	5	0	0	27	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U

Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57

SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York

SEAD-57	SEAD-57	SEAD-57
SW57-7	SW57-8	SW57-9
SURFACE	SURFACE	SURFACE
WATER	WATER	WATER
571010	571009	571032
0	0	0
N/A	N/A	N/A
01/06/00	01/06/00	01/10/00
SA	SA	SA
RI PHASE 1	RI PHASE 1	RI PHASE 1
STEP 1	STEP 1	STEP 1

Parameter	Units	Maximum	Frequency of	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)
		Detect	Detection							
Trichlorofluoromethane	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0.0%		0	0	27	0.5 U	0.5 U	0.5 U
Semivolatile Organics										
1,2,4-Trichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1.1 U
1,2-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1.1 U
1,3-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1.1 U
1,4-Dichlorobenzene	UG/L	0	0.0%	5	0	0	27	1 U	1 U	1.1 U
2,4,5-Trichlorophenol	UG/L	0	0.0%		0	0	27	2.6 U	2.6 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2,4-Dichlorophenol	UG/L	0	0.0%	1	0	0	27	1 U	1 U	1.1 U
2,4-Dimethylphenol	UG/L	0	0.0%	1000	0	0	27	1 U	1 U	1.1 U
2,4-Dinitrophenol	UG/L	0	0.0%	400	0	0	27	2.6 UR	2.6 UR	2.6 UR
2,4-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2-Chloronaphthalene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2-Chlorophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2-Methylnaphthalene	UG/L	0	0.0%	4.7	0	0	27	1 U	1 U	1.1 U
2-Methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
2-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 U	2.6 U	2.6 U
2-Nitrophenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
3-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 U	2.6 U	2.6 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%		0	0	27	2.6 UJ	2.6 UJ	2.6 UJ
4-Bromophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
4-Chloroaniline	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
4-Methylphenol	UG/L	0.091	7.4%		0	2	27	1 U	1 U	1.1 U
4-Nitroaniline	UG/L	0	0.0%		0	0	27	2.6 UJ	2.6 UJ	2.6 UJ
4-Nitrophenol	UG/L	0	0.0%		0	0	27	2.6 UR	2.6 UR	2.6 UR
Acenaphthene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
Acenaphthylene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
Anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U
Benzo(a)anthracene	UG/L	0	0.0%		0	0	27	1 U	1 U	1.1 U

**Table F-8
SURFACE WATER SAMPLE RESULTS
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	TAGM(1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57
								SW57-7	SW57-8	SW57-9
								SURFACE WATER 571010 0 N/A 01/06/00 SA RI PHASE 1 STEP 1	SURFACE WATER 571009 0 N/A 01/06/00 SA RI PHASE 1 STEP 1	SURFACE WATER 571032 0 N/A 01/10/00 SA RI PHASE 1 STEP 1
Value (Q)	Value (Q)	Value (Q)								
2-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
HMX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
RDX	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
Tetryl	UG/L	0	0.0%		0	0	27	0.25 U	0.25 U	0.25 U
Pesticides/PCBs										
4,4'-DDD	UG/L	0	0.0%	0.00008	0	0	27	0.01 U	0.011 U	0.01 U
4,4'-DDE	UG/L	0.02	3.7%	0.000007	1	1	27	0.01 U	0.011 U	0.01 U
4,4'-DDT	UG/L	0.014	3.7%	0.00001	1	1	27	0.01 U	0.011 U	0.01 U
Aldrin	UG/L	0.0044	7.4%	0.001	2	2	27	0.0044 J	0.0053 U	0.0052 U
Alpha-BHC	UG/L	0.008	7.4%		0	2	27	0.0053 U	0.0053 U	0.0052 U
Alpha-Chlordane	UG/L	0	0.0%		0	0	27	0.0053 U	0.0053 U	0.0052 U
Aroclor-1016	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.11 U	0.1 U
Aroclor-1221	UG/L	0	0.0%	0.000001	0	0	27	0.21 U	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.11 U	0.1 U
Aroclor-1242	UG/L	0.13	3.7%	0.000001	1	1	27	0.13	0.11 U	0.1 U
Aroclor-1248	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.11 U	0.1 U
Aroclor-1254	UG/L	0.3	3.7%	0.000001	1	1	27	0.3	0.11 U	0.1 U
Aroclor-1260	UG/L	0	0.0%	0.000001	0	0	27	0.1 U	0.11 U	0.1 U
Beta-BHC	UG/L	0.0027	3.7%		0	1	27	0.0053 U	0.0053 U	0.0027 J
Delta-BHC	UG/L	0	0.0%		0	0	27	0.0053 U	0.0053 U	0.0052 U
Dieldrin	UG/L	0.0088	3.7%	0.0000006	1	1	27	0.0088 J	0.011 U	0.01 U
Endosulfan I	UG/L	0	0.0%	0.009	0	0	27	0.0053 U	0.0053 U	0.0052 U
Endosulfan II	UG/L	0	0.0%	0.009	0	0	27	0.01 U	0.011 U	0.01 U
Endosulfan sulfate	UG/L	0	0.0%		0	0	27	0.01 U	0.011 U	0.01 U
Endrin	UG/L	0	0.0%	0.002	0	0	27	0.01 U	0.011 U	0.01 U
Endrin aldehyde	UG/L	0.0092	7.4%		0	2	27	0.0065 J	0.011 U	0.01 U
Endrin ketone	UG/L	0.038	3.7%		0	1	27	0.01 U	0.011 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0.0%		0	0	27	0.0053 U	0.0053 U	0.0052 U
Gamma-Chlordane	UG/L	0.0032	3.7%		0	1	27	0.0053 U	0.0053 U	0.0052 U
Heptachlor	UG/L	0.0028	3.7%	0.0002	1	1	27	0.0028 J	0.0053 U	0.0052 U
Heptachlor epoxide	UG/L	0.0056	7.4%	0.0003	2	2	27	0.0045 J	0.0053 U	0.0056 J
Hexachlorobenzene	UG/L	0.012	7.4%	0.00003	2	2	27	0.01 U	0.011 U	0.01 U
Methoxychlor	UG/L	0	0.0%	0.03	0	0	27	0.053 U	0.053 U	0.052 U
Toxaphene	UG/L	0	0.0%	0.000006	0	0	27	0.53 U	0.53 U	0.52 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-11 SEDIMENT 573008 0 0.2 01/05/00 DU RI PHASE 1 STEP 1	SD57-10 SEDIMENT 573031 0 0.2 01/10/00 DU RI PHASE 1 STEP 1	SD57-16 SEDIMENT 573000 0 0.2 01/04/00 SA RI PHASE 1 STEP 1	SD57-13 SEDIMENT 573001 0 0.2 01/04/00 SA RI PHASE 1 STEP 1	SD57-24 SEDIMENT 573002 0 0.2 01/04/00 SA RI PHASE 1 STEP 1	SD57-14 SEDIMENT 573003 0 0.2 01/05/00 SA RI PHASE 1 STEP 1
Volatile Organics									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	NYSHHB	11.7315	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,1-Dichloroethene	UG/KG	0	0.0%	NYSHHB	0.7821	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	NYSHHB	27.3735	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Acetone	UG/KG	700	100.0%			0	34	34	110 J	110	300 J	210 J	220 J	220 J
Benzene	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Bromodichloromethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Bromoform	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Carbon disulfide	UG/KG	3	20.6%			0	7	34	14 U	11 U	3 J	2 J	2 J	2 J
Carbon tetrachloride	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Chlorobenzene	UG/KG	0	0.0%	NYSALC	136.8675	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Chloroethane	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Chloroform	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Ethyl benzene	UG/KG	0	0.0%	NYSALC	938.52	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Methyl bromide	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Methyl chloride	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Methyl ethyl ketone	UG/KG	64	100.0%			0	34	34	14	12	36 J	20 J	19 J	25 J
Methyl isobutyl ketone	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Methylene chloride	UG/KG	1	5.9%			0	2	34	14 U	11 U	13 U	13 U	13 U	13 U
Styrene	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Tetrachloroethene	UG/KG	0	0.0%	NYSHHB	31.284	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Toluene	UG/KG	16	100.0%	NYSALC	1916.145	0	34	34	2 J	6 J	10 J	8 J	7 J	3 J
Total Xylenes	UG/KG	0	0.0%	NYSALC	3597.66	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Trichloroethene	UG/KG	0	0.0%	NYSHHB	78.21	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Vinyl chloride	UG/KG	0	0.0%	NYSHHB	2.73735	0	0	34	14 U	11 U	13 U	13 U	13 U	13 U
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
1,3-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57						
		SD57-11		SD57-10		SD57-16		SD57-13		SD57-24		SD57-14		
		SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
		573008	573031	573000	573001	573002	573003							
		0	0	0	0	0	0							
		0.2	0.2	0.2	0.2	0.2	0.2							
		01/05/00	01/10/00	01/04/00	01/04/00	01/04/00	01/05/00							
		DU	DU	SA	SA	SA	SA							
		RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1							
Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Di-n-octylphthalate	UG/KG	0	0.0%		0	34	97 UJ	94 UJ	90 UJ	91 UJ	89 UJ	97 UJ	97 UJ	
Dibenz(a,h)anthracene	UG/KG	24	14.7%		0	5	34	97 U	94 UJ	17 J	17 J	89 U	14 J	
Dibenzofuran	UG/KG	0	0.0%		0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U	
Diethyl phthalate	UG/KG	0	0.0%		0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U	
Dimethylphthalate	UG/KG	0	0.0%		0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U	
Fluoranthene	UG/KG	150	58.8%	NYSALC	39887.1	0	20	34	97 U	94 UJ	100	73 J	5 J	100
Fluorene	UG/KG	8.1	2.9%	NYSALC	312.84	0	1	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Hexachlorobenzene	UG/KG	0	0.0%	NYSALC	5.86575	0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Hexachlorobutadiene	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Hexachloroethane	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	NYSALC	50.8365	0	9	34	97 U	94 UJ	34 J	28 J	89 U	25 J
Isophorone	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
N-Nitrosodiphenylamine	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
N-Nitrosodipropylamine	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Naphthalene	UG/KG	0	0.0%	NYSALC	1173.15	0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Nitrobenzene	UG/KG	0	0.0%			0	0	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Pentachlorophenol	UG/KG	0	0.0%	NYSALC	1564.2	0	0	34	240 UJ	240 UJ	220 UJ	230 UJ	220 UJ	240 UJ
Phenanthrene	UG/KG	110	47.1%	NYSALC	4692.6	0	16	34	97 U	94 UJ	52 J	42 J	89 U	81 J
Phenol	UG/KG	24	8.8%	NYSALC	19.5525	1	3	34	97 U	94 UJ	90 U	91 U	89 U	97 U
Pyrene	UG/KG	230	58.8%	NYSALC	37579.905	0	20	34	97 UJ	94 UJ	130	100	5.7 J	140
Explosives														
1,3,5-Trinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs														
4,4'-DDD	UG/KG	0	0.0%	NYSALC	0.39105	0	0	34	4.8 U	4.7 U	4.5 U	4.6 U	4.4 U	4.8 U
4,4'-DDE	UG/KG	0	0.0%	NYSALC	0.39105	0	0	34	4.8 U	4.7 U	4.5 U	4.6 U	4.4 U	4.8 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-11 SEDIMENT 573008 0 0.2 01/05/00 DU	SD57-10 SEDIMENT 573031 0 0.2 01/10/00 DU	SD57-16 SEDIMENT 573000 0 0.2 01/04/00 SA	SD57-13 SEDIMENT 573001 0 0.2 01/04/00 SA	SD57-24 SEDIMENT 573002 0 0.2 01/04/00 SA	SD57-14 SEDIMENT 573003 0 0.2 01/05/00 SA
									RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Lead	MG/KG	35	100.0%	NYSLEL	31	3	34	34	21.8 J	19.1 J	29.4 J	28.2 J	25.7 J	27.9 J
Magnesium	MG/KG	5920	100.0%			0	34	34	4370	3920	4900	5710	5000	5130
Manganese	MG/KG	2580	100.0%	NYSLEL	460	14	34	34	338 J	513 J	701 J	2580 J	330 J	460 J
Mercury	MG/KG	0.15	52.9%	NYSLEL	0.15	0	18	34	0.07 U	0.09 J	0.07 U	0.07 U	0.06 U	0.07 J
Nickel	MG/KG	41.8	100.0%	NYSLEL	16	34	34	34	25.7 J	24.2	30.5 J	36.2 J	30.4 J	30.1 J
Potassium	MG/KG	2350	100.0%			0	34	34	1370 J	1160	1810	1620	1190	1500
Selenium	MG/KG	1.9	64.7%			0	22	34	0.63 U	1.4	1.1 J	1.8 J	0.51 U	0.58 J
Silver	MG/KG	0.63	38.2%	NYSLEL	1	0	13	34	0.49 J	0.31 J	0.44 J	0.63 J	0.3 UJ	0.28 UJ
Sodium	MG/KG	183	26.5%			0	9	34	183 J	61.8 J	148 J	71.5 U	67.6 U	61.3 U
Thallium	MG/KG	4.4	91.2%			0	31	34	1.6 J	1.8	1.7 J	4.4	1.8 J	3.8
Vanadium	MG/KG	37.4	97.1%			0	33	34	30.1	26.7	31.4	37.4	30.3	32.4
Zinc	MG/KG	487	100.0%	NYSLEL	120	4	34	34	67.5 J	70.8	487 J	150 J	84.4 J	90.7 J
Conventional Analyses														
Cation exchange capacity	MEQ/100G	31.4	100.0%			0	32	32			24.1	22.4	6.5	22.2
Nitrate/Nitrite Nitrogen	MG/KG	3.1	97.1%			0	33	34	0.09 J	0.09	3.1 J	0.29 J	0.03 J	0.06 J
Percent Solids	% WW	80.9	100.0%			0	34	34	68	70.2	73.3	71.5	74.4	67.8
Soil pH (std. units)	pH units	7.83	100.0%			0	33	33	6.95		7.48	7.65	7.83	7.53
Total Organic Carbon	MG/KG	70500	100.0%			0	32	32			26200	31300	26500	33300

(1) NYSALC = NYS Benthic Aquatic Life Chronic Toxicity Criteria
 NYSHHB = NYS Human Health Bioaccumulation Criteria
 NYSLEL = NYS Lowest Effect Level
 NYSWB = NYS Wildlife Bioaccumulation Criteria

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-17 SEDIMENT 573004 0 0.2 01/05/00 SA RI PHASE 1 STEP 1	SD57-18 SEDIMENT 573005 0 0.2 01/05/00 SA RI PHASE 1 STEP 1	SD57-26 SEDIMENT 573006 0 0.2 01/05/00 SA RI PHASE 1 STEP 1	SD57-11 SEDIMENT 573007 0 0.2 01/05/00 SA RI PHASE 1 STEP 1	SD57-8 SEDIMENT 573009 0 0.2 01/06/00 SA RI PHASE 1 STEP 1	SD57-7 SEDIMENT 573010 0 0.2 01/06/00 SA RI PHASE 1 STEP 1
2,4,5-Trichlorophenol	UG/KG	0	0.0%			0	0	34	220 U	230 U	240 U	230 U	210 U	210 U
2,4,6-Trichlorophenol	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2,4-Dichlorophenol	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2,4-Dimethylphenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2,4-Dinitrophenol	UG/KG	0	0.0%			0	0	34	220 UR	230 UR	240 UR	230 UJ	210 UJ	210 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2-Chloronaphthalene	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2-Chlorophenol	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2-Methylnaphthalene	UG/KG	0	0.0%	NYSALC	1329.57	0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2-Methylphenol	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
2-Nitroaniline	UG/KG	0	0.0%			0	0	34	220 U	230 U	240 U	230 U	210 U	210 U
2-Nitrophenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
3,3'-Dichlorobenzidine	UG/KG	0	0.0%			0	0	34	90 UJ	92 UJ	95 UJ	91 UJ	83 UJ	84 UJ
3-Nitroaniline	UG/KG	0	0.0%			0	0	34	220 UJ	230 UJ	240 UJ	230 UJ	210 UJ	210 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%			0	0	34	220 UJ	230 UJ	240 UJ	230 U	210 U	210 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
4-Chloro-3-methylphenol	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
4-Chloroaniline	UG/KG	0	0.0%			0	0	34	90 UJ	92 UJ	95 UJ	91 UJ	83 UJ	84 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
4-Methylphenol	UG/KG	13	5.9%	NYSALC	19.5525	0	2	34	90 U	92 U	95 U	91 U	83 U	84 U
4-Nitroaniline	UG/KG	0	0.0%			0	0	34	220 U	230 U	240 U	230 U	210 U	210 U
4-Nitrophenol	UG/KG	0	0.0%			0	0	34	220 UJ	230 UJ	240 UJ	230 UJ	210 UJ	210 U
Acenaphthene	UG/KG	0	0.0%	NYSALC	5474.7	0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Acenaphthylene	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Anthracene	UG/KG	8.2	8.8%	NYSALC	4184.235	0	3	34	90 U	92 J	95 U	91 U	83 U	84 U
Benzo(a)anthracene	UG/KG	62	47.1%	NYSHHB	50.8365	2	16	34	8.5 J	6.2 J	18 J	91 U	83 U	84 U
Benzo(a)pyrene	UG/KG	76	41.2%	NYSHHB	50.8365	4	14	34	12 J	7.6 J	22 J	91 U	83 U	84 U
Benzo(b)fluoranthene	UG/KG	67	41.2%	NYSHHB	50.8365	2	14	34	9.5 J	6.7 J	22 J	91 UJ	83 UJ	84 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%			0	9	34	10 J	5.4 J	15 J	91 U	83 U	84 U
Benzo(k)fluoranthene	UG/KG	50	41.2%	NYSHHB	50.8365	0	14	34	11 J	5.0 J	17 J	91 UJ	83 UJ	84 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	NYSALC	7801.4475	0	7	34	90 U	92 U	7.9 J	14 J	83 UJ	84 U
Butylbenzylphthalate	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Carbazole	UG/KG	0	0.0%			0	0	34	90 U	92 U	95 U	91 U	83 U	84 U
Chrysene	UG/KG	110	55.9%	NYSHHB	50.8365	4	19	34	17 J	11.0	26 J	91 U	83 U	84 U
Di-n-butylphthalate	UG/KG	76	61.8%			0	21	34	6.5 J	6.7 J	95 U	6.7 J	9.8 J	84 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		
		Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4,4'-DDT	UG/KG	2.9	2.9%	NYSHHB	0.39105	1	1	34	4.5 U	2.9 J	4.8 U	4.6 U	4.1 U	4.2 U
Aldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Alpha-BHC	UG/KG	1.4	2.9%			0	1	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Alpha-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Aroclor-1016	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Aroclor-1221	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	91 U	93 U	97 U	92 U	84 U	85 U
Aroclor-1232	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Aroclor-1242	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Aroclor-1248	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Aroclor-1254	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Aroclor-1260	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	45 U	46 U	48 U	46 U	41 U	42 U
Beta-BHC	UG/KG	4.5	2.9%			0	1	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Delta-BHC	UG/KG	0	0.0%			0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Dieldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	4.5 U	4.6 U	4.8 U	4.6 U	4.1 U	4.2 U
Endosulfan I	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Endosulfan II	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	4.5 U	4.6 U	4.8 U	4.6 U	4.1 U	4.2 U
Endosulfan sulfate	UG/KG	0	0.0%			0	0	34	4.5 U	4.6 U	4.8 U	4.6 U	4.1 U	4.2 U
Endrin	UG/KG	0	0.0%	NYSWB	31.284	0	0	34	4.5 U	4.6 U	4.8 U	4.6 U	4.1 U	4.2 U
Endrin aldehyde	UG/KG	3.8	2.9%			0	1	34	4.5 U	3.8 J	4.8 U	4.6 U	4.1 U	4.2 U
Endrin ketone	UG/KG	4	2.9%			0	1	34	4.5 U	4 J	4.8 U	4.6 U	4.1 U	4.2 U
Gamma-BHC/Lindane	UG/KG	0	0.0%			0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Gamma-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Heptachlor	UG/KG	1.6	2.9%	NYSHHB	0.031284	1	1	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Heptachlor epoxide	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	2.3 U	2.4 U	2.5 U	2.3 U	2.1 U	2.2 U
Methoxychlor	UG/KG	0	0.0%			0	0	34	23 U	24 U	25 U	23 U	21 U	22 U
Toxaphene	UG/KG	0	0.0%			0	0	34	230 U	240 U	250 U	230 U	210 U	220 U
Metals and Cyanide														
Aluminum	MG/KG	19800	100.0%			0	34	34	14100	16800	12400	15100	14600	19800 J
Antimony	MG/KG	2.2	58.8%	NYSLEL	2	1	20	34	0.96 J	0.61 UR	0.75 J	0.46 UR	0.65 J	0.51 U
Arsenic	MG/KG	17.8	100.0%	NYSLEL	6	8	34	34	4.8	4.1	17.8	4.8	4.6	6.1
Barium	MG/KG	237	100.0%			0	34	34	93.6	139	85.6	158	135	143
Beryllium	MG/KG	1.8	100.0%			0	34	34	0.87 J	1 J	0.73 J	0.94 J	0.87 J	0.89 J
Cadmium	MG/KG	28.6	55.9%	NYSLEL	0.6	7	19	34	0.17 U	2 J	0.19 U	28.6 J	0.39 J	0.05 U
Calcium	MG/KG	14600	100.0%			0	34	34	5830	3890	7610	3580	3070	3050
Chromium	MG/KG	27	100.0%	NYSLEL	26	1	34	34	22.4	25.5	17.7	21	19	25.2
Cobalt	MG/KG	29.7	100.0%			0	34	34	10.1 J	9.6 J	9.1 J	9.3 J	9.6 J	9.9 J
Copper	MG/KG	44.4	70.6%	NYSLEL	16	22	24	34	31.6 U	29.6 U	31.5 U	19.9 U	21.3 U	22
Cyanide	MG/KG	0	0.0%			0	0	34	0.62 U	0.63 U	0.71 U	0.65 U	0.59 U	0.58 U
Iron	MG/KG	37200	100.0%	NYSLEL	20000	32	34	34	26800	27300	20600	25600 J	22200 J	29100 J

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-4	SD57-3	SD57-2	SD57-21	SD57-22	SD57-5
									SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
								573011	573012	573013	573014	573015	573016	
								0	0	0	0	0	0	
								0.2	0.2	0.2	0.2	0.2	0.2	
								01/06/00	01/07/00	01/07/00	01/07/00	01/07/00	01/07/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Volatile Organics														
1,1,1-Trichloroethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	NYSHHB	11.7315	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,1,2-Trichloroethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,1-Dichloroethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,1-Dichloroethene	UG/KG	0	0.0%	NYSHHB	0.7821	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,2-Dichloroethane	UG/KG	0	0.0%	NYSHHB	27.3735	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
1,2-Dichloropropane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Acetone	UG/KG	700	100.0%			0	34	34	120 J	160 J	140 J	150 J	180 J	180 J
Benzene	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Bromodichloromethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Bromoform	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Carbon disulfide	UG/KG	3	20.6%			0	7	34	13 U	12 U	12 U	12 U	12 U	13 U
Carbon tetrachloride	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Chlorobenzene	UG/KG	0	0.0%	NYSALC	136.8675	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Chlorodibromomethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Chloroethane	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Chloroform	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Ethyl benzene	UG/KG	0	0.0%	NYSALC	938.52	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Methyl bromide	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Methyl butyl ketone	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Methyl chloride	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Methyl ethyl ketone	UG/KG	64	100.0%			0	34	34	14	20	14	18	22	20
Methyl isobutyl ketone	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Methylene chloride	UG/KG	1	5.9%			0	2	34	13 U	12 U	12 U	12 U	12 U	13 U
Styrene	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Tetrachloroethene	UG/KG	0	0.0%	NYSHHB	31.284	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Toluene	UG/KG	16	100.0%	NYSALC	1916.145	0	34	34	8 J	3 J	2 J	3 J	3 J	2 J
Total Xylenes	UG/KG	0	0.0%	NYSALC	3597.66	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Trichloroethene	UG/KG	0	0.0%	NYSHHB	78.21	0	0	34	13 U	12 U	12 U	12 U	12 U	13 U
Vinyl chloride	UG/KG	0	0.0%	NYSHHB	2.73735	0	0	34	13 UJ	12 U	12 U	12 U	12 U	13 U
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
1,2-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
1,3-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
1,4-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	91 U	87 U	86 U	89 U	87 U	94 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-4	SD57-3	SD57-2	SD57-21	SD57-22	SD57-5
									SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
									573011	573012	573013	573014	573015	573016
									0	0	0	0	0	0
									0.2	0.2	0.2	0.2	0.2	0.2
									01/06/00	01/07/00	01/07/00	01/07/00	01/07/00	01/07/00
									SA	SA	SA	SA	SA	SA
									RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE
									1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Di-n-octylphthalate	UG/KG	0	0.0%			0	0	34	91 UJ	87 UJ	86 UJ	89 UJ	87 UJ	94 UJ
Dibenz(a,h)anthracene	UG/KG	24	14.7%			0	5	34	91 U	87 U	86 U	89 U	87 U	94 U
Dibenzofuran	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Diethyl phthalate	UG/KG	0	0.0%			0	0	34	91 U	87 UJ	86 UJ	89 UJ	87 UJ	94 UJ
Dimethylphthalate	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Fluoranthene	UG/KG	150	58.8%	NYSALC	39887.1	0	20	34	91 U	87 U	86 U	18 J	16 J	94 U
Fluorene	UG/KG	8.1	2.9%	NYSALC	312.84	0	1	34	91 U	87 U	86 U	89 U	87 U	94 U
Hexachlorobenzene	UG/KG	0	0.0%	NYSHHB	5.86575	0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Hexachlorobutadiene	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Hexachlorocyclopentadiene	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Hexachloroethane	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	NYSHHB	50.8365	0	9	34	91 UJ	87 U	86 U	89 U	87 U	94 U
Isophorone	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
N-Nitrosodiphenylamine	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
N-Nitrosodipropylamine	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Naphthalene	UG/KG	0	0.0%	NYSALC	1173.15	0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Nitrobenzene	UG/KG	0	0.0%			0	0	34	91 U	87 U	86 U	89 U	87 U	94 U
Pentachlorophenol	UG/KG	0	0.0%	NYSALC	1564.2	0	0	34	230 UJ	220 UJ	210 UJ	220 UJ	220 UJ	240 UJ
Phenanthrene	UG/KG	110	47.1%	NYSALC	4692.6	0	16	34	91 U	87 U	86 U	11 J	10 J	94 U
Phenol	UG/KG	24	8.8%	NYSALC	19.5525	1	3	34	17 J	87 U	86 U	18 J	24 J	94 U
Pyrene	UG/KG	230	58.8%	NYSALC	37579.905	0	20	34	91 U	87 U	86 U	21 J	20 J	94 U
Explosives														
1,3,5-Trinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs														
4,4'-DDD	UG/KG	0	0.0%	NYSHHB	0.39105	0	0	34	4.6 U	4.3 U	4.3 U	4.4 U	4.3 U	4.7 U
4,4'-DDE	UG/KG	0	0.0%	NYSHHB	0.39105	0	0	34	4.6 U	4.3 U	4.3 U	4.4 U	4.3 U	4.7 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
									SD57-4 SEDIMENT 573011 0 0.2 01/06/00 SA RI PHASE 1 STEP 1	SD57-3 SEDIMENT 573012 0 0.2 01/07/00 SA RI PHASE 1 STEP 1	SD57-2 SEDIMENT 573013 0 0.2 01/07/00 SA RI PHASE 1 STEP 1	SD57-21 SEDIMENT 573014 0 0.2 01/07/00 SA RI PHASE 1 STEP 1	SD57-22 SEDIMENT 573015 0 0.2 01/07/00 SA RI PHASE 1 STEP 1	SD57-5 SEDIMENT 573016 0 0.2 01/07/00 SA RI PHASE 1 STEP 1	
Lead	MG/KG	35	100.0%	NYSLEL	31	3	34	34	24.7	13.1	23.7	21.1	24.7	15.7	
Magnesium	MG/KG	5920	100.0%			0	34	34	4380	4260	4360	3930	3660	3870	
Manganese	MG/KG	2580	100.0%	NYSLEL	460	14	34	34	441	709	1220	307	461	707	
Mercury	MG/KG	0.15	52.9%	NYSLEL	0.15	0	18	34	0.09 J	0.07 J	0.07 J	0.09 J	0.08 J	0.08 J	
Nickel	MG/KG	41.8	100.0%	NYSLEL	16	34	34	34	28.7	24.1	37.5 J	24.5 J	23.5 J	21 J	
Potassium	MG/KG	2350	100.0%			0	34	34	1980	1840	1600	1910	1830	1910	
Selenium	MG/KG	1.9	64.7%			0	22	34	1.9 J	0.6 J	1.8	1.8	0.72 J	1.9	
Silver	MG/KG	0.63	38.2%	NYSLEL	1	0	13	34	0.31 UJ	0.31 UJ	0.33 UJ	0.32 UJ	0.33 UJ	0.34 UJ	
Sodium	MG/KG	183	26.5%			0	9	34	68.9 U	89.1 J	73.2 U	75.3 J	73.5 U	75.3 U	
Thallium	MG/KG	4.4	91.2%			0	31	34	2.3 J	2.7	4.1	1.7 J	3.8	3.3	
Vanadium	MG/KG	37.4	97.1%			0	33	34	25.3	28	25.7	26.1	25.8	26	
Zinc	MG/KG	487	100.0%	NYSLEL	120	4	34	34	92.5	65.8	78	87	83.8	68	
Conventional Analyses															
Cation exchange capacity	MEQ/100G	31.4	100.0%			0	32	32	9.8	12.7	16.5	11.3	13	19	
Nitrate/Nitrite Nitrogen	MG/KG	3.1	97.1%			0	33	34	0.22	0.34	0.14	0.34	0.09	0.18	
Percent Solids	% WW	80.9	100.0%			0	34	34	72.3	76.4	77.4	73.6	76.4	70.4	
Soil pH (std. units)	pH units	7.83	100.0%			0	33	33	7.15	7.56	7.5	7.43	7.65	6.93	
Total Organic Carbon	MG/KG	70500	100.0%			0	32	32	11700	18100	27700	31300	44600	27500	

(1) NYSALC = NYS Benthic Aquatic Life Chronic Toxicity Criteria
 NYSHHB = NYS Human Health Bioaccumulation Criteria
 NYSLEL = NYS Lowest Effect Level
 NYSWB = NYS Wildlife Bioaccumulation Criteria

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57						
		SD57-15		SD57-12		SD57-23		SD57-6		SD57-31		SD57-32		
		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		
		573017	573018	573019	573020	573021	573022							
		0	0	0	0	0	0							
		0.2	0.2	0.2	0.2	0.2	0.2							
		01/08/00	01/08/00	01/08/00	01/08/00	01/08/00	01/08/00							
		SA	SA	SA	SA	SA	SA							
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE							
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1							
		Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2,4,5-Trichlorophenol	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%			0	0	34	210 UR	210 UJ	250 UJ	310 UR	250 UR	250 UR
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2-Chloronaphthalene	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2-Chlorophenol	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2-Methylnaphthalene	UG/KG	0	0.0%	NYSALC	1329.57	0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2-Methylphenol	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
2-Nitroaniline	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
2-Nitrophenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
3-Nitroaniline	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
4-Chloroaniline	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
4-Methylphenol	UG/KG	13	5.9%	NYSALC	19.5525	0	2	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
4-Nitroaniline	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
4-Nitrophenol	UG/KG	0	0.0%			0	0	34	210 UJ	210 UJ	250 UJ	310 UJ	250 UJ	250 UJ
Acenaphthene	UG/KG	0	0.0%	NYSALC	5474.7	0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Acenaphthylene	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Anthracene	UG/KG	8.2	8.8%	NYSALC	4184.235	0	3	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	NYSHHB	50.8365	2	16	34	17 J	82 UJ	98 UJ	120 UJ	100 UJ	5.5 J
Benzo(a)pyrene	UG/KG	76	41.2%	NYSHHB	50.8365	4	14	34	18 J	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Benzo(b)fluoranthene	UG/KG	67	41.2%	NYSHHB	50.8365	2	14	34	13 J	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%			0	9	34	28 J	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	NYSHHB	50.8365	0	14	34	14 J	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	NYSALC	7801.4475	0	7	34	84 UJ	10 J	5.7 J	120 UJ	38 J	100 UJ
Butylbenzylphthalate	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Carbazole	UG/KG	0	0.0%			0	0	34	84 UJ	82 UJ	98 UJ	120 UJ	100 UJ	100 UJ
Chrysene	UG/KG	110	55.9%	NYSHHB	50.8365	4	19	34	22 J	82 UJ	98 UJ	9.2 J	5.3 J	7 J
Di-n-butylphthalate	UG/KG	76	61.8%			0	21	34	84 UJ	5.2 J	7.6 J	9.2 J	100 UJ	76 J

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		SEAD-57		
		Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4,4'-DDT	UG/KG	2.9	2.9%	NYSHHB	0.39105	1	1	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Aldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Alpha-BHC	UG/KG	1.4	2.9%			0	1	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Alpha-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Aroclor-1016	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Aroclor-1221	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	85 U	84 U	100 U	130 U	100 U	100 U
Aroclor-1232	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Aroclor-1242	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Aroclor-1248	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Aroclor-1254	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Aroclor-1260	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	42 U	41 U	49 U	62 U	51 U	51 U
Beta-BHC	UG/KG	4.5	2.9%			0	1	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Delta-BHC	UG/KG	0	0.0%			0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Dieldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Endosulfan I	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Endosulfan II	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Endosulfan sulfate	UG/KG	0	0.0%			0	0	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Endrin	UG/KG	0	0.0%	NYSWB	31.284	0	0	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Endrin aldehyde	UG/KG	3.8	2.9%			0	1	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Endrin ketone	UG/KG	4	2.9%			0	1	34	4.2 U	4.1 U	4.9 U	6.2 U	5.1 U	5.1 U
Gamma-BHC/Lindane	UG/KG	0	0.0%			0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Gamma-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Heptachlor	UG/KG	1.6	2.9%	NYSHHB	0.031284	1	1	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Heptachlor epoxide	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	2.2 U	2.1 U	2.5 U	3.2 U	2.6 U	2.6 U
Methoxychlor	UG/KG	0	0.0%			0	0	34	22 U	21 U	25 U	32 U	26 U	26 U
Toxaphene	UG/KG	0	0.0%			0	0	34	220 U	210 U	250 U	320 U	260 U	260 U
Metals and Cyanide														
Aluminum	MG/KG	19800	100.0%			0	34	34	14800 J	16700 J	13100 J	14500 J	16000 J	13400 J
Antimony	MG/KG	2.2	58.8%	NYSLEL	2	1	20	34	0.5 UJ	0.54 J	1.1 J	2.2 J	0.94 J	0.49 UJ
Arsenic	MG/KG	17.8	100.0%	NYSLEL	6	8	34	34	6.3	3.3	4.6	6.3	5.3	3.5
Barium	MG/KG	237	100.0%			0	34	34	104	139	87.8	132	105	92.3
Beryllium	MG/KG	1.8	100.0%			0	34	34	1 J	0.93 J	0.82 J	0.99 J	1.1 J	0.75 J
Cadmium	MG/KG	28.6	55.9%	NYSLEL	0.6	7	19	34	0.05 U	0.04 U	0.05 U	0.16 J	0.05 U	0.04 U
Calcium	MG/KG	14600	100.0%			0	34	34	3770	3040	4140	7380	3130	3440
Chromium	MG/KG	27	100.0%	NYSLEL	26	1	34	34	27 J	23.3 J	19.2 J	21.3 J	20 J	16.2 J
Cobalt	MG/KG	29.7	100.0%			0	34	34	14.8	9.5 J	9.7 J	9.8 J	13.4 J	7.2 J
Copper	MG/KG	44.4	70.6%	NYSLEL	16	22	24	34	36.2	21.1	22.1	44.4	20.6	17.8
Cyanide	MG/KG	0	0.0%			0	0	34	0.58 U	0.56 U	0.75 U	0.94 U	0.73 U	0.68 U
Iron	MG/KG	37200	100.0%	NYSLEL	20000	32	34	34	33800	26100	24500	37200	27300	18400

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-27 SEDIMENT 573023 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-28 SEDIMENT 573024 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-29 SEDIMENT 573025 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-30 SEDIMENT 573026 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-10 SEDIMENT 573030 0 0.2 01/10/00 SA RI PHASE 1 STEP 1	SD57-9 SEDIMENT 573032 0 0.2 01/10/00 SA RI PHASE 1 STEP 1
Volatile Organics									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%	NYSHHB	11.7315	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,1,2-Trichloroethane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,1-Dichloroethane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,1-Dichloroethene	UG/KG	0	0.0%	NYSHHB	0.7821	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,2-Dichloroethane	UG/KG	0	0.0%	NYSHHB	27.3735	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,2-Dichloroethene (total)	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
1,2-Dichloropropane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Acetone	UG/KG	700	100.0%			0	34	34	200 J	250 J	260 J	240 J	130 J	80
Benzene	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Bromodichloromethane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Bromoform	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Carbon disulfide	UG/KG	3	20.6%			0	7	34	15 U	12 U	13 U	13 U	2 J	10 U
Carbon tetrachloride	UG/KG	0	0.0%	NYSHHB	23.463	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Chlorobenzene	UG/KG	0	0.0%	NYSALC	136.8675	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Chlorodibromomethane	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Chloroethane	UG/KG	0	0.0%			0	0	34	15 UJ	12 UJ	13 UJ	13 U	11 U	10 U
Chloroform	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Cis-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Ethyl benzene	UG/KG	0	0.0%	NYSALC	938.52	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Methyl bromide	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Methyl butyl ketone	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Methyl chloride	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Methyl ethyl ketone	UG/KG	64	100.0%			0	34	34	22	19	25	30	13	9 J
Methyl isobutyl ketone	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Methylene chloride	UG/KG	1	5.9%			0	2	34	15 U	12 U	13 U	13 U	1 J	1 J
Styrene	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Tetrachloroethene	UG/KG	0	0.0%	NYSHHB	31.284	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Toluene	UG/KG	16	100.0%	NYSALC	1916.145	0	34	34	6 J	5 J	6 J	6 J	6 J	7 J
Total Xylenes	UG/KG	0	0.0%	NYSALC	3597.66	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Trans-1,3-Dichloropropene	UG/KG	0	0.0%			0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Trichloroethene	UG/KG	0	0.0%	NYSHHB	78.21	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Vinyl chloride	UG/KG	0	0.0%	NYSHHB	2.73735	0	0	34	15 U	12 U	13 U	13 U	11 U	10 U
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
1,2-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
1,3-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
1,4-Dichlorobenzene	UG/KG	0	0.0%	NYSALC	469.26	0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57						
		SD57-27		SD57-28		SD57-29		SD57-30		SD57-10		SD57-9		
		SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
		573023	573024	573025	573026	573030	573032							
		0	0	0	0	0	0							
		0.2	0.2	0.2	0.2	0.2	0.2							
		01/09/00	01/09/00	01/09/00	01/09/00	01/10/00	01/10/00							
		SA	SA	SA	SA	SA	SA							
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE							
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1							
		Maximum	Frequency of	Type of	Criteria	Number of	Number of	Number of						
		Detect	Detection	Criteria (1)	Value	Exceedences	Detections	Samples	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Di-n-octylphthalate	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Dibenz(a,h)anthracene	UG/KG	24	14.7%			0	5	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Dibenzofuran	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Diethyl phthalate	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Dimethylphthalate	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Fluoranthene	UG/KG	150	58.8%	NYSALC	39887.1	0	20	34	11 J	92 UJ	6.1 J	92 UJ	90 UJ	81 UJ
Fluorene	UG/KG	8.1	2.9%	NYSALC	312.84	0	1	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Hexachlorobenzene	UG/KG	0	0.0%	NYSHHB	5.86575	0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Hexachlorobutadiene	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Hexachlorocyclopentadiene	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Hexachloroethane	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	NYSHHB	50.8365	0	9	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Isophorone	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
N-Nitrosodiphenylamine	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
N-Nitrosodipropylamine	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Naphthalene	UG/KG	0	0.0%	NYSALC	1173.15	0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Nitrobenzene	UG/KG	0	0.0%			0	0	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Pentachlorophenol	UG/KG	0	0.0%	NYSALC	1564.2	0	0	34	240 UJ	230 UJ	230 UJ	230 UJ	230 UJ	200 UJ
Phenanthrene	UG/KG	110	47.1%	NYSALC	4692.6	0	16	34	6.3 J	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Phenol	UG/KG	24	8.8%	NYSALC	19.5525	1	3	34	94 UJ	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Pyrene	UG/KG	230	58.8%	NYSALC	37579.905	0	20	34	10 J	92 UJ	6 J	92 UJ	90 UJ	81 UJ
Explosives														
1,3,5-Trinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%			0	0	34	120 U	120 U	120 U	120 U	120 U	120 U
Pesticides/PCBs														
4,4'-DDD	UG/KG	0	0.0%	NYSHHB	0.39105	0	0	34	4.7 U	4.6 UJ	4.6 UJ	4.6 UJ	4.5 U	4.1 U
4,4'-DDE	UG/KG	0	0.0%	NYSHHB	0.39105	0	0	34	4.7 U	4.6 UJ	4.6 UJ	4.6 UJ	4.5 U	4.1 U

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
									SD57-27 SEDIMENT 573023 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-28 SEDIMENT 573024 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-29 SEDIMENT 573025 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-30 SEDIMENT 573026 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	SD57-10 SEDIMENT 573030 0 0.2 01/10/00 SA RI PHASE 1 STEP 1	SD57-9 SEDIMENT 573032 0 0.2 01/10/00 SA RI PHASE 1 STEP 1	
Lead	MG/KG	35	100.0%	NYSLEL	31	3	34	34	24.1 J	17.4 J	25.3 J	21.6 J	22.1 J	8.3 J	
Magnesium	MG/KG	5920	100.0%			0	34	34	3140	3360	4210	3650	4780	3210	
Manganese	MG/KG	2580	100.0%	NYSLEL	460	14	34	34	619 J	346 J	872 J	426 J	1620 J	253 J	
Mercury	MG/KG	0.15	52.9%	NYSLEL	0.15	0	18	34	0.07 U	0.07 U	0.07 U	0.06 U	0.07 J	0.06 U	
Nickel	MG/KG	41.8	100.0%	NYSLEL	16	34	34	34	16.2	17.2	21.6	21	31.7	19.5	
Potassium	MG/KG	2350	100.0%			0	34	34	1170 J	1030 J	1150 J	1150	1500	901 J	
Selenium	MG/KG	1.9	64.7%			0	22	34	0.62 U	0.54 J	0.59 U	1.4	1.2	0.59 U	
Silver	MG/KG	0.63	38.2%	NYSLEL	1	0	13	34	0.37 J	0.28 J	0.51 J	0.28 UJ	0.31 J	0.31 UJ	
Sodium	MG/KG	183	26.5%			0	9	34	72 J	61.3 U	68 U	62.1 U	56.9 U	71.3 J	
Thallium	MG/KG	4.4	91.2%			0	31	34	1.8 J	1 J	0.75 U	1.2 J	2.7	1.2 J	
Vanadium	MG/KG	37.4	97.1%			0	33	34	29.3	28.1	30.1	27.5	33.1	20	
Zinc	MG/KG	487	100.0%	NYSLEL	120	4	34	34	50.9	47.2	70.8	59	64.2	41.2	
Conventional Analyses															
Cation exchange capacity	MEQ/100G	31.4	100.0%			0	32	32	15.5	13.5	12	11.5	10.8	11.4	
Nitrate/Nitrite Nitrogen	MG/KG	3.1	97.1%			0	33	34	0.44	0.07	0.25	0.33	0.15	0.04	
Percent Solids	% WW	80.9	100.0%			0	34	34	69.7	72	71.4	72.2	72.6	80.9	
Soil pH (std. units)	pH units	7.83	100.0%			0	33	33	6.86	6.25	6.79	6.5	7	6.72	
Total Organic Carbon	MG/KG	70500	100.0%			0	32	32	28000	15000	22000	19200	23400	16400	

(1) NYSALC = NYS Benthic Aquatic Life Chronic Toxicity Criteria
 NYSHHB = NYS Human Health Bioaccumulation Criteria
 NYSLEL = NYS Lowest Effect Level
 NYSWB = NYS Wildlife Bioaccumulation Criteria

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									SD57-19 SEDIMENT 573033 0 0.2 01/10/00 SA	SD57-20 SEDIMENT 573034 0 0.2 01/10/00 SA	SD57-1 SEDIMENT 573035 0 0.2 01/11/00 SA	SD57-25 SEDIMENT 573036 0 0.2 01/11/00 SA
									RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
									Value (Q)	Value (Q)	Value (Q)	Value (Q)
2,4,5-Trichlorophenol	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2,4-Dichlorophenol	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2,4-Dimethylphenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2,4-Dinitrophenol	UG/KG	0	0.0%			0	0	34	260 UR	230 UJ	280 UJ	220 UJ
2,4-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2,6-Dinitrotoluene	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2-Chloronaphthalene	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2-Chlorophenol	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2-Methylnaphthalene	UG/KG	0	0.0%	NYSALC	1329.57	0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2-Methylphenol	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
2-Nitroaniline	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
2-Nitrophenol	UG/KG	0	0.0%	NYSALC	19.5525	0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
3-Nitroaniline	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
4-Chloro-3-methylphenol	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
4-Chloroaniline	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
4-Methylphenol	UG/KG	13	5.9%	NYSALC	19.5525	0	2	34	100 UJ	6.3 J	110 UJ	88 UJ
4-Nitroaniline	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
4-Nitrophenol	UG/KG	0	0.0%			0	0	34	260 UJ	230 UJ	280 UJ	220 UJ
Acenaphthene	UG/KG	0	0.0%	NYSALC	5474.7	0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Acenaphthylene	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Anthracene	UG/KG	8.2	8.8%	NYSALC	4184.235	0	3	34	100 UJ	93 UJ	110 UJ	88 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	NYSHHB	50.8365	2	16	34	14 J	10 J	7.2 J	4.7 J
Benzo(a)pyrene	UG/KG	76	41.2%	NYSHHB	50.8365	4	14	34	25 J	13 J	8.9 J	5.9 J
Benzo(b)fluoranthene	UG/KG	67	41.2%	NYSHHB	50.8365	2	14	34	18 J	14 J	9.3 J	5.4 J
Benzo(ghi)perylene	UG/KG	54	26.5%			0	9	34	14 J	7.8 J	110 UJ	88 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	NYSHHB	50.8365	0	14	34	20 J	13 J	9.2 J	6.7 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	NYSALC	7801.4475	0	7	34	100 UJ	13 J	110 UJ	88 UJ
Butylbenzylphthalate	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Carbazole	UG/KG	0	0.0%			0	0	34	100 UJ	93 UJ	110 UJ	88 UJ
Chrysene	UG/KG	110	55.9%	NYSHHB	50.8365	4	19	34	28 J	19 J	9.5 J	7.2 J
Di-n-butylphthalate	UG/KG	76	61.8%			0	21	34	18 J	13 J	6.5 J	4.7 J

**Table F-9a
DRAINAGE DITCH SAMPLE RESULTS vs SEDIMENT CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57		SEAD-57		SEAD-57		SEAD-57					
		SD57-19	SD57-20	SD57-1	SD57-25	SD57-1	SD57-25	SD57-1	SD57-25				
		SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT				
		573033	573034	573035	573036	573033	573034	573035	573036				
		0	0	0	0	0	0	0	0				
		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				
		01/10/00	01/10/00	01/11/00	01/11/00	01/11/00	01/11/00	01/11/00	01/11/00				
		SA	SA	SA	SA	SA	SA	SA	SA				
		RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE				
		1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1				
		Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)				
4,4'-DDT	UG/KG	2.9	2.9%	NYSHHB	0.39105	1	1	34	5.2 U	4.6 U	5.7 U	4.4 U	
Aldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Alpha-BHC	UG/KG	1.4	2.9%			0	1	34	2.6 U	2.4 U	2.9 U	2.3 U	
Alpha-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Aroclor-1016	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Aroclor-1221	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	100 U	94 U	120 U	89 U	
Aroclor-1232	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Aroclor-1242	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Aroclor-1248	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Aroclor-1254	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Aroclor-1260	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	52 U	46 U	57 U	44 U	
Beta-BHC	UG/KG	4.5	2.9%			0	1	34	2.6 U	2.4 U	2.9 U	2.3 U	
Delta-BHC	UG/KG	0	0.0%			0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Dieldrin	UG/KG	0	0.0%	NYSHHB	3.9105	0	0	34	5.2 U	4.6 U	5.7 U	4.4 U	
Endosulfan I	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Endosulfan II	UG/KG	0	0.0%	NYSALC	1.17315	0	0	34	5.2 U	4.6 U	5.7 U	4.4 U	
Endosulfan sulfate	UG/KG	0	0.0%			0	0	34	5.2 U	4.6 U	5.7 U	4.4 U	
Endrin	UG/KG	0	0.0%	NYSWB	31.284	0	0	34	5.2 U	4.6 U	5.7 U	4.4 U	
Endrin aldehyde	UG/KG	3.8	2.9%			0	1	34	5.2 U	4.6 U	5.7 U	4.4 U	
Endrin ketone	UG/KG	4	2.9%			0	1	34	5.2 U	4.6 U	5.7 U	4.4 U	
Gamma-BHC/Lindane	UG/KG	0	0.0%			0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Gamma-Chlordane	UG/KG	0	0.0%	NYSHHB	0.039105	0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Heptachlor	UG/KG	1.6	2.9%	NYSHHB	0.031284	1	1	34	2.6 U	2.4 U	2.9 U	2.3 U	
Heptachlor epoxide	UG/KG	0	0.0%	NYSHHB	0.031284	0	0	34	2.6 U	2.4 U	2.9 U	2.3 U	
Methoxychlor	UG/KG	0	0.0%			0	0	34	26 U	24 U	29 U	23 U	
Toxaphene	UG/KG	0	0.0%			0	0	34	260 U	240 U	290 U	230 U	
Metals and Cyanide													
Aluminum	MG/KG	19800	100.0%			0		34	34	17800 J	16300 J	16200	14400
Antimony	MG/KG	2.2	58.8%	NYSLEL	2	1	20	34	1.1 J	0.75 J	0.68 U	0.56 U	
Arsenic	MG/KG	17.8	100.0%	NYSLEL	6	8	34	34	5.6	4.7	4.4	8.5	
Barium	MG/KG	237	100.0%			0		34	34	169	149	162	121
Beryllium	MG/KG	1.8	100.0%			0		34	34	1 J	0.96 J	0.95 J	0.96 J
Cadmium	MG/KG	28.6	55.9%	NYSLEL	0.6	7	19	34	0.16 J	0.17 J	0.63 J	0.05 U	
Calcium	MG/KG	14600	100.0%			0		34	34	3670	3620	6110	14600
Chromium	MG/KG	27	100.0%	NYSLEL	26	1	34	34	25.2 J	24.4 J	22.8	18.7	
Cobalt	MG/KG	29.7	100.0%			0		34	34	12	10.7 J	9.5 J	8.6 J
Copper	MG/KG	44.4	70.6%	NYSLEL	16	22	24	34	29.6	26.7	33.7	23.5	
Cyanide	MG/KG	0	0.0%			0	0	34	0.61 U	0.68 U	0.83 U	0.61 U	
Iron	MG/KG	37200	100.0%	NYSLEL	20000	32	34	34	32200 J	29900 J	24600	23900	

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SD57-11	SD57-10	SD57-16	SD57-13	SD57-24
								SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
								573008	573031	573000	573001	573002
								0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2
								01/05/00	01/10/00	01/04/00	01/04/00	01/04/00
								DU	DU	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	110 J	110	300 J	210 J	220 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	14 U	11 U	3 J	2 J	2 J
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	14	12	36 J	20 J	19 J
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	14 U	11 U	13 U	13 U	13 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	2 J	6 J	10 J	8 J	7 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	97 U	94 UJ	90 U	91 U	89 U
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	97 U	94 UJ	90 U	5.1 J	89 U
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	11 J	5.5 J	50 J	43 J	89 U
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	97 U	94 UJ	66 J	59 J	89 U
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	13 J	94 UJ	59 J	43 J	89 U
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	97 U	94 UJ	43 J	35 J	89 U
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	12 J	94 UJ	41 J	43 J	89 U
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	97 UJ	94 UJ	90 U	14 J	89 U
Chrysene	UG/KG	110	55.9%	400	0	19	34	12 J	6.6 J	80 J	72 J	89 U
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	97 U	28 J	4.9 J	8.4 J	4.9 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	97 U	94 UJ	17 J	17 J	89 U
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	97 U	94 UJ	100	73 J	5 J
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	97 U	94 UJ	90 U	91 U	89 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	97 U	94 UJ	34 J	28 J	89 U
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	97 U	94 UJ	52 J	42 J	89 U
Phenol	UG/KG	24	8.8%	30	0	3	34	97 U	94 UJ	90 U	91 U	89 U
Pyrene	UG/KG	230	58.8%	50000	0	20	34	97 UJ	94 UJ	130	100	5.7 J
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.8 U	4.7 U	4.5 U	4.6 U	4.4 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.5 U	2.4 U	2.3 U	2.4 U	2.3 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.5 U	2.4 U	2.3 U	2.4 U	2.3 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	4.8 U	4.7 U	4.5 U	4.6 U	4.4 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	4.8 U	4.7 U	4.5 U	4.6 U	4.4 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.5 U	2.4 U	2.3 U	2.4 U	2.3 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	16500	12900 J	16200	17700	16000
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	0.63 UR	0.99 J	0.7 J	0.54 UR	0.36 J
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	4.7	4.6	7	5.9	5
Barium	MG/KG	237	100.0%	300	0	34	34	237	209	119	217	107
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	0.98 J	0.81 J	1.2 J	1.8	0.87 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	13.5 J	3.3	0.42 J	0.22 J	0.19 U
Calcium	MG/KG	14600	100.0%	121000	0	34	34	3860	2590	4440	10800	5330
Chromium	MG/KG	27	100.0%	29.6	0	34	34	22.9	19.5 J	24.1	26	23.5

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-57 SD57-14 SEDIMENT 573003 0 0.2 01/05/00 SA	SEAD-57 SD57-17 SEDIMENT 573004 0 0.2 01/05/00 SA	SEAD-57 SD57-18 SEDIMENT 573005 0 0.2 01/05/00 SA	SEAD-57 SD57-26 SEDIMENT 573006 0 0.2 01/05/00 SA	SEAD-57 SD57-11 SEDIMENT 573007 0 0.2 01/05/00 SA
								RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	220 J	100 J	260 J	330 J	100 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	2 J	12 U	17 U	2 J	15 U
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	25 J	13	26 J	49 J	13 J
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	13 U	12 U	17 U	16 U	15 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	3 J	4 J	8 J	6 J	5 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	97 U	90 U	92 U	95 U	91 U
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	6.9 J	90 U	8.2 J	95 U	91 U
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	52 J	8.5 J	62 J	18 J	91 U
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	52 J	12 J	76 J	22 J	91 U
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	36 J	9.5 J	67 J	22 J	91 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	30 J	10 J	54 J	15 J	91 U
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	39 J	11 J	50 J	17 J	91 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	97 U	90 U	92 U	7.9 J	14 J
Chrysene	UG/KG	110	55.9%	400	0	19	34	78 J	17 J	110	26 J	91 U
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	9.3 J	6.5 J	6.7 J	95 U	6.7 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	14 J	5 J	24 J	95 U	91 U
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	100	20 J	150	40 J	91 U
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	97 U	90 U	8.1 J	95 U	91 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	25 J	10 J	37 J	16 J	91 U
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	81 J	9.3 J	110	16 J	91 U
Phenol	UG/KG	24	8.8%	30	0	3	34	97 U	90 U	92 U	95 U	91 U
Pyrene	UG/KG	230	58.8%	50000	0	20	34	140	22 J	230	32 J	91 UJ
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.8 U	4.5 U	2.9 J	4.8 U	4.6 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	1.4 J	2.3 U	2.4 U	2.5 U	2.3 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	4.5 J	2.3 U	2.4 U	2.5 U	2.3 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	4.8 U	4.5 U	3.8 J	4.8 U	4.6 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	4.8 U	4.5 U	4 J	4.8 U	4.6 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	1.6 J	2.3 U	2.4 U	2.5 U	2.3 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	17000	14100	16800	12400	15100
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	0.86 J	0.96 J	0.61 UR	0.75 J	0.46 UR
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	5.7	4.8	4.1	17.8	4.8
Barium	MG/KG	237	100.0%	300	0	34	34	131	93.6	139	85.6	158
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	1.1	0.67 J	1 J	0.73 J	0.94 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.17 U	0.17 U	2 J	0.19 U	28.6 J
Calcium	MG/KG	14600	100.0%	1210000	0	34	34	7090	5830	3890	7610	3580
Chromium	MG/KG	27	100.0%	29.6	0	34	34	24.4	22.4	25.5	17.7	21

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SD57-8	SD57-7	SD57-4	SD57-3	SD57-2
								SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
								573009	573010	573011	573012	573013
								0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2
								01/06/00	01/06/00	01/06/00	01/07/00	01/07/00
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	98 J	110 J	120 J	160 J	140 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	11 U	11 U	13 U	12 U	12 U
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	12	8 J	14	20	14
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	11 U	11 U	13 U	12 U	12 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	3 J	8 J	8 J	3 J	2 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	83 U	84 U	13 J	87 U	86 U
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	83 U	84 U	91 U	87 U	86 U
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	83 U	84 U	91 U	87 U	86 U
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	83 U	84 U	91 U	87 U	86 U
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	83 UJ	84 UJ	91 UJ	87 U	86 U
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	83 U	84 U	91 U	87 UJ	86 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	83 UJ	84 U	91 U	87 UJ	86 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	83 UJ	84 U	91 U	87 U	86 U
Chrysene	UG/KG	110	55.9%	400	0	19	34	83 U	84 U	91 U	87 U	86 U
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	9.8 J	84 U	91 U	87 U	86 U
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	83 U	84 U	91 U	87 U	86 U
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	83 U	84 U	91 U	87 U	86 U
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	83 U	84 U	91 U	87 U	86 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	83 U	84 UJ	91 UJ	87 U	86 U
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	83 U	84 U	91 U	87 U	86 U
Phenol	UG/KG	24	8.8%	30	0	3	34	83 U	84 U	17 J	87 U	86 U
Pyrene	UG/KG	230	58.8%	50000	0	20	34	83 UJ	84 U	91 U	87 U	86 U
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.1 U	4.2 U	4.6 U	4.3 U	4.3 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.1 U	2.2 U	2.3 U	2.2 U	2.2 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.1 U	2.2 U	2.3 U	2.2 U	2.2 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	4.1 U	4.2 U	4.6 U	4.3 U	4.3 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	4.1 U	4.2 U	4.6 U	4.3 U	4.3 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.1 U	2.2 U	2.3 U	2.2 U	2.2 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	14600	19800 J	15800 J	17100 J	14800 J
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	0.65 J	0.51 U	0.52 U	0.53 U	0.95 J
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	4.6	6.1	6	5.5	7.2
Barium	MG/KG	237	100.0%	300	0	34	34	135	143	165	154	129
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	0.87 J	0.89 J	0.77 J	0.84 J	0.84 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.39 J	0.05 U	2.8	0.21 J	0.41 J
Calcium	MG/KG	14600	100.0%	121000	0	34	34	3070	3050	3410	3020	2880
Chromium	MG/KG	27	100.0%	29.6	0	34	34	19	25.2	22.3	21.4	21.7

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-57 SD57-21 SEDIMENT 573014 0 0.2 01/07/00 SA	SEAD-57 SD57-22 SEDIMENT 573015 0 0.2 01/07/00 SA	SEAD-57 SD57-5 SEDIMENT 573016 0 0.2 01/07/00 SA	SEAD-57 SD57-15 SEDIMENT 573017 0 0.2 01/08/00 SA	SEAD-57 SD57-12 SEDIMENT 573018 0 0.2 01/08/00 SA
								RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	150 J	180 J	180 J	130 J	120 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	12 U	12 U	13 U	11 U	11 U
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	18	22	20	12	12
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	12 U	12 U	13 U	11 U	11 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	3 J	3 J	2 J	5 J	8 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	89 U	87 U	94 U	84 UJ	82 UJ
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	89 U	87 U	94 U	84 UJ	82 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	7.5 J	8.4 J	94 U	17 J	82 UJ
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	14 J	12 J	94 U	18 J	82 UJ
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	10 J	12 J	94 U	13 J	82 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	89 UJ	87 UJ	94 UJ	28 J	82 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	10 J	7.8 J	94 UJ	14 J	82 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	89 U	87 U	94 U	84 UJ	10 J
Chrysene	UG/KG	110	55.9%	400	0	19	34	14 J	14 J	94 U	22 J	82 UJ
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	89 U	87 U	94 U	84 UJ	5.2 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	89 U	87 U	94 U	84 UJ	82 UJ
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	18 J	16 J	94 U	28 J	82 UJ
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	89 U	87 U	94 U	84 UJ	82 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	89 U	87 U	94 U	12 J	82 UJ
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	11 J	10 J	94 U	12 J	82 UJ
Phenol	UG/KG	24	8.8%	30	0	3	34	18 J	24 J	94 U	84 UJ	82 UJ
Pyrene	UG/KG	230	58.8%	50000	0	20	34	21 J	20 J	94 U	36 J	82 UJ
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.4 U	4.3 U	4.7 U	4.2 U	4.1 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.3 U	2.2 U	2.4 U	2.2 U	2.1 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.3 U	2.2 U	2.4 U	2.2 U	2.1 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	4.4 U	4.3 U	4.7 U	4.2 U	4.1 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	4.4 U	4.3 U	4.7 U	4.2 U	4.1 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.3 U	2.2 U	2.4 U	2.2 U	2.1 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	15900 J	15700 J	16400 J	14800 J	16700 J
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	0.55 U	0.56 U	0.57 U	0.5 UJ	0.54 J
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	5.1	5.7	5	6.3	3.3
Barium	MG/KG	237	100.0%	300	0	34	34	108	122	135	104	139
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	0.76 J	0.83 J	0.85 J	1 J	0.93 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.4 J	0.42 J	0.12 J	0.05 U	0.04 U
Calcium	MG/KG	14500	100.0%	1210000	0	34	34	31100	2830	3540	3770	3040
Chromium	MG/KG	27	100.0%	29.6	0	34	34	21.5	20.8	20.2	27 J	23.3 J

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
								SD57-23	SD57-6	SD57-31	SD57-32	SD57-27
								SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
								573019	573020	573021	573022	573023
								0	0	0	0	0
								0.2	0.2	0.2	0.2	0.2
								01/08/00	01/08/00	01/08/00	01/08/00	01/09/00
								SA	SA	SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	230 J	700 J	250 J	360 J	200 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	14 U	23 U	12 U	16 U	15 U
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	24	64	19	31	22
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	14 U	23 U	12 U	16 U	15 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	16	7 J	5 J	9 J	6 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	98 UJ	120 UJ	100 UJ	5.5 J	94 UJ
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	98 UJ	120 UJ	100 UJ	100 UJ	5.8 J
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	5.7 J	120 UJ	38 J	100 UJ	94 UJ
Chrysene	UG/KG	110	55.9%	400	0	19	34	98 UJ	9.2 J	5.3 J	7 J	6.5 J
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	7.6 J	9.2 J	100 UJ	76 J	6.8 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	6 J	15 J	9.3 J	12 J	11 J
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	98 UJ	7.6 J	100 UJ	6.9 J	6.3 J
Phenol	UG/KG	24	8.8%	30	0	3	34	98 UJ	120 UJ	100 UJ	100 UJ	94 UJ
Pyrene	UG/KG	230	58.8%	50000	0	20	34	5.2 J	15 J	8.9 J	11 J	10 J
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.9 U	6.2 U	5.1 U	5.1 U	4.7 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.5 U	3.2 U	2.6 U	2.6 U	2.4 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.5 U	3.2 U	2.6 U	2.6 U	2.4 U
Endrin aldehyde	UG/KG	3.8	2.9%	0	0	1	34	4.9 U	6.2 U	5.1 U	5.1 U	4.7 U
Endrin ketone	UG/KG	4	2.9%	0	0	1	34	4.9 U	6.2 U	5.1 U	5.1 U	4.7 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.5 U	3.2 U	2.6 U	2.6 U	2.4 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	13100 J	14500 J	16000 J	13400 J	13800 J
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	1.1 J	2.2 J	0.94 J	0.49 UJ	0.56 J
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	4.6	6.3	5.3	3.5	5.5
Barium	MG/KG	237	100.0%	300	0	34	34	87.8	132	105	92.3	96.2
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	0.82 J	0.99 J	1.1 J	0.75 J	0.96 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.05 U	0.16 J	0.05 U	0.04 U	0.05 U
Calcium	MG/KG	14600	100.0%	121000	0	34	34	4140	7380	3130	3440	2740
Chromium	MG/KG	27	100.0%	29.6	0	34	34	19.2 J	21.3 J	20 J	16.2 J	17.2 J

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

SEAD-57 SD57-28 SEDIMENT 573024	SEAD-57 SD57-29 SEDIMENT 573025	SEAD-57 SD57-30 SEDIMENT 573026	SEAD-57 SD57-10 SEDIMENT 573030	SEAD-57 SD57-9 SEDIMENT 573032
0	0	0	0	0
0.2	0.2	0.2	0.2	0.2
01/09/00	01/09/00	01/09/00	01/10/00	01/10/00
SA	SA	SA	SA	SA

Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds												
Acetone	UG/KG	700	100.0%	200	13	34	34	250 J	260 J	240 J	130 J	80
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	12 U	13 U	13 U	2 J	10 U
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	19	25	30	13	9 J
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	12 U	13 U	13 U	1 J	1 J
Toluene	UG/KG	16	100.0%	1500	0	34	34	5 J	6 J	6 J	6 J	7 J
Semivolatile Organic Compounds												
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Chrysene	UG/KG	110	55.9%	400	0	19	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	92 UJ	7.6 J	92 UJ	7 J	20 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	92 UJ	6.1 J	92 UJ	90 UJ	81 UJ
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Phenol	UG/KG	24	8.8%	30	0	3	34	92 UJ	93 UJ	92 UJ	90 UJ	81 UJ
Pyrene	UG/KG	230	58.8%	50000	0	20	34	92 UJ	6 J	92 UJ	90 UJ	81 UJ
Pesticides and PCBs												
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	4.6 UJ	4.6 UJ	4.6 UJ	4.5 U	4.1 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.4 UJ	2.4 UJ	2.4 UJ	2.3 U	2.1 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.4 UJ	2.4 UJ	2.4 UJ	2.3 U	2.1 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	4.6 UJ	4.6 UJ	4.6 UJ	4.5 U	4.1 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	4.6 UJ	4.6 UJ	4.6 UJ	4.5 U	4.1 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.4 UJ	2.4 UJ	2.4 UJ	2.3 U	2.1 U
Metals												
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	14300 J	16100 J	14700 J	17100 J	9990 J
Antimony	MG/KG	2.2	56.8%	5.9	0	20	34	0.49 J	0.76 J	0.5 J	0.76 J	0.52 J
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	4.7	4.3	4.1	6.7	3.3
Barium	MG/KG	237	100.0%	300	0	34	34	74.5	118	85.7	162	88.5
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	0.74 J	1 J	0.82 J	1.3	0.59 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.04 U	0.05 U	0.04 U	0.46 J	0.9 J
Calcium	MG/KG	14600	100.0%	121000	0	34	34	1580	3180	2050	2800	2540
Chromium	MG/KG	27	100.0%	29.6	0	34	34	18.8 J	19.7 J	18.8 J	24.2 J	14.2 J

**Table F-9b
DRAINAGE DITCH SAMPLE RESULTS vs SOIL CRITERIA
SEAD-57**

**SEAD 46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

								SEAD-57 SD57-19 SEDIMENT 573033 0 0.2 01/10/00 SA	SEAD-57 SD57-20 SEDIMENT 573034 0 0.2 01/10/00 SA	SEAD-57 SD57-1 SEDIMENT 573035 0 0.2 01/11/00 SA	SEAD-57 SD57-25 SEDIMENT 573036 0 0.2 01/11/00 SA
Parameter	Units	Maximum Detected	Frequency of Detection	Criteria Level(1)	Number Exceeding Criteria	Number of Times Detected	Number of Analyses	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)
Volatile Organic Compounds											
Acetone	UG/KG	700	100.0%	200	13	34	34	83	84	170 J	100 J
Carbon disulfide	UG/KG	3	20.6%	2700	0	7	34	11 U	11 U	17 U	2 J
Methyl ethyl ketone	UG/KG	64	100.0%	300	0	34	34	10 J	7 J	15 J	13
Methylene chloride	UG/KG	1	5.9%	100	0	2	34	11 U	11 U	17 U	12 U
Toluene	UG/KG	16	100.0%	1500	0	34	34	6 J	2 J	13 J	9 J
Semivolatile Organic Compounds											
4-Methylphenol	UG/KG	13	5.9%	900	0	2	34	100 UJ	6.3 J	110 UJ	88 UJ
Anthracene	UG/KG	8.2	8.8%	50000	0	3	34	100 UJ	93 UJ	110 UJ	88 UJ
Benzo(a)anthracene	UG/KG	62	47.1%	224	0	16	34	14 J	10 J	7.2 J	4.7 J
Benzo(a)pyrene	UG/KG	76	41.2%	61	2	14	34	25 J	13 J	8.9 J	5.9 J
Benzo(b)fluoranthene	UG/KG	67	41.2%	1100	0	14	34	18 J	14 J	9.3 J	5.4 J
Benzo(ghi)perylene	UG/KG	54	26.5%	50000	0	9	34	14 J	7.8 J	110 UJ	88 UJ
Benzo(k)fluoranthene	UG/KG	50	41.2%	1100	0	14	34	20 J	13 J	9.2 J	6.7 J
Bis(2-Ethylhexyl)phthalate	UG/KG	38	20.6%	50000	0	7	34	100 UJ	13 J	110 UJ	88 UJ
Chrysene	UG/KG	110	55.9%	400	0	19	34	28 J	19 J	9.5 J	7.2 J
Di-n-butylphthalate	UG/KG	76	61.8%	8100	0	21	34	18 J	13 J	6.5 J	4.7 J
Dibenz(a,h)anthracene	UG/KG	24	14.7%	14	3	5	34	100 UJ	93 UJ	110 UJ	88 UJ
Fluoranthene	UG/KG	150	58.8%	50000	0	20	34	35 J	25 J	15 J	9 J
Fluorene	UG/KG	8.1	2.9%	50000	0	1	34	100 UJ	93 UJ	110 UJ	88 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	37	26.5%	3200	0	9	34	11 J	6.3 J	110 UJ	88 UJ
Phenanthrene	UG/KG	110	47.1%	50000	0	16	34	23 J	17 J	8.7 J	4.8 J
Phenol	UG/KG	24	8.8%	30	0	3	34	100 UJ	93 UJ	110 UJ	88 UJ
Pyrene	UG/KG	230	58.8%	50000	0	20	34	48 J	30 J	12 J	8.1 J
Pesticides and PCBs											
4,4'-DDT	UG/KG	2.9	2.9%	2900	0	1	34	5.2 U	4.6 U	5.7 U	4.4 U
Alpha-BHC	UG/KG	1.4	2.9%	110	0	1	34	2.6 U	2.4 U	2.9 U	2.3 U
Beta-BHC	UG/KG	4.5	2.9%	200	0	1	34	2.6 U	2.4 U	2.9 U	2.3 U
Endrin aldehyde	UG/KG	3.8	2.9%		0	1	34	5.2 U	4.6 U	5.7 U	4.4 U
Endrin ketone	UG/KG	4	2.9%		0	1	34	5.2 U	4.6 U	5.7 U	4.4 U
Heptachlor	UG/KG	1.6	2.9%	100	0	1	34	2.6 U	2.4 U	2.9 U	2.3 U
Metals											
Aluminum	MG/KG	19800	100.0%	19300	1	34	34	17800 J	16300 J	16200	14400
Antimony	MG/KG	2.2	58.8%	5.9	0	20	34	1.1 J	0.75 J	0.68 U	0.56 U
Arsenic	MG/KG	17.8	100.0%	8.2	2	34	34	5.6	4.7	4.4	8.5
Barium	MG/KG	237	100.0%	300	0	34	34	163	149	162	121
Beryllium	MG/KG	1.8	100.0%	1.1	3	34	34	1 J	0.96 J	0.95 J	0.96 J
Cadmium	MG/KG	28.6	55.9%	2.3	4	19	34	0.16 J	0.17 J	0.63 J	0.05 U
Calcium	MG/KG	14600	100.0%	121000	0	34	34	3670	3620	6110	14600
Chromium	MG/KG	27	100.0%	29.6	0	34	34	25.2 J	24.4 J	22.8	18.7

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-1	MW57-1	MW57-1	MW57-1	MW57-1	MW57-2
								GROUND	GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
								WATER	WATER	WATER	WATER	WATER	WATER	WATER
								MW57-1	122029	122227	572002	572100		
								3.1	7	7	7	7	7	4.1
								5.2	7	7	7	7	7	6.1
								02/03/94	04/23/99	12/02/99	01/23/00	04/26/00	02/03/94	
								SA	SA	SA	SA	SA	SA	SA
								ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI
								0	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
									1	2	1	2		
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organics														
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,1,1-Trichloroethane	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%			0	0	19	10 U			0.5 U	0.5 UR	10 U
1,1,2-Trichloroethane	UG/L	0	0.0%	GA	1	0	0	19	10 U			0.5 U	10 U	10 U
1,1-Dichloroethane	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
1,1-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
1,1-Dichloropropene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,2,3-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,2,3-Trichloropropane	UG/L	0	0.0%	GA	0.04	0	0	16				0.5 U	0.5 U	
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,2,4-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%	GA	0.04	0	0	16				0.5 U	0.5 U	
1,2-Dibromoethane	UG/L	0	0.0%	GA	0.0006	0	0	16				0.5 U	0.5 U	
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16				0.5 U	0.5 U	
1,2-Dichloroethane	UG/L	0	0.0%	GA	0.6	0	0	19	10 U			0.5 U	0.5 U	10 U
1,2-Dichloroethene (total)	UG/L	0	0.0%	MCL	70	0	0	3	10 U					10 U
1,2-Dichloropropane	UG/L	0	0.0%	GA	1	0	0	19	10 U			0.5 U	0.5 U	10 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16				0.5 U	0.5 U	
1,3-Dichloropropane	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16				0.5 U	0.5 U	
2,2-Dichloropropane	UG/L	0	0.0%			0	0	16				0.5 U	0.5 U	
2-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
2-Nitropropane	UG/L	0	0.0%			0	0	16				25 U	25 UJ	
Acetone	UG/L	0	0.0%			0	0	19	10 U			5 U	5 U	10 U
Acrylonitrile	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Allyl chloride	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Benzene	UG/L	0	0.0%	GA	1	0	0	19	10 U			0.5 U	0.5 U	10 U
Bromobenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Bromochloromethane	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Bromodichloromethane	UG/L	0	0.0%	MCL	80	0	0	19	10 U			0.5 U	0.5 U	10 U
Bromoform	UG/L	0	0.0%	MCL	80	0	0	19	10 U			0.5 U	0.5 U	10 U
Butyl chloride	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Carbon disulfide	UG/L	0	0.0%			0	0	19	10 U			0.5 U	0.5 U	10 U
Carbon tetrachloride	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-1	MW57-1	MW57-1	MW57-1	MW57-1	MW57-2
									GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
									WATER	WATER	WATER	WATER	WATER	WATER
									MW57-1	122029	122227	572002	572100	MW57-2
									3.1	7	7	7	7	4.1
									5.2	7	7	7	7	6.1
									02/03/94	04/23/99	12/02/99	01/23/00	04/26/00	02/03/94
									SA	SA	SA	SA	SA	SA
									ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI
									0	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
										1	2	1	2	
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrahydrofuran	UG/L	0	0.0%		5	0	0	16				2.5 U	2.5 U	
Toluene	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
Total Xylenes	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
Trans-1,2-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Trans-1,3-Dichloropropene	UG/L	0	0.0%	GA	0.4	0	0	19	10 U			0.5 U	0.5 U	10 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0.0%			0	0	16				0.5 U	0.5 U	
Trichloroethene	UG/L	0	0.0%	GA	5	0	0	19	10 U			0.5 U	0.5 U	10 U
Trichlorofluoromethane	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Vinyl chloride	UG/L	0	0.0%	GA	2	0	0	19	10 U			0.5 U	0.5 U	10 U
n-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
p-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
p-Isopropyltoluene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
sec-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
tert-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16				0.5 U	0.5 U	
Semivolatile Organics														
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	19	10 U			1 U	1.1 U	10 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	10 U			1 U	1.1 U	10 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	10 U			1 U	1.1 U	10 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	10 U			1 U	1.1 U	10 U
2,2'-oxybis(1-Chloropropane)	UG/L	0	0.0%			0	0	3	10 U					10 U
2,4,5-Trichlorophenol	UG/L	0	0.0%			0	0	19	25 U			2.5 U	2.8 U	25 U
2,4,6-Trichlorophenol	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2,4-Dichlorophenol	UG/L	0	0.0%	GA	5	0	0	19	10 U			1 U	1.1 U	10 U
2,4-Dimethylphenol	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2,4-Dinitrophenol	UG/L	0	0.0%			0	0	19	25 U			2.5 UJ	2.8 U	25 U
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	19	10 U			1 U	1.1 U	10 U
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	19	10 U			1 U	1.1 U	10 U
2-Chloronaphthalene	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2-Chlorophenol	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2-Methylnaphthalene	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2-Methylphenol	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
2-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	25 U			2.5 U	2.8 U	25 U
2-Nitrophenol	UG/L	0	0.0%			0	0	19	10 U			1 U	1.1 U	10 U
3,3'-Dichlorobenzidine	UG/L	0	0.0%	GA	5	0	0	19	10 U			1 UJ	1.1 UR	10 U
3-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	25 U			2.5 U	2.8 UJ	25 U
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%			0	0	19	25 U			2.5 U	2.8 U	25 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-1	MW57-1	MW57-1	MW57-1	MW57-1	MW57-2
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
								3.1	7	7	7	7	7	4.1
								5.2	7	7	7	7	7	6.1
								02/03/94	04/23/99	12/02/99	01/23/00	04/26/00	02/03/94	
								SA	SA	SA	SA	SA	SA	SA
								ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI
								0	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
									1	2	1	2		
									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
N-Nitrosodiphenylamine	UG/L	0	0.0%			0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
N-Nitrosodipropylamine	UG/L	0	0.0%			0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Naphthalene	UG/L	0	0.0%			0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Nitrobenzene	UG/L	0	0.0%	GA	0.4	0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Pentachlorophenol	UG/L	0	0.0%	GA	1	0	0	19	25 U		2.5 U	2.8 U	2.8 U	25 U
Phenanthrene	UG/L	0	0.0%			0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Phenol	UG/L	0	0.0%	GA	1	0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Pyrene	UG/L	0	0.0%			0	0	19	10 U		1 U	1.1 U	1.1 U	10 U
Explosives														
1,3,5-Trinitrobenzene	UG/L	0	0.0%	GA	5	0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
1,3-Dinitrobenzene	UG/L	0	0.0%	GA	5	0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
2,4,6-Trinitrotoluene	UG/L	0	0.0%	GA	5	0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
2-Nitrotoluene	UG/L	0	0.0%	GA	5	0	0	16	0.25 U		0.25 U	0.25 U	0.25 U	0.13 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%			0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
3-Nitrotoluene	UG/L	0	0.0%	GA	5	0	0	16	0.25 U		0.25 U	0.25 U	0.25 U	0.13 U
4-Nitrotoluene	UG/L	0	0.0%	GA	5	0	0	16	0.25 U		0.25 U	0.25 U	0.25 U	0.13 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%			0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
HMX	UG/L	0	0.0%			0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
Nitrobenzene	UG/L	0	0.0%	GA	0.4	0	0	16	0.25 U		0.25 U	0.25 U	0.25 U	0.13 U
RDX	UG/L	0	0.0%			0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
Tetryl	UG/L	0	0.0%			0	0	20	0.13 U		0.25 U	0.25 U	0.25 U	0.13 U
Pesticides/PCBs														
4,4'-DDD	UG/L	0	0.0%	GA	0.3	0	0	19	0.11 U		0.01 U	0.012 U	0.012 U	0.11 U
4,4'-DDE	UG/L	0	0.0%	GA	0.2	0	0	19	0.11 U		0.01 U	0.012 U	0.012 U	0.11 U
4,4'-DDT	UG/L	0	0.0%	GA	0.2	0	0	19	0.11 U		0.01 U	0.012 U	0.012 U	0.11 U
Aldrin	UG/L	0	0.0%	GA	0	0	0	19	0.054 U		0.0052 U	0.0058 U	0.0058 U	0.054 U
Alpha-BHC	UG/L	0	0.0%	GA	0.01	0	0	19	0.054 U		0.0052 U	0.0058 U	0.0058 U	0.054 U
Alpha-Chlordane	UG/L	0	0.0%			0	0	19	0.054 U		0.0052 U	0.0058 U	0.0058 U	0.054 U
Aroclor-1016	UG/L	0	0.0%	GA	0.09	0	0	19	1.1 U		0.1 U	0.12 U	0.12 U	1.1 U
Aroclor-1221	UG/L	0	0.0%	GA	0.09	0	0	19	2.2 U		0.21 U	0.23 U	0.23 U	2.2 U
Aroclor-1232	UG/L	0	0.0%	GA	0.09	0	0	19	1.1 U		0.1 U	0.12 U	0.12 U	1.1 U
Aroclor-1242	UG/L	0	0.0%	GA	0.09	0	0	19	1.1 U		0.1 U	0.12 U	0.12 U	1.1 U
Aroclor-1248	UG/L	0	0.0%	GA	0.09	0	0	19	1.1 U		0.1 U	0.12 U	0.12 U	1.1 U
Aroclor-1254	UG/L	0	0.0%	GA	0.09	0	0	19	1.1 U		0.1 U	0.12 U	0.12 U	1.1 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
									MW57-1 GROUND WATER MW57-1 3.1 5.2 02/03/94 SA	MW57-1 GROUND WATER 122029 7 7 04/23/99 SA	MW57-1 GROUND WATER 122227 7 7 12/02/99 SA	MW57-1 GROUND WATER 572002 7 7 01/23/00 SA	MW57-1 GROUND WATER 572100 7 7 04/26/00 SA	MW57-2 GROUND WATER MW57-2 4.1 6.1 02/03/94 SA	
									ESI	RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	
									0	1	2	1	2		
									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Chromium	UG/L	14.5	61.9%	GA	50	0	13	21	7.7 J	1.3 J	0.9 U	1.3 J	2.2 U	14.5	
Cobalt	UG/L	14.8	4.8%			0	1	21	4.4 U	1.5 U	2 U	1.3 U	3 U	14.8 J	
Copper	UG/L	19.5	47.6%	GA	200	0	10	21	3.1 U	2.3 J	3.2 J	3.7 J	19.5 J	5.2 J	
Cyanide	UG/L	0	0.0%			0	0	21	5 U	5 U	10 UJ	10 U	10 U	5 U	
Iron	UG/L	9260	90.5%	GA	300	12	19	21	6360	446 J	392	399 J	84.5 J	9260	
Lead	UG/L	2.2	14.3%	MCL	15	0	3	21	2.1 J	0.9 U	1 U	1.3 U	2.3 U	2.2 J	
Magnesium	UG/L	36900	100.0%			0	21	21	11400	6330 J	8140	7980	8410	36900	
Manganese	UG/L	327	90.5%	SEC	50	6	19	21	245	5 J	5.1 J	11 J	23.2	327	
Mercury	UG/L	0	0.0%	GA	0.7	0	0	21	0.04 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.04 U	
Nickel	UG/L	18.8	28.6%	GA	100	0	6	21	8.2 J	2 J	1.7 U	1.9 J	2.9 U	18.8 J	
Potassium	UG/L	4600	100.0%			0	21	21	3860 J	567 J	629 J	481 J	551 J	4600 J	
Selenium	UG/L	2.4	9.5%	GA	10	0	2	21	0.69 U	1.8 U	2.4 U	2.5 U	4 U	2.2 J	
Silver	UG/L	3.1	14.3%	GA	50	0	3	21	4.2 U	0.9 U	1.9 UJ	1.3 U	1.9 U	4.2 U	
Sodium	UG/L	26100	100.0%	GA	20000	2	21	21	4080 J	5730 J	7750	7000 J	7570	8920	
Thallium	UG/L	6.7	19.0%	MCL	2	4	4	21	1.2 U	1.9 U	5.2 J	3.2	3.9 U	1.2 U	
Vanadium	UG/L	9.2	23.8%			0	5	21	7.6 J	1.6 U	1.5 U	1.8 U	2.9 U	9.2 J	
Zinc	UG/L	85.1	95.2%	MCL	5000	0	20	21	57.4	4.5 J	7.1 J	22	2.8 J	85.1	
Conventional Analyses															
COD	MG/L	16	40.0%			0	6	15				5 U	12		
Nitrate/Nitrite Nitrogen	MG/L	0.49	93.8%	GA	10000	0	15	16				0.06	0.01 U		
Total Dissolved Solids	MG/L	1030	100.0%			0	15	15				233	234		
Total Hardness-CaCO3	MG/L	790	100.0%			0	15	15				180	210		

(1) GA = NYSDEC Ambient Water Quality Standards for a source of Drinking Water from Groundwater (TOGS 1.1.1)
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 822-B-00-001)

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-2	MW57-2	MW57-2	MW57-2	MW57-3	MW57-3
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
								572006	572000	572108	572101	MW57-4	MW57-3	
								8	8	8	8	4.1	4.1	
								8	8	8	8	6.1	6.1	
								01/23/00	01/23/00	04/27/00	04/27/00	02/03/94	02/03/94	
								DU	SA	DU	SA	DU	SA	
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	ESI	ESI	
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1			
								1	1	2	2			
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Chloracetone	UG/L	0	0.0%			0	0	16	25 U	25 U	25 U	25 U		
Chlorobenzene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Chlorodibromomethane	UG/L	0	0.0%	MCL	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Chloroethane	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Chloroform	UG/L	0	0.0%	GA	7	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Cis-1,2-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Cis-1,3-Dichloropropene	UG/L	0	0.0%	GA	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Dichlorodifluoromethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Dichloromethyl methyl ketone	UG/L	0	0.0%			0	0	16	25 U	25 U	25 UR	25 UR		
Ethyl benzene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Ethyl ether	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Ethyl methacrylate	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Hexachlorobutadiene	UG/L	0	0.0%	GA	0.5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Hexachloroethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Isopropylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Meta/Para Xylene	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methacrylonitrile	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methyl 2-propenoate	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methyl Tertbutyl Ether	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methyl bromide	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Methyl butyl ketone	UG/L	0	0.0%			0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	10 U	
Methyl chloride	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Methyl ethyl ketone	UG/L	0	0.0%			0	0	19	5 U	5 U	5 U	5 U	10 U	
Methyl iodide	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methyl isobutyl ketone	UG/L	0	0.0%			0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	10 U	
Methyl methacrylate	UG/L	0	0.0%	GA	50	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methylene bromide	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Methylene chloride	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Naphthalene	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Nitrobenzene	UG/L	0	0.0%	GA	0.4	0	0	16	25 UJ	25 UJ	25 U	25 U		
Ortho Xylene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Pentachloroethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 UJ	0.5 UJ	2 UR	2 UR		
Propionitrile	UG/L	0	0.0%			0	0	16	25 U	25 U	25 U	25 U		
Propylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U		
Styrene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	
Tetrachloroethene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	10 U	

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-2	MW57-2	MW57-2	MW57-2	MW57-3	MW57-3
									GROUND WATER 572006	GROUND WATER 572000	GROUND WATER 572108	GROUND WATER 572101	GROUND WATER MW57-4	GROUND WATER MW57-3
								8	8	8	8	8	4.1	4.1
								8	8	8	8	8	6.1	6.1
								01/23/00	01/23/00	04/27/00	04/27/00	02/03/94	02/03/94	
								DU	SA	DU	SA	DU	SA	
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1		ESI	ESI
								1	1	2	2			
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4-Bromophenyl phenyl ether	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
4-Chloro-3-methylphenol	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 UR	1 U	10 U
4-Chloroaniline	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 UJ	1 UJ	1 UJ	10 U
4-Chlorophenyl phenyl ether	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
4-Methylphenol	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 UR	1 U	10 U
4-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	2.6 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.5 UJ	25 U
4-Nitrophenol	UG/L	0	0.0%			0	0	19	2.6 U	2.5 UR	2.6 UJ	2.5 UR	2.5 U	25 U
Acenaphthene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Acenaphthylene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Anthracene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Benzo(a)anthracene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Benzo(a)pyrene	UG/L	0	0.0%	GA	0	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Benzo(b)fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Benzo(ghi)perylene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Benzo(k)fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Bis(2-Chloroethoxy)methane	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 UJ	1 U	1 U	10 U
Bis(2-Chloroethyl)ether	UG/L	0	0.0%	GA	1	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0.0%	GA	5	0	0	16	1 U	1 UJ	1 U	1 U	1 U	10 U
Bis(2-Ethylhexyl)phthalate	UG/L	20	5.3%	GA	5	1	1	19	1 U	1 UJ	1 U	1 U	1 U	20
Butylbenzylphthalate	UG/L	0.077	5.3%			0	1	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Carbazole	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 UJ	1 UJ	1 UJ	10 U
Chrysene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Di-n-butylphthalate	UG/L	0	0.0%	GA	50	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Di-n-octylphthalate	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Dibenz(a,h)anthracene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Dibenzofuran	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Diethyl phthalate	UG/L	1.9	5.3%			0	1	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Dimethylphthalate	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Fluorene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Hexachlorobutadiene	UG/L	0	0.0%	GA	0.5	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Hexachlorocyclopentadiene	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Hexachloroethane	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U
Isophorone	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 U	1 U	10 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-2	MW57-2	MW57-2	MW57-2	MW57-3	MW57-3
									GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
								572006	572000	572108	572101	MW57-4	MW57-3	
								8	8	8	8	4.1	4.1	
								8	8	8	8	6.1	6.1	
								01/23/00	01/23/00	04/27/00	04/27/00	02/03/94	02/03/94	
								DU	SA	DU	SA	DU	SA	
								RI PHASE	RI PHASE	RI PHASE	RI PHASE			
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	ESI	ESI	
								1	1	2	2			
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Aroclor-1260	UG/L	0	0.0%	GA	0.09	0	0	19	0.1 U	0.1 U	0.12 U	0.11 U	1.2 U	
Beta-BHC	UG/L	0	0.0%	GA	0.04	0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Delta-BHC	UG/L	0	0.0%	GA	0.04	0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Dieldrin	UG/L	0	0.0%	GA	0.004	0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Endosulfan I	UG/L	0	0.0%			0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Endosulfan II	UG/L	0	0.0%			0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Endosulfan sulfate	UG/L	0	0.0%			0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Endrin	UG/L	0	0.0%	GA	0	0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Endrin aldehyde	UG/L	0	0.0%	GA	5	0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Endrin ketone	UG/L	0	0.0%	GA	5	0	0	19	0.01 U	0.01 U	0.012 U	0.011 U	0.12 U	
Gamma-BHC/Lindane	UG/L	0	0.0%	GA	0.05	0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Gamma-Chlordane	UG/L	0	0.0%			0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Heptachlor	UG/L	0	0.0%	GA	0.04	0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Heptachlor epoxide	UG/L	0	0.0%	GA	0.03	0	0	19	0.0052 U	0.0051 U	0.0059 U	0.0056 U	0.059 U	
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	16	0.01 U	0.01 U	0.012 U	0.011 U		
Methoxychlor	UG/L	0	0.0%	GA	35	0	0	19	0.052 U	0.051 U	0.059 U	0.056 U	0.59 U	
Toxaphene	UG/L	0	0.0%	GA	0.06	0	0	19	0.52 U	0.51 U	0.59 U	0.56 U	5.9 U	
Herbicides														
2,4,5-T	UG/L	0	0.0%	GA	35	0	0	3					0.11 U	
2,4,5-TP/Silvex	UG/L	0	0.0%	GA	0.26	0	0	3					0.11 U	
2,4-D	UG/L	0	0.0%	GA	50	0	0	3					1.1 U	
2,4-DB	UG/L	0	0.0%			0	0	3					1.1 U	
Dalapon	UG/L	0	0.0%	GA	50	0	0	3					2.5 U	
Dicamba	UG/L	0	0.0%	GA	0.44	0	0	3					0.11 U	
Dichloroprop	UG/L	0	0.0%			0	0	3					1.1 U	
Dinoseb	UG/L	0	0.0%	GA	1	0	0	3					0.53 U	
MCPA	UG/L	0	0.0%	GA	0.44	0	0	3					110 U	
MCPP	UG/L	0	0.0%			0	0	3					110 U	
Metals and Cyanide														
Aluminum	UG/L	6540	100.0%	MCL	50	18	21	21	51.4 J	43.9 J	25.1 J	18.4 J	482	
Antimony	UG/L	44.7	14.3%	GA	3	2	3	21	5.4 U	5.4 U	4.6 U	4.6 U	35.7 J	
Arsenic	UG/L	4.1	9.5%	MCL	5	0	2	21	2.4 U	2.4 U	2.5 U	2.5 U	1.4 U	
Barium	UG/L	129	100.0%	GA	1000	0	21	21	20.3 J	22 J	23.6 J	23.4 J	65.5 J	
Beryllium	UG/L	0.63	4.8%	MCL	4	0	1	21	0.6 U	0.6 U	0.3 U	0.3 U	0.4 U	
Cadmium	UG/L	3.1	9.5%	GA	5	0	2	21	0.8 U	0.8 U	0.3 U	0.3 U	2.1 U	
Calcium	UG/L	297000	100.0%			0	21	21	227000	233000	297000 J	297000 J	97900	

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-3 GROUND WATER 572001 8 8 01/23/00 SA RI PHASE 1 STEP 1 1	MW57-3 GROUND WATER 572102 8 8 04/27/00 SA RI PHASE 1 STEP 1 2	MW57-4 GROUND WATER 572007 11 11 01/25/00 SA RI PHASE 1 STEP 1 1	MW57-4 GROUND WATER 572103 11 11 04/26/00 SA RI PHASE 1 STEP 1 2	MW57-5 GROUND WATER 572005 22 22 01/24/00 SA RI PHASE 1 STEP 1 1	MW57-5 GROUND WATER 572104 22 22 04/26/00 SA RI PHASE 1 STEP 1 2
Volatile Organics														
1,1,1,2-Tetrachloroethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0.0%					19	0.5 U	0.5 UR	0.5 U	0.5 UR	0.5 U	0.5 UR
1,1,2-Trichloroethane	UG/L	0	0.0%	GA	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0.0%	GA	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0.0%	GA	0.04	0	0	16	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0.0%	GA	0.0006	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0.0%	GA	0.6	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	UG/L	0	0.0%	MCL	70	0	0	3						
1,2-Dichloropropane	UG/L	0	0.0%	GA	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0.0%					16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0.0%					16	25 U	25 UJ	25 U	25 UJ	25 U	25 UJ
Acetone	UG/L	0	0.0%					19	5 U	5 U	5 UJ	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0.0%	GA	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0.0%	MCL	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0.0%	MCL	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0.0%					19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
									MW57-3	MW57-3	MW57-4	MW57-4	MW57-5	MW57-5	
									GROUND	GROUND	GROUND	GROUND	GROUND	GROUND	
									WATER	WATER	WATER	WATER	WATER	WATER	
									572001	572102	572007	572103	572005	572104	
									8	8	11	11	22	22	
									8	8	11	11	22	22	
									01/23/00	04/27/00	01/25/00	04/26/00	01/24/00	04/26/00	
									SA	SA	SA	SA	SA	SA	
									RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	RI PHASE	
									1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
									1	2	1	2	1	2	
									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Tetrahydrofuran	UG/L	0	0.0%			0	0	16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
Toluene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Total Xylenes	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,2-Dichloroethene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,3-Dichloropropene	UG/L	0	0.0%	GA	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,4-Dichloro-2-butene	UG/L	0	0.0%			0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trichloroethene	UG/L	0	0.0%	GA	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trichlorofluoromethane	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Vinyl chloride	UG/L	0	0.0%	GA	2	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
n-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
p-Chlorotoluene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
p-Isopropyltoluene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
sec-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
tert-Butylbenzene	UG/L	0	0.0%	GA	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Semivolatile Organics															
1,2,4-Trichlorobenzene	UG/L	0	0.0%	GA	5	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
1,2-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
1,3-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
1,4-Dichlorobenzene	UG/L	0	0.0%	GA	3	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2,2'-oxybis(1-Chloropropane)	UG/L	0	0.0%			0	0	3							
2,4,5-Trichlorophenol	UG/L	0	0.0%			0	0	19	2.6 U	2.9 U	2.6 U	2.9 U	2.6 U	2.7 U	
2,4,6-Trichlorophenol	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2,4-Dichlorophenol	UG/L	0	0.0%	GA	5	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2,4-Dimethylphenol	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2,4-Dinitrophenol	UG/L	0	0.0%			0	0	19	2.6 UJ	2.9 U	2.6 UJ	2.9 U	2.6 UJ	2.7 UJ	
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2-Chloronaphthalene	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2-Chlorophenol	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2-Methylnaphthalene	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2-Methylphenol	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
2-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	2.6 U	2.9 U	2.6 U	2.9 U	2.6 U	2.7 U	
2-Nitrophenol	UG/L	0	0.0%			0	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
3,3'-Dichlorobenzidine	UG/L	0	0.0%	GA	5	0	0	19	1 U	1.2 UR	1 U	1.2 UR	1 UJ	1.1 UR	
3-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	2.6 UJ	2.9 UJ	2.6 U	2.9 UJ	2.6 U	2.7 UJ	
4,6-Dinitro-2-methylphenol	UG/L	0	0.0%			0	0	19	2.6 U	2.9 U	2.6 U	2.9 U	2.6 U	2.7 U	

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-3	MW57-3	MW57-4	MW57-4	MW57-5	MW57-5
									GROUND WATER 572001	GROUND WATER 572102	GROUND WATER 572007	GROUND WATER 572103	GROUND WATER 572005	GROUND WATER 572104
								8	8	11	11	22	22	
								8	8	11	11	22	22	
								01/23/00	04/27/00	01/25/00	04/26/00	01/24/00	04/26/00	
								SA	SA	SA	SA	SA	SA	
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
								1	2	1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
N-Nitrosodiphenylamine	UG/L	0	0.0%			0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
N-Nitrosodipropylamine	UG/L	0	0.0%			0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Naphthalene	UG/L	0	0.0%			0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Nitrobenzene	UG/L	0	0.0%	GA	0.4	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Pentachlorophenol	UG/L	0	0.0%	GA	1	0	19	2.6 U	2.9 U	2.6 U	2.9 U	2.6 U	2.7 U	
Phenanthrene	UG/L	0	0.0%			0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Phenol	UG/L	0	0.0%	GA	1	0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Pyrene	UG/L	0	0.0%			0	19	1 U	1.2 U	1 U	1.2 U	1 U	1.1 U	
Explosives														
1,3,5-Trinitrobenzene	UG/L	0	0.0%	GA	5	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
1,3-Dinitrobenzene	UG/L	0	0.0%	GA	5	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4,6-Trinitrotoluene	UG/L	0	0.0%	GA	5	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,6-Dinitrotoluene	UG/L	0	0.0%	GA	5	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-Nitrotoluene	UG/L	0	0.0%	GA	5	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-amino-4,6-Dinitrotoluene	UG/L	0	0.0%			0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
3-Nitrotoluene	UG/L	0	0.0%	GA	5	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-Nitrotoluene	UG/L	0	0.0%	GA	5	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-amino-2,6-Dinitrotoluene	UG/L	0	0.0%			0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
HMX	UG/L	0	0.0%			0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Nitrobenzene	UG/L	0	0.0%	GA	0.4	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
RDX	UG/L	0	0.0%			0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Tetryl	UG/L	0	0.0%			0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Pesticides/PCBs														
4,4'-DDD	UG/L	0	0.0%	GA	0.3	0	19	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	
4,4'-DDE	UG/L	0	0.0%	GA	0.2	0	19	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	
4,4'-DDT	UG/L	0	0.0%	GA	0.2	0	19	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	
Aldrin	UG/L	0	0.0%	GA	0	0	19	0.0056 U	0.0053 U	0.005 U	0.0057 U	0.0052 U	0.0052 U	
Alpha-BHC	UG/L	0	0.0%	GA	0.01	0	19	0.0056 U	0.0053 U	0.005 U	0.0057 U	0.0052 U	0.0052 U	
Alpha-Chlordane	UG/L	0	0.0%			0	19	0.0056 U	0.0053 U	0.005 U	0.0057 U	0.0052 U	0.0052 U	
Aroclor-1016	UG/L	0	0.0%	GA	0.09	0	19	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	
Aroclor-1221	UG/L	0	0.0%	GA	0.09	0	19	0.22 U	0.21 U	0.2 U	0.23 U	0.21 U	0.21 U	
Aroclor-1232	UG/L	0	0.0%	GA	0.09	0	19	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	
Aroclor-1242	UG/L	0	0.0%	GA	0.09	0	19	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	
Aroclor-1248	UG/L	0	0.0%	GA	0.09	0	19	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	
Aroclor-1254	UG/L	0	0.0%	GA	0.09	0	19	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	
									MW57-3 GROUND WATER 572001 8 8 01/23/00 SA RI PHASE 1 STEP 1 1	MW57-3 GROUND WATER 572102 8 8 04/27/00 SA RI PHASE 1 STEP 1 2	MW57-4 GROUND WATER 572007 11 11 01/25/00 SA RI PHASE 1 STEP 1 1	MW57-4 GROUND WATER 572103 11 11 04/26/00 SA RI PHASE 1 STEP 1 2	MW57-5 GROUND WATER 572005 22 22 01/24/00 SA RI PHASE 1 STEP 1 1	MW57-5 GROUND WATER 572104 22 22 04/26/00 SA RI PHASE 1 STEP 1 2	
Chromium	UG/L	14.5	61.9%	GA	50	0	13	21	1.4 J	5.3 J	1.8 J	2.2 U	2.9 J	2.2 U	
Cobalt	UG/L	14.8	4.8%			0	1	21	3.5 U	3 U	3.5 U	3 U	1.3 U	3 U	
Copper	UG/L	19.5	47.6%	GA	200	0	10	21	1.6 U	2.1 U	1.6 U	5.7 J	7.2 J	2.1 U	
Cyanide	UG/L	0	0.0%			0	0	21	10 U	10 U	10 U	10 U	10 U	10 U	
Iron	UG/L	9260	90.5%	GA	300	12	19	21	29.5 J	355 J	408 J	87.4 J	2030 J	412 J	
Lead	UG/L	2.2	14.3%	MCL	15	0	3	21	1 U	2.3 U	1 U	2.3 U	1.3 U	2.3 U	
Magnesium	UG/L	36900	100.0%			0	21	21	17400	30000	28500	17100	20000	19100	
Manganese	UG/L	327	90.5%	SEC	50	6	19	21	1.1 J	20.6	64.1	2.5 J	61.4	43.8	
Mercury	UG/L	0	0.0%	GA	0.7	0	0	21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Nickel	UG/L	18.8	28.6%	GA	100	0	6	21	4.2 U	4.3 J	4.2 U	2.9 U	6.2 J	2.9 U	
Potassium	UG/L	4600	100.0%			0	21	21	1030 J	2940 J	3870 J	1130 J	3770 J	3020 J	
Selenium	UG/L	2.4	9.5%	GA	10	0	2	21	2.2 U	4 U	2.4 J	4 U	2.5 U	4 UJ	
Silver	UG/L	3.1	14.3%	GA	50	0	3	21	1 U	1.9 U	1 U	1.9 U	1.3 U	1.9 U	
Sodium	UG/L	26100	100.0%	GA	20000	2	21	21	6730	9620	9100	5060	20100 J	26100	
Thallium	UG/L	6.7	19.0%	MCL	2	4	4	21	3.6 U	3.9 U	6.7 J	3.9 U	3.2 U	3.9 UJ	
Vanadium	UG/L	9.2	23.8%			0	5	21	2.8 U	2.9 U	2.8 U	2.9 U	5.2 J	2.9 U	
Zinc	UG/L	85.1	95.2%	MCL	5000	0	20	21	7.4 J	3.5 J	3.4 J	6.7 J	8.2 J	10.6 J	
Conventional Analyses															
COD	MG/L	16	40.0%			0	6	15	5 U	8	6	5 U	5 U	6	
Nitrate/Nitrite Nitrogen	MG/L	0.49	93.8%	GA	10000	0	15	16	0.03	0.09	0.1	0.13	0.02	0.03	
Total Dissolved Solids	MG/L	1030	100.0%			0	15	15	297	416	435	291	372	334	
Total Hardness-CaCO3	MG/L	790	100.0%			0	15	15	260	380	325	320	315	280	

(1) GA = NYSDEC Ambient Water Quality Standards for a source of Drinking Water from Groundwater (TOGS 1.1.1)
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 822-B-00-001)

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-6	MW57-6	MW57-7	MW57-7
								GROUND	GROUND	GROUND	GROUND	
								WATER	WATER	WATER	WATER	
								572004	572105	572003	572106	
								12.04	12	12	12	
								12.04	12	12	12	
								01/24/00	04/27/00	01/24/00	04/28/00	
								SA	SA	SA	SA	
								RI PHASE	RI PHASE	RI PHASE	RI PHASE	
								1 STEP 1	1 STEP 1	1 STEP 1	1 STEP 1	
								1	2	1	2	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	
4-Bromophenyl phenyl ether	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 U	1 UJ
4-Chlorophenyl phenyl ether	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0.0%	GA	5	0	0	19	2.5 UJ	2.6 UJ	2.6 UJ	2.5 UJ
4-Nitrophenol	UG/L	0	0.0%			0	0	19	2.5 U	2.6 UJ	2.6 U	2.5 U
Acenaphthene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Benzo(a)pyrene	UG/L	0	0.0%	GA	0	0	0	19	1 U	1 U	1 U	1 U
Benzo(b)fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Benzo(ghi)perylene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 UJ	1 U	1 U
Bis(2-Chloroethyl)ether	UG/L	0	0.0%	GA	1	0	0	19	1 U	1 U	1 U	1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0.0%	GA	5	0	0	16	1 U	1 U	1 U	1 U
Bis(2-Ethylhexyl)phthalate	UG/L	20	5.3%	GA	5	1	1	19	1 U	1 U	1 U	1 U
Butylbenzylphthalate	UG/L	0.077	5.3%			0	1	19	1 U	1 U	0.077 J	1 U
Carbazole	UG/L	0	0.0%			0	0	19	1 U	1 UJ	1 U	1 UJ
Chrysene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Di-n-butylphthalate	UG/L	0	0.0%	GA	50	0	0	19	1 U	1 U	1 U	1 U
Di-n-octylphthalate	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Dibenzofuran	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Diethyl phthalate	UG/L	1.9	5.3%			0	1	19	1 U	1 U	1 U	1 U
Dimethylphthalate	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Fluoranthene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Fluorene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	19	1 U	1 U	1 U	1 U
Hexachlorobutadiene	UG/L	0	0.0%	GA	0.5	0	0	19	1 U	1 U	1 U	1 U
Hexachlorocyclopentadiene	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 U	1 U	1 U
Hexachloroethane	UG/L	0	0.0%	GA	5	0	0	19	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U
Isophorone	UG/L	0	0.0%			0	0	19	1 U	1 U	1 U	1 U

**Table F-10
GROUND WATER SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Type of Criteria (1)	Criteria Value	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57	SEAD-57
									MW57-6	MW57-6	MW57-7	MW57-7
									GROUND WATER 572004 12.04 12.04 01/24/00 SA	GROUND WATER 572105 12 12 04/27/00 SA	GROUND WATER 572003 12 12 01/24/00 SA	GROUND WATER 572106 12 12 04/28/00 SA
RI PHASE 1 STEP 1 1	RI PHASE 1 STEP 1 2	RI PHASE 1 STEP 1 1	RI PHASE 1 STEP 1 2									
Value (Q)	Value (Q)	Value (Q)	Value (Q)									
Aroclor-1260	UG/L	0	0.0%	GA	0.09	0	0	19	0.1 U	0.11 U	0.1 U	0.12 U
Beta-BHC	UG/L	0	0.0%	GA	0.04	0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Delta-BHC	UG/L	0	0.0%	GA	0.04	0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Dieldrin	UG/L	0	0.0%	GA	0.004	0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Endosulfan I	UG/L	0	0.0%			0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Endosulfan II	UG/L	0	0.0%			0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Endosulfan sulfate	UG/L	0	0.0%			0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Endrin	UG/L	0	0.0%	GA	0	0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Endrin aldehyde	UG/L	0	0.0%	GA	5	0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Endrin ketone	UG/L	0	0.0%	GA	5	0	0	19	0.01 U	0.011 U	0.01 U	0.012 U
Gamma-BHC/Lindane	UG/L	0	0.0%	GA	0.05	0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Gamma-Chlordane	UG/L	0	0.0%			0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Heptachlor	UG/L	0	0.0%	GA	0.04	0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Heptachlor epoxide	UG/L	0	0.0%	GA	0.03	0	0	19	0.005 U	0.0054 U	0.005 U	0.006 U
Hexachlorobenzene	UG/L	0	0.0%	GA	0.04	0	0	16	0.01 U	0.011 U	0.01 U	0.012 U
Methoxychlor	UG/L	0	0.0%	GA	35	0	0	19	0.05 U	0.054 U	0.05 U	0.06 U
Toxaphene	UG/L	0	0.0%	GA	0.06	0	0	19	0.5 U	0.54 U	0.5 U	0.6 U
Herbicides												
2,4,5-T	UG/L	0	0.0%	GA	35	0	0	3				
2,4,5-TP/Silvex	UG/L	0	0.0%	GA	0.26	0	0	3				
2,4-D	UG/L	0	0.0%	GA	50	0	0	3				
2,4-DB	UG/L	0	0.0%			0	0	3				
Dalapon	UG/L	0	0.0%	GA	50	0	0	3				
Dicamba	UG/L	0	0.0%	GA	0.44	0	0	3				
Dichloroprop	UG/L	0	0.0%			0	0	3				
Dinoseb	UG/L	0	0.0%	GA	1	0	0	3				
MCPA	UG/L	0	0.0%	GA	0.44	0	0	3				
MCPP	UG/L	0	0.0%			0	0	3				
Metals and Cyanide												
Aluminum	UG/L	6540	100.0%	MCL	50	18	21	21	1500 J	504 J	250 J	149 J
Antimony	UG/L	44.7	14.3%	GA	3	2	3	21	5.4 U	4.6 U	5.4 U	4.6 U
Arsenic	UG/L	4.1	9.5%	MCL	5	0	2	21	2.4 U	2.9 J	2.4 U	4.1 J
Barium	UG/L	129	100.0%	GA	1000	0	21	21	46.7 J	46.5 J	91.2 J	90.4 J
Beryllium	UG/L	0.63	4.8%	MCL	4	0	1	21	0.6 U	0.3 U	0.6 U	0.3 U
Cadmium	UG/L	3.1	9.5%	GA	5	0	2	21	0.8 U	0.3 U	0.8 U	0.3 U
Calcium	UG/L	297000	100.0%			0	21	21	74800	78100 J	113000	115000 J

**Table F-11
DEBRIS SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57
								BLDG128-1 DEBRIS 573027 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	BLDG128-2 DEBRIS 573028 0 0.2 01/09/00 SA RI PHASE 1 STEP 1	BLDG128-3 DEBRIS 573029 0 0.2 01/09/00 SA RI PHASE 1 STEP 1
								Value (Q)	Value (Q)	Value (Q)
Volatile Organics										
1,1,1-Trichloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,1,2,2-Tetrachloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,1,2-Trichloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
1,1-Dichloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,1-Dichloroethene	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,2-Dichloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,2-Dichloroethene (total)	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
1,2-Dichloropropane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Acetone	UG/KG	250	100.0%		0	3	3	180 J	150 J	250 J
Benzene	UG/KG	31	100.0%		0	3	3	26 J	23 J	31 J
Bromodichloromethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Bromoform	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Carbon disulfide	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Carbon tetrachloride	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Chlorobenzene	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Chlorodibromomethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Chloroethane	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Chloroform	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Cis-1,3-Dichloropropene	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Ethyl benzene	UG/KG	5	100.0%		0	3	3	5 J	4 J	4 J
Methyl bromide	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Methyl butyl ketone	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Methyl chloride	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Methyl ethyl ketone	UG/KG	50	100.0%		0	3	3	47 J	35 J	50 J
Methyl isobutyl ketone	UG/KG	0	0.0%		0	0	3	14 UJ	15 UR	16 UJ
Methylene chloride	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ
Styrene	UG/KG	0	0.0%		0	0	3	14 UJ	15 UJ	16 UJ

**Table F-11
DEBRIS SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	SEAD-57						SEAD-57	SEAD-57	SEAD-57
		Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	BLDG128-1	BLDG128-2	BLDG128-3
							DEBRIS	DEBRIS	DEBRIS	
							573027	573028	573029	
							0	0	0	
							0.2	0.2	0.2	
							01/09/00	01/09/00	01/09/00	
							SA	SA	SA	
							RI PHASE 1	RI PHASE 1	RI PHASE 1	
							STEP 1	STEP 1	STEP 1	
							Value (Q)	Value (Q)	Value (Q)	
4-Chloro-3-methylphenol	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
4-Chloroaniline	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
4-Methylphenol	UG/KG	24	100.0%		0	3	3	12 J	24 J	7.9 J
4-Nitroaniline	UG/KG	0	0.0%		0	0	3	250 UJ	260 UJ	220 UJ
4-Nitrophenol	UG/KG	0	0.0%		0	0	3	250 UR	260 UR	220 UJ
Acenaphthene	UG/KG	58	100.0%		0	3	3	48 J	24 J	58 J
Acenaphthylene	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Anthracene	UG/KG	160	100.0%		0	3	3	71 J	34 J	160 J
Benzo(a)anthracene	UG/KG	490	100.0%		0	3	3	440 J	170 J	490 J
Benzo(a)pyrene	UG/KG	820	100.0%		0	3	3	580 J	160 J	820 J
Benzo(b)fluoranthene	UG/KG	820	100.0%		0	3	3	540 J	200 J	820 J
Benzo(ghi)perylene	UG/KG	430	100.0%		0	3	3	390 J	110 J	430 J
Benzo(k)fluoranthene	UG/KG	760	100.0%		0	3	3	610 J	160 J	760 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	400	100.0%		0	3	3	200 J	400 J	64 J
Butylbenzylphthalate	UG/KG	64	66.7%		0	2	3	44 J	64 J	89 UJ
Carbazole	UG/KG	110	100.0%		0	3	3	61 J	31 J	110 J
Chrysene	UG/KG	620	100.0%		0	3	3	520 J	220 J	620 J
Di-n-butylphthalate	UG/KG	200	100.0%		0	3	3	200 J	27 J	7 J
Di-n-octylphthalate	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Dibenz(a,h)anthracene	UG/KG	200	100.0%		0	3	3	150 J	53 J	200 J
Dibenzofuran	UG/KG	26	100.0%		0	3	3	26 J	16 J	26 J
Diethyl phthalate	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Dimethylphthalate	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	89 UJ
Fluoranthene	UG/KG	770	100.0%		0	3	3	770 J	320 J	700 J

**Table F-11
DEBRIS SAMPLE RESULTS
SEAD-57**

**SEAD-46 and SEAD-57 REMEDIAL INVESTIGATION
Seneca Army Depot Activity - Romulus New York**

Parameter	Units	Maximum Detect	Frequency of Detection	Criteria Value (1)	Number of Exceedences	Number of Detections	Number of Samples	SEAD-57	SEAD-57	SEAD-57
								BLDG128-1	BLDG128-2	BLDG128-3
								DEBRIS	DEBRIS	DEBRIS
								573027	573028	573029
								0	0	0
								0.2	0.2	0.2
								01/09/00	01/09/00	01/09/00
								SA	SA	SA
								RI PHASE 1	RI PHASE 1	RI PHASE 1
								STEP 1	STEP 1	STEP 1
								Value (Q)	Value (Q)	Value (Q)
RDX	UG/KG	0	0.0%		0	0	3	120 U	120 U	120 U
Tetryl	UG/KG	0	0.0%		0	0	3	120 U	120 U	120 U
Pesticides/PCBs										
4,4'-DDD	UG/KG	3.7	33.3%		0	1	3	5 UJ	3.7 J	4.4 UJ
4,4'-DDE	UG/KG	8.3	100.0%		0	3	3	4.7 J	8.3 J	3.2 J
4,4'-DDT	UG/KG	20	100.0%		0	3	3	10 J	19 J	20 J
Aldrin	UG/KG	1.3	33.3%		0	1	3	2.6 UJ	1.3 J	2.3 UJ
Alpha-BHC	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ
Alpha-Chlordane	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ
Aroclor-1016	UG/KG	0	0.0%		0	0	3	50 UJ	52 UJ	44 UJ
Aroclor-1221	UG/KG	0	0.0%		0	0	3	100 UJ	100 UJ	90 UJ
Aroclor-1232	UG/KG	0	0.0%		0	0	3	50 UJ	52 UJ	44 UJ
Aroclor-1242	UG/KG	0	0.0%		0	0	3	50 UJ	52 UJ	44 UJ
Aroclor-1248	UG/KG	0	0.0%		0	0	3	50 UJ	52 UJ	44 UJ
Aroclor-1254	UG/KG	220	100.0%		0	3	3	150 J	220 J	110 J
Aroclor-1260	UG/KG	260	33.3%		0	1	3	50 UJ	260 J	44 UJ
Beta-BHC	UG/KG	1.9	33.3%		0	1	3	2.6 UJ	1.9 J	2.3 UJ
Delta-BHC	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ
Dieldrin	UG/KG	19	100.0%		0	3	3	7.4 J	19 J	6.7 J
Endosulfan I	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ
Endosulfan II	UG/KG	0	0.0%		0	0	3	5 UJ	5.2 UJ	4.4 UJ
Endosulfan sulfate	UG/KG	0	0.0%		0	0	3	5 UJ	5.2 UJ	4.4 UJ
Endrin	UG/KG	0	0.0%		0	0	3	5 UJ	5.2 UJ	4.4 UJ
Endrin aldehyde	UG/KG	23	100.0%		0	3	3	10 J	23 J	11 J
Endrin ketone	UG/KG	4.3	100.0%		0	3	3	2.7 J	3.1 J	4.3 J
Gamma-BHC/Lindane	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ
Gamma-Chlordane	UG/KG	2.7	100.0%		0	3	3	2 J	2.7 J	1.7 J
Heptachlor	UG/KG	0	0.0%		0	0	3	2.6 UJ	2.6 UJ	2.3 UJ